

City of Edmonton
Zoning Bylaw Parking Study
Final Report

Prepared For: City of Edmonton

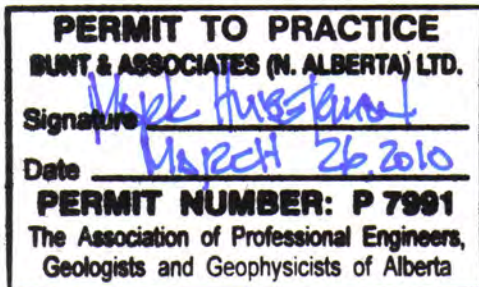
Date: March 26, 2010

Prepared By: Bunt & Associates

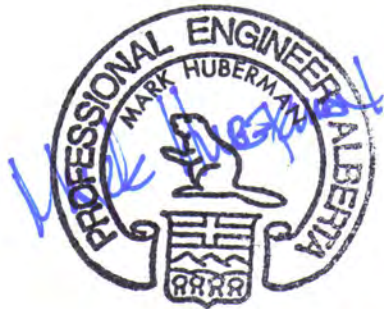
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Acknowledgements

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Preface

The City of Edmonton is striving to create a regulatory framework within which a sustainable environment, focusing on walkable, transit oriented neighbourhoods can be created. Reducing single occupant vehicle travel and introducing modifications to conventional parking policies and practices that encourage and promote walkable transit supportive areas must be considered to achieve this vision.

One of the biggest challenges facing the implementation of smart growth initiatives is identifying new ways to address the need for parking while minimizing its negative impacts. The challenge is to modify current parking policies and practices to enhance over-arching land use planning principles which support walkability and transit use as key elements in the development of a sustainable city.

It is anticipated that the information, research and project findings documented in the Zoning Bylaw Parking Study will be used as one of the primary guides referenced by the City of Edmonton as the City continues to address its future transportation needs in a sustainable fashion.

Report findings are intended to inform and to identify guidelines and strategies that can be incorporated as updates to the current Zoning Bylaw are prepared. These principles and guidelines will allow for the incorporation of more focused strategies, tactics and new parking regulations which more appropriately reflect overarching sustainability goals and policies.

Executive Summary

Problem Statement

The City of Edmonton's "City Vision", provides insight into the type of city Edmonton may become by the year 2040. It portrays a sustainable, liveable and energetic City that promotes innovation, supports the environment and sustains diverse economic, educational and cultural opportunities for all its citizens. It is the framework around which the City's Strategic Plan, the Draft Municipal Development Plan and the Transportation Master Plan were developed. These documents provide the City with guidelines that are intended to help achieve the City's vision of a sustainable, liveable, and innovative urban city. These plans support a more compact urban environment that focuses on public transportation, land use integration and a strong emphasis on facilitating the development of a City that is financially, environmentally and socially sustainable.

One of the greatest challenges facing smart growth initiatives is identifying inventive ways to address parking needs. Parking accommodation continues to consume large amounts of land that could otherwise be developed. Surface and structured parking lots often represent sterile, unattractive environments which isolate land uses and preclude lively pedestrian-friendly activity. Environmental impacts, such as the need to reduce the City's carbon and ecological footprint associated with parking activity and facilities are increasingly being recognized.

Study Purpose and Objectives

The primary purpose of the study was to provide direction into the development of new and appropriate parking bylaw regulations, strategies and programs to assist the City in managing parking resources in a sustainable fashion and to support future updates to the Zoning Bylaw. This includes information on specific parking regulations and parking management operations that reflect, acknowledge and align with current planning and transportation strategic tenets including:

- The City's focus on promoting and developing transit as a primary means of transportation for the movement of people;
- The financial and affordability issues associated with parking development; and,
- The impacts of development characteristics including walkability, transit oriented development and preservation of green space.

The basic study goals were to:

- Provide direction in the development of modified Zoning Bylaw parking regulations; and,
- Identify innovative and effective parking management strategies that when combined with modified parking regulations, will assist the Administration to

assume a stronger role in achieving the vision of a sustainable parking management plan including the goal of higher transit use.

Study findings can be linked and coordinated with on-going initiatives being completed by the Planning and Development and Transportation Departments.

Synopsis of Study Findings

Based on the research and assessment completed, it has been determined that there are opportunities to reduce off-street parking supply requirements in the Zoning Bylaw for selected individual land uses and for groups of land uses. These reductions could be further supported through the implementation of Transportation Demand Management initiatives. The following major findings are highlighted:

- Parking regulations and practices should reflect overarching growth strategies established in the Draft Municipal Development Plan and Transportation Master Plan and should reflect smart growth initiatives, increased transit use policies and the environmental direction being pursued by the City. Combining land use and transportation policies with appropriate parking management methods will assist in promoting sustainable development in the City;
- Based on the completion of parking surveys at multi-tenant commercial sites it was determined that:
 - Off-street parking facilities associated with the surveyed sites were designed to ensure that parking demands during peak periods (e.g. the month of December) were more than adequate to accommodate anticipated parking demands;
 - Observed utilization rates suggest that during non-peak periods, the parking lots are not well utilized and the excessive supply would also be anticipated to exceed seasonal peak period parking demands; and,
 - Current Zoning Bylaw parking regulations are typically being exceeded resulting in a surplus of on-site parking spaces.
- That off-street parking inventories for multi-tenant commercial sites should be based on achieving a level of parking supply that meets typical peak periods of parking activity and should not be based on achieving December peak periods of parking demand.
- Neighbourhoods which are located in close proximity to regular and higher order transit service exhibit lower auto ownership patterns. It has been concluded that on average, the rate of car ownership generally increases with distance from easily accessible transit routes and transit service. This broad finding would suggest that parking requirements in areas of the City which are well served by public transit may not require the same level of parking supply as areas of the City which are not as well served by public transit;

- Although household income and household auto ownership most likely represent the greatest influences on parking demand, there are a number of other demographic variables and parameters which may impact the demand and hence the supply of parking required at development sites and include:
 - Household size;
 - Household ownership (rental versus owned) and building type;
 - Auto accessibility within the originating home zone;
 - Proximity of activities;
 - Cost of parking;
 - Number of employees per household; and,
 - Walk and transit accessibility and availability.
- The benchmarking review indicated that Edmonton's parking requirements generally either fall in line or are at the higher end of the parking regulation spectrum for like establishments in the comparison cities. Further to the above, it is noted that the benchmarking exercise investigated parking regulations from a parking supply perspective and that parking demands exhibited by land use activity in the comparison cities was not examined;
- The existing Zoning Bylaw groups a number of establishments within a single commercial use class category. Parking requirements for these uses are based on the floor area of the establishment. While the generality of parking requirements can be beneficial to the review and approval process, it does not encourage use of more efficient parking management strategies that take advantage of shared use/ synergistic parking programs and on-street parking supplies;
- Through the use of parking management, Zoning Bylaw parking requirements can be modified to more appropriately compliment the land use and development activity that they are intended to support. Parking requirements should be developed to allow flexibility in application and acknowledge variables affecting parking demand including development density, transit availability, auto ownership trends and household income.
- Flexibility in parking standards can expedite the planning process by limiting Zoning Bylaw variances. Some of the circumstances in which flexibility in parking requirements may be appropriate include shared use parking opportunities, locational attributes and developments that incorporate transportation demand management initiatives.
- Locational and demographic attributes represent key variables when considering off-street parking requirements.

- Based on the review of the City's current loading and unloading requirements, there is no compelling reason to modify current requirements at this time. Consideration could be given to identifying establishments where no loading requirement would be required.

Summary of Recommendations

Communities following the policies of smart growth are identifying new ways to address the need for parking while minimizing its negative impacts and encouraging better and different design. Parking consumes a huge amount of land that could otherwise be developed; surface and structured parking lots can present sterile, unattractive environments that isolate uses and preclude pedestrian-friendly streets. Today, parking requirements now drive many site designs and even the financial viability of new developments.

The successful application of smart growth principles is expected to reduce parking demands at both resident origins and destinations.

As presented in **Table ES-1**, the key recommendations in this study are segmented into two broad categories:

- Parking management strategies that could be incorporated into the Zoning Bylaw ; and,
- Parking supply modifications for specific land uses.

It is expected that the recommended strategies will continue to evolve after the conclusion of this project. They will however provide insight and direction into the development of new and modified regulations to better manage on and off street parking.

In addition, the strategies and frameworks could lend support and assist in coordinating parking related initiatives and demonstration projects to address transit overlay zones, pedestrian overlay zones and specific area issues (i.e. Business Revitalization Zone parking issues).

Table ES-1: Summary of Study Recommendations

| Item | Basis for the Recommendation | Recommendation |
|--------------------|--|--|
| Area Based Parking | <ul style="list-style-type: none"> To take advantage of existing transit service, to leverage the reach of the future transit system and to implement parking regulations in combination with City land use policies that support infill and transit oriented developments. | <ul style="list-style-type: none"> Define and establish areas or precincts within which modified (flexible) parking requirements can be incorporated. Transit Overlay Zones or similar regulatory tools should be employed to establish the influence area or precincts within the City where development opportunities could take advantage of reduced parking requirements. The area of significant parking influence within which reduced parking requirements can be incorporated represents an area within 800m of an LRT Node, 400 m of a Transit Centre or 200 m from a Transit Avenue. |
| Parking Maximums | <ul style="list-style-type: none"> Parking maximums represent an enforceable tool to influence (discourage) the over-supply of off-street parking. | <ul style="list-style-type: none"> Incorporate area specific parking maximums to complement parking minimums into the Bylaw. Multi-family developments, employment nodes, multi-tenant commercial sites located within 800m of an LRT Node, 400 m of a Transit Centre or 200 m from a Transit Avenue should be subject to parking maximums. Parking maximums should also be considered for residential development infill areas and large commercial developments that incorporate large surface parking facilities (big box retail formats). Parking maximums should represent flexible parking regulations to accommodate the locational attributes of development activity. At this time it is not recommended that the City develop maximum parking requirements for every use class identified in Schedule 1 of Section 54.2 of the Zoning Bylaw. |
| Shared Parking | <ul style="list-style-type: none"> To take advantage of differing parking demand patterns associated with multi tenant and mixed-use development nodes. | <ul style="list-style-type: none"> Maximize the use of parking facilities by promoting shared use opportunities compatible with surrounding land use development and to provide for variable parking standards that reflect the availability and ease of access to transit. Shared use opportunities should be considered regardless of a development sites location. Shared parking should be considered for both single developments and where opportunities exist between several developments. The Zoning Bylaw should incorporate a shared use framework to identify complementary land uses where shared use parking opportunities exist. |

Table ES-1: Summary of Study Recommendations (continued)

| Item | Basis for the Recommendation | Recommendation |
|----------------------------------|--|--|
| Transportation Demand Management | <ul style="list-style-type: none"> Transportation Demand Management strategies which have the ability to reduce transportation demands also have the ability to reduce parking demands. | <ul style="list-style-type: none"> Revise Zoning Bylaw to acknowledge possible parking reductions associated with the implementation of TDM programs which could include the provision of carpool and carshare spaces and bicycle storage /end of trip facilities. Incorporate TDM strategies directly into the Zoning Bylaw which could include the following parking demand reduction regulations: <ul style="list-style-type: none"> For every certified carpool space, the total parking requirement may be reduced by 3 spaces up to a maximum of 10% of the total parking requirement; For every certified vanpool purchased or leased by the applicant for employee use, the total parking requirement may be reduced by 5 spaces up to a maximum of 15% of the total parking requirement; If transit passes are provided to all employees and if the development is located within 800m of an LRT Node, 400m from a Transit Centre, or 200m from a Transit Avenue, the total parking requirement may be reduced up to 10%; and, For every 4 covered bicycle parking spaces provided, the total parking requirement may be reduced by 1 space up to a maximum of 5% of the total parking requirement. Require new commercial activity centre of significant size or regional importance to complete a TDM Plan for the purpose of evaluating trip reduction and parking reduction opportunities. Take a more active role in influencing parking costs in strategic areas through control of the City's parking supply and consider bonusing for underground or structured parking. Creating incentives for developers to use transit friendly parking plans and programs. |

Table ES-1: Summary of Study Recommendations (continued)

| Item | Basis for the Recommendation | Recommendation |
|--|--|--|
| Single Family Residential Parking Standards | To consider reducing single family residential parking supply regulations. | <ul style="list-style-type: none"> Review single family development parking requirements especially with respect to developments associated with transit oriented development nodes. |
| Multi-family Residential Parking Standards | To consider reducing multi-family residential parking supply regulations and to distinguish between different housing types that may exhibit unique parking characteristics. | <ul style="list-style-type: none"> It is recommended that the parking supply requirements associated with multi-family developments located within 800m of an LRT Node, 400 m of a Transit Centre or 200 m from a Transit Avenue be approximately 25% less than the equivalent multi-family parking supply requirements in all areas of the city other than within the Downtown Area Redevelopment Plan boundaries. Further to the completion of additional surveys and assessments, it is recommended that the following minimum and maximum parking supply rates (exclusive of visitor parking requirements) be considered: <ul style="list-style-type: none"> 0.7 parking spaces per Bachelor Suite and Bed Sitting Room to a maximum of 0.9 spaces per unit, plus 0.80 parking spaces per 1 Bedroom Dwelling to a maximum of 1.0 space per unit, plus 1.0 parking spaces per 2 or-more Bedroom Dwelling to a maximum of 1.3 spaces per unit, plus 1.25 parking spaces per 3 or-more Bedroom Dwelling to a maximum of 1.5 spaces per unit Evaluate and revise as required (based on the completion of a formal survey program) parking demands associated with multi-family developments to reflect auto ownership, household income, building type and tenure (rental or condominium). Establish a clear definition for Seniors Housing and develop a separate parking rate for Seniors Housing, Senior's Independent Living and Designated Assisted Living. Establish parking rates for low income housing (affordable and transitional housing). Encourage unbundling parking spaces. |

Table ES-1: Summary of Study Recommendations (continued)

| Item | Basis for the Recommendation | Recommendation |
|--|--|---|
| Multi-tenant Commercial Parking Standards | <ul style="list-style-type: none"> To investigate the parking requirements associated with different commercial establishments which may have distinctly different parking demands and supply requirements given their locational attributes. | <ul style="list-style-type: none"> It is recommended that parking supply requirements associated with multi-tenant commercial developments located within 800m of an LRT Node, 400 m of a Transit Centre or 200 m from a Transit Avenue be approximately 25% less than the equivalent multi-tenant commercial parking supply requirements in all areas of the city other than within the Downtown Area Redevelopment Plan boundaries. Further to the completion of additional surveys and assessments , it is recommended that the following parking supply rates be considered: <ul style="list-style-type: none"> 2.0 parking spaces for developments of less than 5,000 m2, to a maximum of 2.5 spaces per 100 m2 2.5 parking spaces for developments between 5,000 m2 – 10,000 m2, to a maximum of 3.0 spaces per 100 m2 3.0 parking spaces for developments of greater than 10,000 m2 to a maximum of 3.5 spaces per 100 m2 Encourage use of more efficient parking management strategies that take advantage of shared use/synergistic parking programs and on-street parking supplies. Placing maximum parking restrictions on all multi-tenant commercial sites located in suburban locations is not recommended at this time. However, placing parking maximums (subject to locational attributes) may be more equitable. Typical /average months should be used as the benchmark upon which to provide an appropriate off-street parking complement as opposed providing a parking supply which is based on accommodating December peak periods of parking demand. |
| Other Retail Parking Standards | <ul style="list-style-type: none"> To recognize the differing parking requirements associated with smaller and larger retail formats. | <ul style="list-style-type: none"> Through the completion of supporting surveys, develop separate parking regulations for small retail stores, large grocery stores and large format retail outlets. |

Table ES-1: Summary of Study Recommendations (continued)

| Item | Basis for the Recommendation | Recommendation |
|---|---|--|
| Professional, Financial and Office Support Parking Standards | <ul style="list-style-type: none"> To respond to the incorporation of innovative parking management strategies such as shared parking and Transportation Demand Management programs and to recognize the locational attributes of office developments. | <ul style="list-style-type: none"> It is recommended that parking supply requirements associated with office developments located within 800m of an LRT Node, 400 m of a Transit Centre or 200 m from a Transit Avenue be approximately 25% less than the equivalent office parking supply requirement in all areas of the city other than within the Downtown Area Redevelopment Plan boundaries. Further to the completion of additional surveys and assessments, it is recommended that the following parking supply rates be considered: <ul style="list-style-type: none"> 2.5 spaces per 100 m² of Gross Floor Area, and notwithstanding this minimum, the maximum shall be 3.0 parking spaces per 100 m² of Gross Floor Area. Encourage unbundling parking spaces. |
| Health Services Parking Standards | <ul style="list-style-type: none"> To take advantage of differing parking demand patterns associated with Health Service establishments developed in conjunction with multi-tenant commercial sites and mixed-use development nodes. | <ul style="list-style-type: none"> It is recommended that parking supply requirements associated with health services developments located within 800m of an LRT Node, 400 m of a Transit Centre or 200 m from a Transit Avenue be approximately 25% less than the equivalent health services parking supply requirement in all areas of the city other than within the Downtown Area Redevelopment Plan boundaries. Further to the completion of additional surveys and assessments, it is recommended that the following parking supply rates be considered: <ul style="list-style-type: none"> 3.5 parking spaces per 100 m² of Gross Floor Area; notwithstanding this minimum, the maximum shall be 4.5 parking spaces per 100 m² of Gross Floor Area |
| Restaurant Parking Standards | <ul style="list-style-type: none"> To recognize the differing parking requirements associated with different types of restaurant developments. | <ul style="list-style-type: none"> Further to the completion of additional surveys and assessments, identify separate parking standards for eating establishments (in current bylaw), specialty foods uses (in current bylaw) and drive through restaurants. |
| Child Care Services Parking Standards | <ul style="list-style-type: none"> To maintain the character of the development's location and to recognize shared use parking opportunities. | <ul style="list-style-type: none"> Further to the completion of additional surveys and assessments, it is recommended that the following parking supply rates be considered: <ul style="list-style-type: none"> Two parent drop-off spaces be required for up to 10 children. An additional drop-off space for every 10 children should also be required, and; 1 stall per employee be required for the first 2 employees and that 0.5 spaces be required for additional staff. |

Table ES-1: Summary of Study Recommendations (continued)

| Item | Basis for the Recommendation | Recommendation |
|---------------------------|--|---|
| Cash in lieu | <ul style="list-style-type: none"> To allow parking facilities to be located in optimal locations, to meet urban design objectives and to accommodate shared parking opportunities. | <ul style="list-style-type: none"> Consider the use of cash-in lieu as a means of reducing development related parking requirements by: <ul style="list-style-type: none"> Establishing a new bylaw creating a cash-in-lieu requirement for new parking spaces required by new development activity, and /or; Allowing City Council to enter into agreements with the owners of land to exempt or partially exempt the owner from constructing off-street parking spaces as required by the Zoning Bylaw in exchange for money. |
| Parking Ratio Measurement | <ul style="list-style-type: none"> To maintain consistent parking conventions. | <ul style="list-style-type: none"> Consider using unit size as opposed to number of bedrooms in evaluating multi-family residential development parking requirements. Consider expressing parking rates based on the lowest number of parking spaces required (i.e. 1 space per xxx m².) rather than relating parking requirements to a relationship of xxx spaces per 100 m². |

Growing awareness of the environmental impacts associated with private vehicle use has resulted in the need to identify strategies and tactics to mitigate increased auto utilization. This study is intended to provide input and direction into the development of parking indices and tactics which reflect current and future City trends and realities. Study findings support a series of complementary studies being undertaken by the City which include overarching sustainability goals and policies. This introductory chapter presents the rationale, scope and study objectives of the City of Edmonton Zoning Bylaw Parking Study.

1. INTRODUCTION

1.1 PREAMBLE

Over the last few decades, land use development patterns have reflected the mobility and convenience provided by the private automobile. Having recognized the negative consequences associated with an auto-based landscape, the City of Edmonton continues to explore how a managed congestion approach in combination with Smart Choices strategies can address and mitigate the impacts of private auto travel. In contrast to auto-oriented urban sprawl, smart growth recognizes that the future and vitality of our city is dependent upon our ability to foster a better planned, more environmentally protective, more sustainable pattern of development.

The Transportation Master Plan, approved in September 2009, incorporates managed congestion goals and objectives which promote and encourage increased use of public transit, walking and cycling, managing land use, restricting parking supply and limiting funding for roadway expansion. A managed congestion approach generally includes strategies and tactics which make better use of existing transportation facilities.

The City of Edmonton's "City Vision, - a creative description of the City's future¹" provides insight into the type of city Edmonton may become by the year 2040. It portrays a sustainable, liveable and energetic City that promotes innovation, supports the environment and sustains diverse economic, educational and cultural opportunities for all its citizens. It is the framework around which the City's Strategic Plan, "The Way Ahead", the Draft Municipal Development Plan (MDP), "The Way We Grow" and the Transportation Master Plan (TMP), "The Way We Move" were developed. These documents provide the guidelines that are intended to help achieve the City's vision of a sustainable, liveable, and innovative urban city. These plans support a more compact urban environment that focuses on public transportation, land use integration and a strong emphasis facilitating the development of a City that is financially, environmentally and socially sustainable.

¹ City of Edmonton, "Transforming Edmonton"

One of the greatest challenges facing smart growth initiatives is identifying inventive ways to address parking needs. Parking accommodation continues to consume large amounts of land that could otherwise be developed. Surface and structured parking lots often represent sterile, unattractive environments which isolate land uses and preclude lively pedestrian-friendly activity. Environmental impacts, such as the need to reduce the City's carbon footprint, associated with parking activity and facilities are increasingly being recognized.

As developers (including the City of Edmonton) attempt to meet current parking requirements for their projects, they often find themselves faced with obstacles related to zoning, financing and design. Smart growth projects will benefit through the reconsideration of existing parking regulations. The need to reconsider parking supply requirements and demand to better meet the needs of communities, developers, and users cannot be understated.

1.2 STUDY RATIONALE

The last update to the Zoning Bylaw was undertaken in 2000/2001. In the eight years since the last parking review was completed, additions and updates to the Zoning Bylaw have been approved. However, there has not been an update undertaken to verify the appropriateness of current parking regulations or develop parking regulation guidelines for new or modified land use categories.

The need for the City of Edmonton Zoning Bylaw Parking Study was identified as a result of the goals and objectives identified in the Strategic Plan, Draft Municipal Development Plan and Transportation Master Plan. The relevancy of existing parking bylaw practices and strategies also represented an instrumental consideration.

1.3 STUDY NEED AND PURPOSE

The primary purpose of the study is to provide direction into the development of new and appropriate parking bylaw regulations, strategies and programs to assist the City in managing parking resources in a sustainable fashion to support future updates to the Zoning Bylaw. This includes information on specific parking regulations and parking management operations that reflect, acknowledge and align with current planning and transportation goals and objectives including:

- The City's focus on promoting and developing transit as a primary means of transportation for the movement of people;
- The financial and affordability issues associated with parking development;
- Travel and auto ownership characteristics that impact parking provision; and,
- The impacts of development characteristics including walkability, transit oriented development, and preservation of green space.

In conjunction with these sustainability goals, the review focuses on finding the balance between transportation and parking priorities that facilitate development of a compact urban environment while ensuring that parking requirements continue to supply adequate and appropriate parking facilities.

1.4 STUDY SCOPE

The technical scope of the assignment primarily included three major components. These components are best summarized as follows:

Existing Conditions Assessment

- Review and evaluation of existing City of Edmonton documentation and reports as they relate to the relationship between land use development and parking related initiatives;
- Undertake select field surveys to collect parking demand patterns for select land uses and combinations of land uses throughout the city;
- Complete parking accumulation assessments to assist in determining potential differences in parking demand between uses which are currently located near transit hubs as opposed to those who do not benefit from a high level of transit service;
- Compile and assess physical count data to provide the City with information about current parking supply/demand characteristics that can be utilized as a framework in formulating parking requirements; and,
- Evaluate and assess vehicle ownership characteristics.

Best Practices Review

- Review current parking and loading requirements as they compare to other cities of similar size and land use composition;
- Review and evaluate policy issues and factors that should be considered when developing on and off-site parking requirements for land uses; and,
- Research alternative parking policy/regulation methods.

Zoning Bylaw Assessment

- Identify modifications to current Zoning Bylaw parking requirements, including overlay requirements and flexible parking requirements; and,
- Identify opportunities for inclusion of parking management measures within the context of City of Edmonton policies.

It is noted that the scope of work excludes the City's downtown area. Given the unique nature of parking demands associated with land use and development activity within the central business district, the City completed an overall review of parking supply requirements for land uses located within the Downtown Area Redevelopment Plan (ARP) area. The results of the Downtown Area Redevelopment Plan Parking Study (2008) are being reviewed as part of the completion of the new Capital City Downtown Plan. Furthermore, the scope of the project does not include the assessment of parking facility development standards (parking stall dimensions, parking facility geometric requirements, lighting, landscaping, aesthetics, access arrangements, etc.).

1.5 STUDY METHODOLOGY

The work program included the following components:

Inventory and Goal Setting

The primary goal of this phase of the project was to become familiar and knowledgeable about current City goals and objectives as they pertain to the development of sustainable traffic and parking infrastructures and to confirm the extent of the changes required to the current Zoning Bylaw. This was achieved by:

- Developing a comprehensive summary of relevant facts, trends, policies, assumptions, issues and goals, and;
- Assemble, review and analyze all relevant background data, existing studies and information.

Existing Conditions Assessment

The second phase established a basic understanding and overview of current development in regards to multi-tenant off-street parking facilities and associated demand characteristics. The primary purpose of this phase was to organize and collect the field survey data to provide a snapshot of parking demand trends for a select group of multi-tenant commercial developments. This phase also included a review of current and historical auto ownership characteristics.

Best Practices Review

The purpose of this phase was to review parking requirements and policies used by similar sized municipalities. This review included three main components:

- evaluation of parking requirements used by other similar sized municipalities (benchmarking);
- review of policies that impact parking demand and supply; and,
- review of parking management programs that can influence the supply of parking and promote smart growth policies related to parking.

Zoning Bylaw Assessment

Having examined the existing development context and current trends in parking management and alternative parking policies, the study included recommendations for parking demand and management techniques that can be incorporated into future updates of the City of Edmonton's Zoning Bylaw including:

- Identification of potential modifications to current Zoning Bylaw parking supply requirements, and;
- Evaluation of alternative parking management strategies and their potential implementation in the Edmonton context.

Study Documentation

The final phase of the work program concentrated on producing report documentation, including the development of draft and final reports.

As a major component of any development initiative, parking represents a significant element. The criteria against which parking requirements are determined and evaluated should align with the principles laid out in strategic City planning documents including the Draft Municipal Development Plan and the Transportation Master Plan. This section presents an overview of a number of strategic City planning documents.

2. POLICY CONTEXT

2.1 SUMMARY OF RELEVANT ISSUES, POLICIES, AND TRENDS IMPACTING PARKING POLICY

A number of parking components in the City's Zoning Bylaw were updated in 2000/2001. Updates completed at that time do not accurately reflect the goals and objectives established in current City strategic planning documents. Historically, on-site parking requirements have been based on the development of parking inventories which meet an unconstrained parking demand. Furthermore, current Zoning Bylaw parking requirements do not emphasize or include provisions for alternative transportation modes including car pooling or car-sharing. Edmonton's current Zoning Bylaw parking requirements are reproduced in **Appendix A**.

The focus of this study was to review the appropriateness of current parking regulations, evaluate the merits and benefits associated with new or modified parking policies for selected land use categories and review overall parking regulations as they relate to development of a sustainable, compact and liveable urban city.

Suggested modifications to the Zoning Bylaw will result in an enhanced alignment between Zoning Bylaw parking regulations and other City of Edmonton strategic planning documents. Furthermore, study findings will assist in identifying how the City's parking regulations could more effectively reflect current parking management trends and more closely align with strategic goals and objectives identified in the Draft Municipal Development Plan and the Transportation Master Plan including:

- how to transform Edmonton's urban form to optimize existing infrastructure utilization to maintain and foster strong, vibrant neighbourhoods; and,
- ensuring high standards of urban design and shifting Edmonton's transportation mode to facilitate road use for goods movements and transit use for moving people.

2.2 BACKGROUND DOCUMENTATION REVIEW

At the time of this study preparation, some of the City's strategic planning documents were still in draft form. However, these documents were well enough developed to

provide a strong basis for reviewing and evaluating existing Zoning Bylaw parking regulations. In addition to the City's 10 Year Strategic Plan, the Draft Municipal Development Plan and the Transportation Master Plan, the City has also developed two documents that have potential to impact parking regulations and policies. These include the Draft Integrated Transit and Land Use Framework and the newly developed Design Guidelines for New Neighbourhoods.

The following summaries highlight key points from the aforementioned documents as they relate to parking within the context of this study.

2.2.1 City of Edmonton Strategic Plan

The City's Strategic Plan, "The Way Ahead" is a high level planning document "intended to guide and inform planning done by the City over a 10-year planning horizon²". The Plan encourages the alignment of priorities and identifies six strategic goals that focus on diversifying Edmonton's economy, ensuring financial sustainability, improving livability, preserving the environment, shifting transportation modes and transforming Edmonton's urban form. The Strategic Plan's emphasis on integration, sustainability, livability, and innovation represent the framework used in the development of the Draft Municipal Development Plan and Transportation Master Plan. The Strategic Plan also forms the foundation around which current City planning and development initiatives are being evaluated.

2.2.2 Draft Municipal Development Plan

The new Municipal Development Plan, "The Way We Grow" is the City's strategic land use plan. The plan focuses on supporting affordable housing, smart choices, high quality urban design and developing complete liveable communities. In addition, it looks towards developing an integrated transit and land use framework as identified in the City's Strategic Plan. It includes a number of broad goals around which specific policies and objectives have been developed.

With respect to parking, the Draft Municipal Development Plan identifies numerous objectives and policies including:

- Improving and maintaining public amenities such as parking facilities to support retail shopping streets as centres of community activity;
- Utilizing design elements that manage parking and transportation demand at development located near LRT Nodes, Transit Centres and Transit Avenue while minimizing the traffic and parking impacts of redevelopment projects on surrounding neighbourhoods;
- Reducing the visual and environmental impact of large hard surface parking lots associated with new large scale commercial centres;
- Encouraging new developments to locate and organize vehicle parking and

² City of Edmonton, "Transforming Edmonton"

access such that it minimizes impacts on the subject site and surrounding properties, and to improve the safety and attractiveness of adjacent streets and other public spaces, and;

- Utilizing streetscaping techniques to reduce the impacts of parking on the quality of the pedestrian environment.

2.2.3 Transportation Master Plan

The Transportation Master Plan, “The Way We Move” was approved by City Council in September 2009. The plan focuses on transportation and land use integration, public transportation and roadway improvements that support efficient goods movement, transportation demand management, active transportation and well maintained and managed infrastructure. This guiding document includes a number of strategic goals, strategic objectives and strategic actions that were “specifically developed to express the future of Edmonton’s transportation system.³” It acknowledges the strong correlation between land use, parking and transportation. As a result, parking is addressed in multiple ways in the document.

The Transportation Master Plan recognizes the limitations associated with parking regulations in the existing Zoning Bylaw and recommends that the Bylaw be reviewed to ensure that parking standards are appropriate and align with current policy directions. A parking related strategic objective recommends that the “City develop a parking management strategy through bylaws and policies to ensure the livability and economic vitality of the City and to promote appropriate land use and public transportation initiatives⁴”. Strategic actions incorporated in this document include:

- Manage on-street and on-site parking to strategically anticipate and respond to projected parking supply constraints or surpluses, provide convenient business access, improve customer convenience and influence sustainable travel choices;
- Develop land use and parking policies that manage the supply of parking by providing essential parking and support Transportation Demand Management (TDM) initiatives;
- Develop parking pricing strategies to discourage the use of single-occupancy vehicles in appropriate locations in favour of other modes; and,
- Recognize winter city requirements within parking policies, particularly as it relates to snow clearing.

Additional parking and development related items identified in the plan include:

- Moderating the supply of on-site and on-street parking at selected, higher density trip destinations to encourage use of transit and other modes;

³ City of Edmonton, “The Way We Move – Transportation Master Plan”

⁴ City of Edmonton, “The Way We Move – Transportation Master Plan”

- Avoiding or minimizing land uses near transit nodes that are auto oriented or that require significant amounts of parking, and;
- Implementing a parking policy that supports public transportation. Potential measures include limiting parking supply at key locations, encouraging shared and/or structured parking to enable more compact development patterns.

The Transportation Master Plan also addresses park and ride facilities and bicycle parking. Although these are not components addressed in this assessment, they are components that should be addressed in subsequent parking policy reviews.

The City's Draft Municipal Development Plan, "The Way We Grow" and Transportation Master Plan, "The Way We Move" provide the City with guidelines that are intended to help achieve the City's Vision and goals associated with the Strategic Plan. The two documents are intended to work together to help build a more urban, sustainable, healthy and compact city.

2.2.4 Draft Integrated Transit and Land Use Framework

Both the Draft Municipal Development Plan and the Transportation Master Plan recognize the intrinsic connection between land use and transportation. The goals and objectives enshrined in these documents encourage development and land use that integrates transit and establishes strategic goals to ensure the City maximizes and leverages its public transit commitment.

The Draft Integrated Transit and Land Use Framework acknowledges the impacts parking has on transit ridership and recommends that the City modify its parking regulations to shift away from parking minimums and establish parking maximums in areas served by premium transit.

The document also acknowledges the role on-street parking plays in buffering pedestrians from moving traffic and supports development of active street front environments and recommends that on-street parking be allowed and encouraged.

The Draft Integrated Transit and Land Use Framework report combines Integrated Transit and Land Use Framework Guidelines with new TOD Standards. This document provides to tools that can be used to ensure that transit and land use are integrated in Edmonton's LRT station areas.

2.2.5 Design Guidelines for New Neighbourhoods

The Design Guidelines for New Neighbourhoods is intended to facilitate development of sustainable communities in Edmonton. It includes guidelines to be used during the Area Structure Plan, Neighbourhood Structure Plan and Subdivision stages of development.

The Guidelines do not identify specific requirements associated with parking supply, demand or placement. However it does indicate that parking requirements and placement of parking are items that should be included in the subdivision stage of development.

2.2.6 Synopsis of Background Documentation Review

The review of a number of strategic planning documents revealed that a number of the strategic goals, objectives and actions identified in the City's strategic plans can be addressed through updates to Zoning Bylaw parking regulations.

The development of parking management policies that support goals established in a number of strategic planning documents and which are applicable in Edmonton's development climate represents a significant initiative. This initiative will require ongoing review and evaluation to ensure that new parking management initiatives continue to align with the City's Vision. Current parking practices tend to create a self-fulfilling prophecy of excessive parking supply and increased automobile-dependency perpetuating increased parking demand.

It is noted and acknowledged that the completion of this study is in alignment with recommendations advanced in the Association for Commuter Transportation of Canada (ACT Canada) document "TDM Supportive Guidelines for Development Approvals", prepared by the BA Consulting Group in October, 2008. This report, which included input from the City of Edmonton, clearly identified the need for major municipalities to update current Land Use and Zoning Bylaws by incorporating parking policies which are consistent with and which reflect "current and progressive parking standards that emphasize minimizing parking supply" and to update Zoning Bylaws to include more specific provisions related to sustainable and alternative transportation modes.

Other reference documents that were reviewed during the course of the study's completion include the Downtown Design Guidelines Manual, (City of Edmonton), The City of Edmonton Household Travel Survey, the City of Edmonton Land Use Bylaw Parking Study, 2000/2001 and the City of Calgary Land Use Bylaw Parking Study (Bunt & Associates, 2004).

This chapter of the report presents a summary of parking surveys completed at multi-tenant commercial developments. This baseline data provides a foundation for assessing possible modifications to the City's Zoning Bylaw for multi-tenant commercial developments.

3. EXISTING CONDITIONS ASSESSMENT

3.1 DATA COLLECTION PROGRAM

The intent of the survey component of the study was not to collect parking related information for all land uses identified in the Zoning Bylaw. Based on discussions with representatives of the Planning and Development Department at the outset of the study, it was decided to focus the data collection component on land uses which were of concern to the City.

Although parking demands at multi - family residential developments (rental and condominiums) were initially identified as candidate land uses for real time parking surveys along with multi-tenant commercial developments, the ability to access secure residential underground parking garages limited the ability to collect a sufficient data base from which to draw relevant parking demand and supply characteristics. In addition, the common use of on-street parking by multi-family residents also restricted the ability to collect valid parking related information.

It is acknowledged that multi-family developments will represent significant land use components associated with TOD developments and mixed - use developments located near LRT Nodes, Transit Centres and along Transit Avenues. It was decided however that collecting multi-family parking related data which was incomplete and which would have had to be used cautiously would not provide appropriate information upon which to base new or modified multi-family parking regulations.

In order to collect relevant information regarding multi-family parking characteristics, it was determined that a significant amount of empirical and observational survey information was required. This information is best compiled through the completion of residential parking surveys, reminder follow up thank you postcards in combination with on-site observations. It is anticipated that a survey sample of between 4,000 and 5,000 surveys would have provided an appropriate data base. This level of survey was not anticipated to be completed within the initial scope of work and was subsequently deferred.

It is recommended that the City complete a comprehensive multi-family residential parking survey. The survey should include collecting information on:

- household characteristics;
- size of unit;

- number of residents;
- car ownership;
- where vehicles are parked;
- visitor characteristics; and,
- parking fees if applicable.

In light of the difficulty in collecting suitable multi-family residential parking related information, the parking surveys concentrated on multi-tenant commercial sites. Direction related to modifying Zoning Bylaw parking regulations for other land uses are discussed in Chapters 5, 7 and 8. In addition, literature reviews also provided some insights into mixed-use and TOD multi-family residential parking characteristics.

3.2 SITE SELECTION

The primary purpose of completing parking surveys was to collect and assess parking demand patterns for multi-tenant commercial sites that typically exhibit large quantities of off-street parking. The City was particularly interested in better understanding parking characteristics associated with multi-tenant retail/office developments. In addition, the City was interested in parking characteristics associated with mixed-use developments which incorporated a blend of residential, commercial and office land uses. Given the lack of significantly sized and appropriate mixed-use developments in the Edmonton marketplace, a review of the parking demands/requirements associated with these combinations of land uses was completed through a review of available literature.

The multi-tenant sites included in the survey program included neighbourhood scale commercial sites which may have included a combination of commercial and office land uses. The surveyed sites did not include mixed - use sites where residential land uses represented any significant component of the development site.

Typically, these types of commercial developments are located on the periphery of residential neighbourhoods near major arterial roadways. Due to access requirements associated with the abutting roadway network, the size (or frontage) of the site is often developed to accommodate access restrictions rather than a specific development concept. The developments surveyed were quite large and included a variety of commercial related land uses. They often contained an assortment of commercial and business type uses that service surrounding residential activity. The majority of the sites surveyed were designed to be accessed by passenger vehicles and included large surface parking lots. The degree of transit service and pedestrian connectivity to the surrounding neighbourhoods is location specific and varied greatly from site to site.

With respect to the sites selected, influencing parameters which could affect parking demands and therefore the amount of required parking could include:

- nature and characteristics of adjacent and abutting development;
- proximity to transit including the quantity and quality of transit service provided;
- proximity to the Central Business District or other nearby competing major activity centres; and,

- land use mix and diversity of land uses which might affect internal site synergy.

Of particular interest in this evaluation was the relative difference between parking demand at inner city versus suburban sites and the parking demands associated with sites located in close proximity to transit centres as opposed to those without access to high levels of transit service. The sites surveyed included suburban and inner city multi-tenant commercial sites that typically included a grocery store and which are serviced by varying degrees of transit service.

The primary purpose of the survey program was to ensure that the assessment included a snapshot of current parking characteristics. The completion of the surveys were not intended to allow for the definitive development of new Zoning Bylaw parking requirements but to provide an indication of current parking characteristics for these types of land uses and whether existing parking indices could or should be modified and in what direction. At a preliminary level, these parking surveys assisted in determining if existing parking requirements align with the development principles laid out in the Draft Municipal Development Plan and Transportation Master Plan and in formulating a made in Edmonton solution for parking stall requirements in an amended Zoning Bylaw.

Table 3-1 on the following page summarizes the locational attributes associated with the survey sites while **Exhibit 3-1** illustrates the location of the survey sites within the City.

The survey sites were located in all quadrants of the city and included developments in newer areas, developments in established suburban neighbourhoods and inner city sites located within the city's Mature Neighbourhood Overlay.

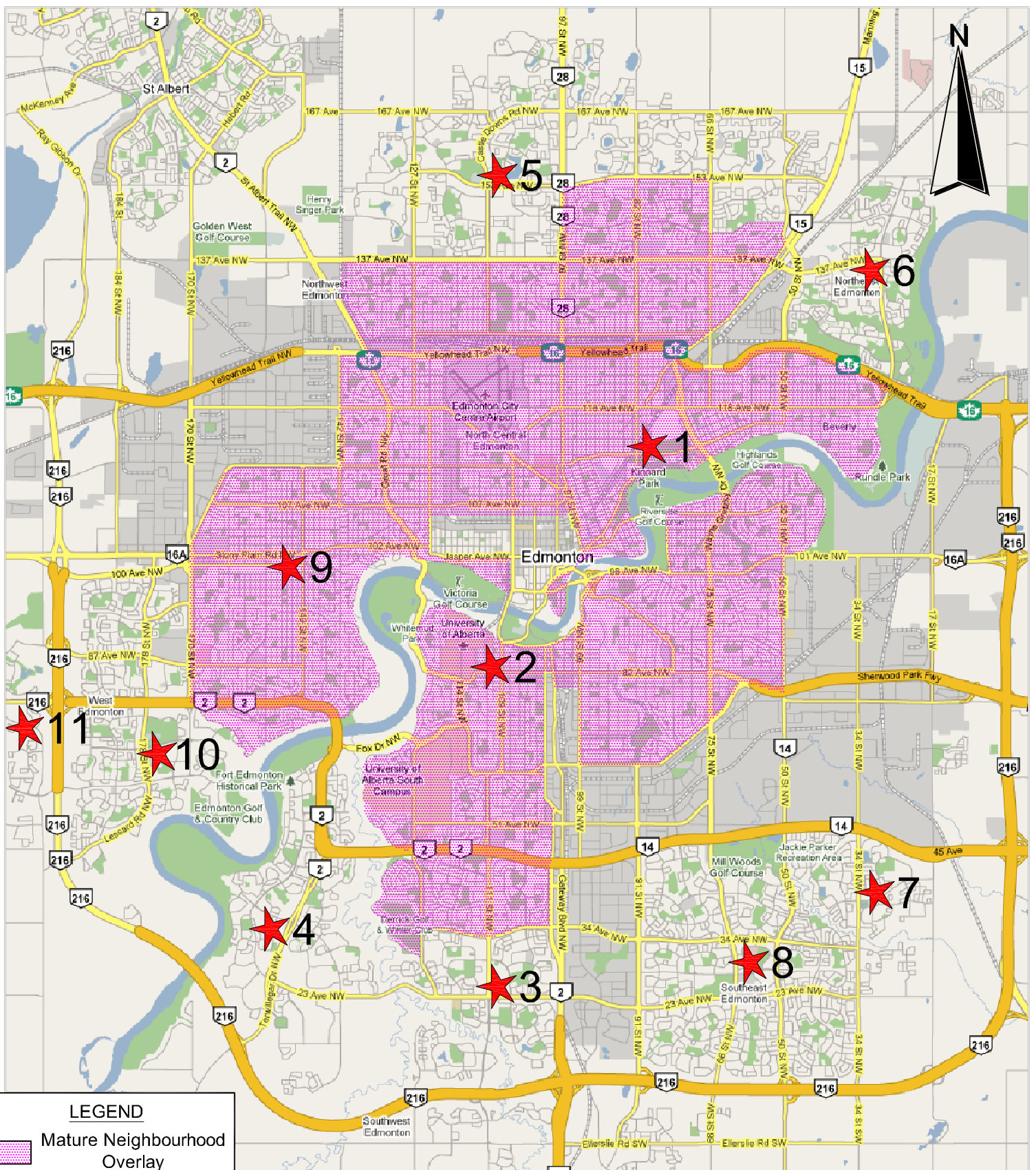
Three of the sites were located within 400 m of a major transit centre and many of the sites were serviced by multiple transit routes providing service on the adjacent roadway network. The bus routes identified in Table 3.1 include neighbourhood service and small bus transit routes. Transit service at all of the survey sites selected, except for Belmont, the Grange and Meadowbrook, operates on a 15 minute service during the AM and PM peak hours. Transit service at the Belmont, the Grange and Meadowbrook operates on a 30 minute service during the peak hours.

It is noted that the Whyte Avenue site is located in close proximity to bus stops that are serviced by peak hour route extensions however these routes were not included in the above evaluation as they only stop at the adjacent bus stops at select times during the peak hour.

With respect to the number of on-site parking stalls, the Stadium and Whyte Avenue sites are inner city locations and both of these sites have relatively small on-site parking inventories. The remaining sites have larger parking inventories that are considered representative of typical parking inventories associated with suburban commercial sites in Edmonton.

Table 3-1: Site Survey Locational Attributes and Development Characteristics

| Locational Attributes | | | | | | | |
|-----------------------|---|-----------------------------|-------------------------|---|--|--------------|------------------------|
| Location Name | Location Description | Transit Centre within 400 m | Adjacent Transit | Adjacent Development | Approximate Gross Floor Area (m ²) | Occupied GFA | On-site Parking Spaces |
| Stadium | Inner City | Stadium Transit Centre | 2, LRT | Multi-family, Commercial, Urban Service | 4,335 | 100% | 184 |
| Whyte Avenue | Inner City | No | 4,7,9,17,51,57,106, 313 | Multi-family, Single-family, Commercial | 3,129 | 100% | 130 |
| Heritage | Established Suburban | No | 17,39,41,44,45,48,49 | Multi-family, Commercial, Park, Single family | 8,138 | 100% | 452 |
| Riverbend | Established Suburban | No | 36,38,338 | Single-family, Multi-family | 13,960 | 100% | 588 |
| Beaumaris | Established Suburban | Castle Downs Transit Centre | 13,16,128,151,164, 166 | Multi-family, Commercial, Park, Single family | 9,529 | 100% | 492 |
| Belmont | Established Suburban | No | 302 | Multi-family, Single-family | 8,129 | 85% | 540 |
| Meadowbrook | New Suburban | No | 72 | Single-family, Multi-family | 7,155 | 100% | 315 |
| Mill Woods | Established Suburban | Mill Woods Transit Centre | 8,59,60,74 | Commercial, Professional, Multi-family, Park | 12,074 | 85% | 625 |
| Stony Plain Road | Established Suburban/ Edge of Inner City | No | 1,2,111,116,120,150,305 | Multi-family, Commercial, Single-family | 14,327 | 100% | 670 |
| Callingwood | Established Suburban | No | 2,106,107,110 | Multi-family, Commercial, Urban Service | 20,188 | 100% | 1006 |
| The Grange | New Suburban | No | 119,139 | Multi-family, Single-family | 11,005 | 100% | 502 |



3.2.1 Zoning Bylaw Review of Selected Sites

A review of current Zoning Bylaw parking requirements associated with all of the multi-tenant sites surveyed was completed. **Table 3-2** presents this assessment. This assessment assumed that the commercial sites represented comprehensive development sites and were assessed as singular entities.

Table 3-2: Zoning Bylaw Comparison of Selected Survey Sites

| Site | Gross Floor Area (m ²) | On Site Parking | Existing Parking Supply Ratio (spaces/100 m ²) | Zoning Bylaw Requirement (spaces/100 m ²) | Spaces Required | Additional Spaces Provided | |
|------------------|------------------------------------|-----------------|--|---|-----------------|----------------------------|----------|
| | | | | | | Spaces | Increase |
| Stadium | 4,335 | 184 | 4.3 | 2.5 | 109 | 75 | 80% |
| Whyte Avenue | 3,129 | 130 | 4.2 | 2.5 | 79 | 51 | 65% |
| Heritage | 8,138 | 452 | 5.5 | 3.0 | 245 | 207 | 85% |
| Riverbend | 13,960 | 588 | 4.2 | 3.5 | 489 | 99 | 20% |
| Beaumaris | 9,529 | 492 | 5.2 | 3.5 | 334 | 158 | 45% |
| Belmont | 8,129 | 540 | 6.6 | 3.0 | 244 | 296 | 120% |
| Meadowbrook | 7,155 | 315 | 4.4 | 3.0 | 215 | 100 | 45% |
| Mill Woods | 12,074 | 625 | 5.2 | 3.5 | 423 | 202 | 45% |
| Stony Plain Road | 14,327 | 670 | 4.7 | 3.5 | 502 | 168 | 35% |
| Callingwood | 20,188 | 1,006 | 5.0 | 4.0 | 808 | 198 | 25% |
| The Grange | 11,005 | 502 | 4.6 | 3.5 | 386 | 116 | 30% |

As highlighted in Table 3-2, all of the survey sites exhibit off-street parking inventories which exceed existing regulatory parking requirements. In general, the multi-tenant sites surveyed provide on-site parking inventories which exceed Zoning Bylaw regulations by 25% to 85%. In one case, one of the surveyed sites provided a parking supply which is more than double the Zoning Bylaw requirement.

Some of the reasons for the large variation in off street parking as compared to Zoning Bylaw requirements could include financing conditions, individual tenant parking requirements, the availability of immediately adjacent on-street parking and the tenant mix.

3.3 BASELINE CONDITIONS ASSESSMENT

To gain an appreciation for current parking utilization characteristics, parking lot utilization surveys were completed at the selected sites during typical weekday daytime and evening time periods, as well as Saturday afternoons in the spring of 2009.

The surveys involved counting the number of parked cars in on-site parking facilities in 15 minute or half hour intervals, depending on the size of the site. The weekday counts covered two, three hour periods. The first survey period was between 11:00 AM and 2:00 PM while the second survey period started at 4:00 PM and ended at 7:00 PM.

The Saturday surveys covered a five hour period between 11:00 AM and 4:00 PM. Detailed summaries of the raw count data are reproduced in **Appendix B – Survey Data**.

3.3.1 Observed Parking Lot Utilization

Based on the surveys completed, it was observed that the peak period of parking demand varied per site but generally occurred between 1:00 PM and 3:00 PM during the Saturday counts, between 12:00 PM and 2:00 PM during the weekday afternoon counts and between 4:00 PM and 6:00 PM during the weekday evening counts. These time periods correspond to peak parking demand time periods typically expected at commercial developments.

Variations in peak parking activity at each site during the three survey periods were not significant, however minor variations were observed. Five of the sites experienced peak parking activity during the weekday afternoon count while three of the sites experienced peak parking activity during the Saturday count. The remaining three sites experienced peak parking activity during the weekday evening count. **Figure 3-1** summarizes the results of the survey data as it relates to the observed utilization characteristics.

It is noted that two of the sites (denoted by an *) were surveyed on Tuesday April 7, 2009 which is typically a peak activity day associated with the on-site grocery stores (e.g. 10% Discount Tuesday). It is noted that the Meadowbrook commercial site did experience a slightly higher utilization rate during the weekday PM peak time period on this day, however The Grange site did not experience a noticeable increase in parking demand during this day.

The observed utilization rates indicate that the parking lots do not experience high utilization characteristics. However the surveys were completed in the spring time, which is not necessarily representative of peak parking activity at such sites. Data published by the Urban Land Institute suggests that spring time operations represent between 63% and 66% of peak operating conditions. Adjusting the peak parking utilization rates illustrated in Figure 3-1 by 1.54 (assuming spring operations represent 65% of peak operations) gives insight into potential parking utilization rates associated with peak activity time periods (e.g. the month of December). **Figure 3-2** summarizes the results of this adjustment analysis for the peak utilization observed at the surveyed sites.

As illustrated in Figure 3-2 when the utilization data is adjusted to reflect busier activity time periods, six of the eleven sites were predicted to achieve peak parking utilization rates in the order of 70% to 90% which is consistent with typical peak parking utilization rates for commercial sites. Thus, although the raw data analysis suggests that parking lots are underutilized, the seasonal adjustment analysis suggests that they have been designed to accommodate peak parking demands associated with busy shopping seasons.

While accommodating seasonal peaks are an important and integral component of parking facility design for commercial land uses, it is acknowledged that for a significant portion of the year, commercial parking facilities are underutilized.

Figure 3-1: Parking Utilization Characteristics

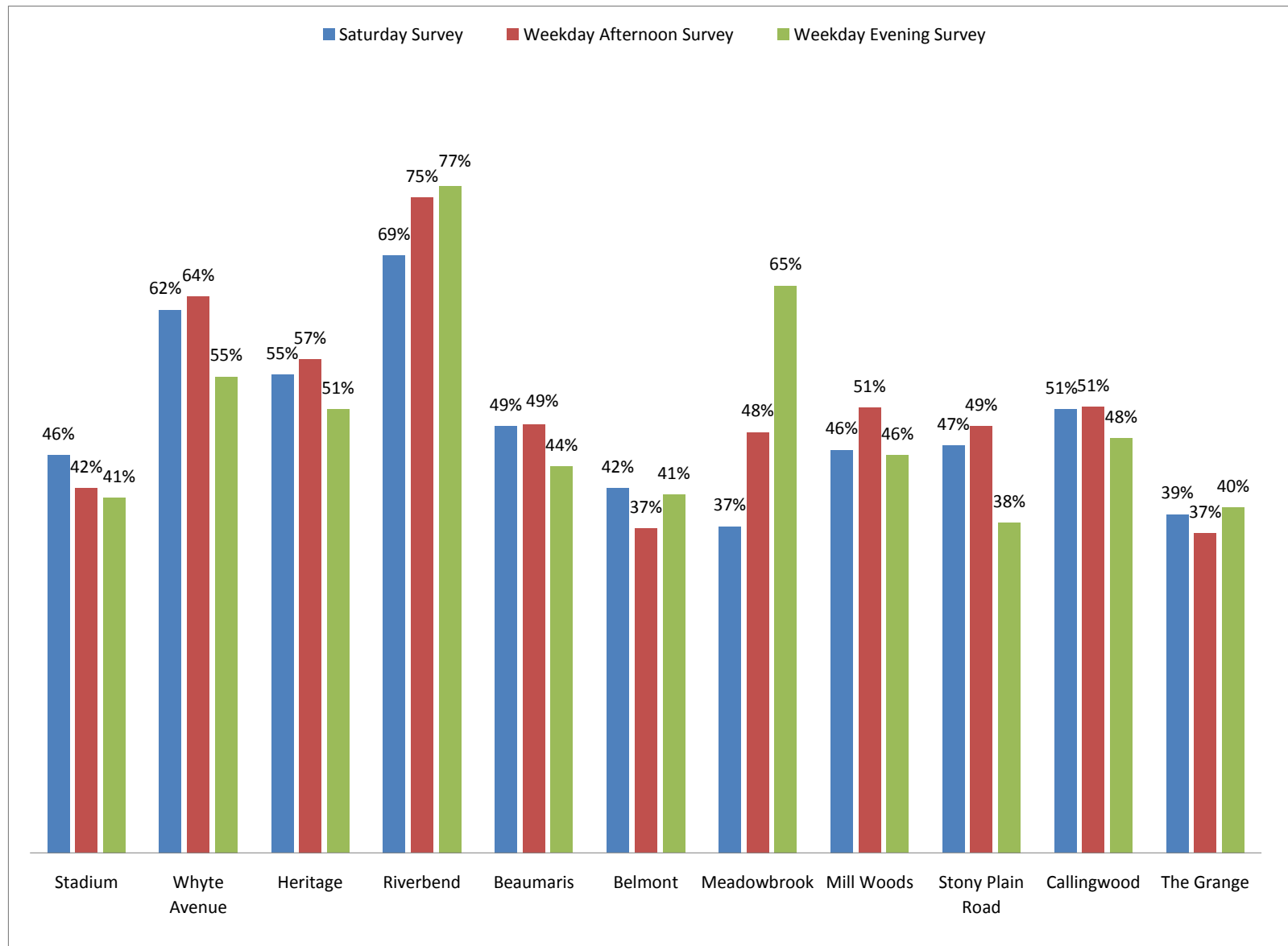
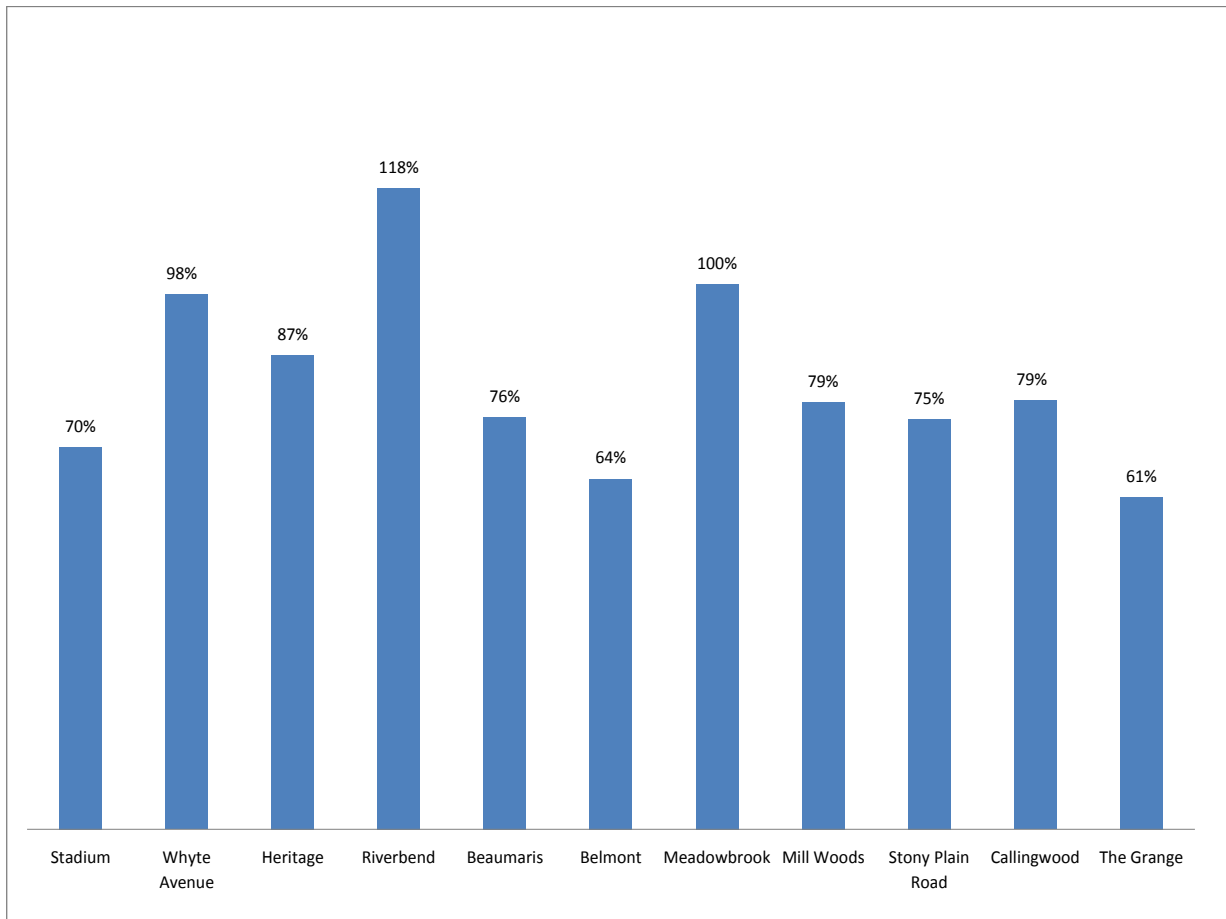


Figure 3-2: Seasonally Adjusted Peak Parking Utilization



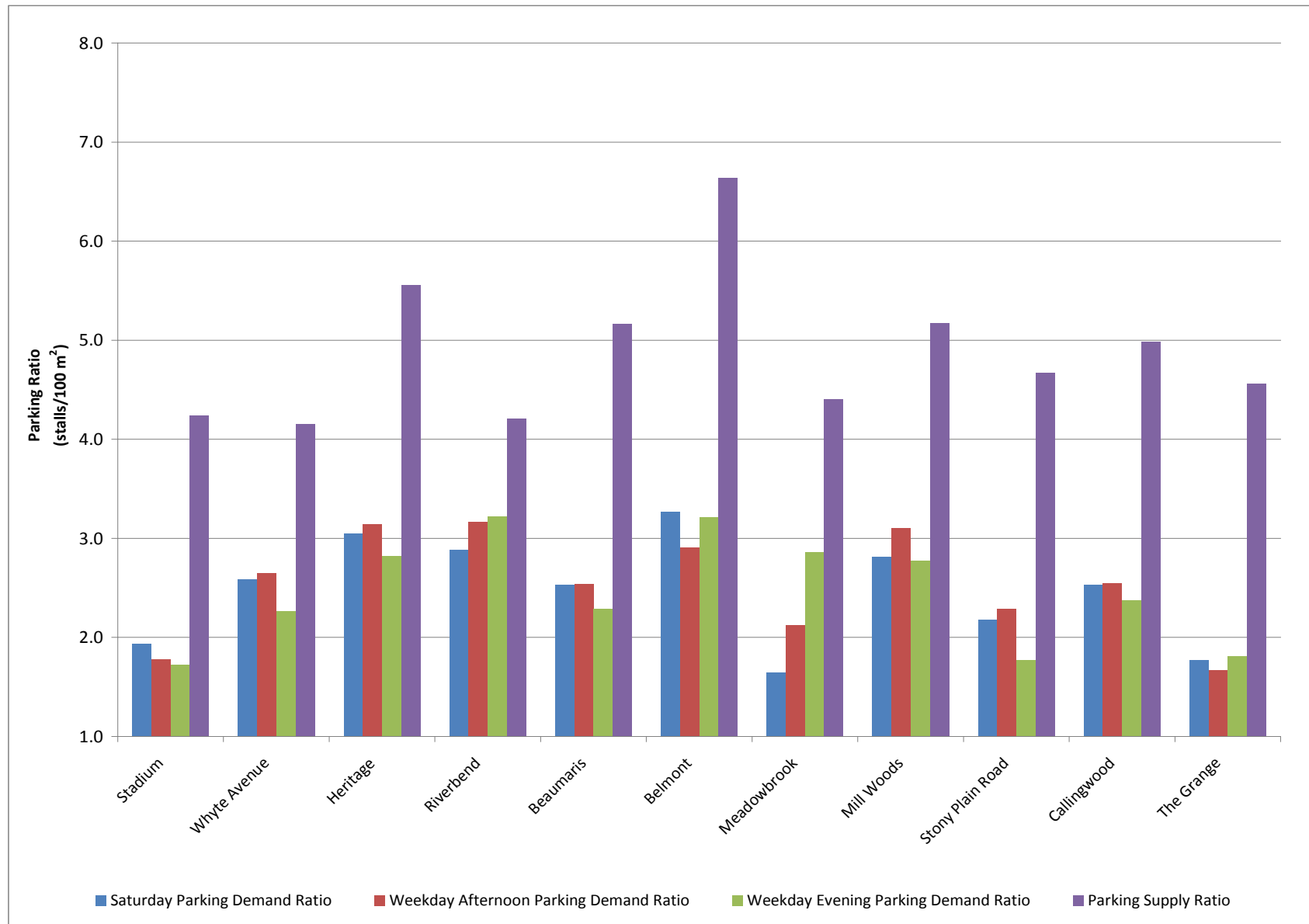
Specifically, of the eleven multi - tenant commercial sites surveyed, even after the raw parking demands were adjusted to reflect seasonal peak periods of parking activity, it would appear that the parking supplies provided at eight of the surveyed sites would continue to represent an oversupply of parking. This finding would suggest that off-street parking inventories are often over designed from a parking accommodation perspective.

3.3.2 Parking Supply and Demand Ratios

In addition to evaluating typical multi-tenant commercial parking utilization characteristics, parking supply and demand ratios were also calculated.

Parking supply ratios were determined by comparing the number of on-site parking stalls provided per 100 m² of gross floor area (GFA) at each site. Parking demand ratios were determined by comparing the actual number of occupied stalls associated with each survey time period to each 100 m² of occupied floor area. **Figure 3-3** summarizes the parking supply and demand ratios associated with the sites.

Figure 3-3: Parking Supply and Demand Ratios



The parking supply ratios illustrated in Figure 3-3 ranged from a low of 4.2 stalls per 100 m² of GFA to a high of 6.6 stalls per 100 m² GFA. It is noted that the Zoning Bylaw parking requirements for commercial use classes not listed separately range between 2.5 and 4.0 stalls per 100m² depending on the size of the site.

Although not all of the uses on the sites would have been assessed using the “commercial use classes not listed separately” requirements, it is interesting to note that the parking supply ratios for the surveyed sites are all greater than current Zoning Bylaw requirements. Furthermore, the average floor area of the sites surveyed was in the order of 9,900 m², and commercial developments in this size range would require an on-site parking supply of 3.5 stalls per 100 m² to meet Zoning Bylaw requirements.

It is interesting to note that the Urban Land Institute (ULI), Parking Requirements for Shopping Centres, Summary Recommendations and Research Study Report, Second Edition, recommends that a parking ratio of 4.3 spaces per 100 m² of Gross Leasable Area (GLA) is an appropriate off-street parking supply for shopping centres accommodating less than 37,000m² or 400,000ft² (where the percent of restaurant, entertainment and /or cinema space represents between 0% and 10% of the total GLA). The current Zoning Bylaw requires that shopping centres greater than 28,000 m² should provide a parking supply equivalent to 4.0 spaces per 100m² of GFA.

In the case of enclosed shopping centres, the GLA typically represents about 75% to 80% of the GFA. However, in the case of multi-tenant developments which all provide exterior access to individual tenants, the GLA can be considered to be the GFA. As such, it has been concluded that the City's current Zoning Bylaw requirements for shopping centres greater than 28,000 m² is in line with ULI recommended parking requirements.

The ULI report also suggests that for neighbourhood scale shopping centres (2,800 m² to 9,000 m² in GLA), a parking ratio of 3.3 spaces per 1,000 ft² (3.6 spaces per 100 m²) would be appropriate. For community shopping centres (9,000 m² to 32,500 m² in GLA), a parking index of 3.7 spaces per 1,000 ft² (4.0 spaces per 100 m²) would be an appropriate parking index for calculating patron and employee parking requirements. The current Zoning Bylaw identifies that the off - street parking requirement for centres between 4,500 m² and 9,000 m² be based on a parking index of 3.0 spaces per 100 m².

The parking demand ratios illustrated in Figure 3-3 range from a low of 1.8 stalls per 100 m² of occupied floor area to a high of 3.3 stalls per 100 m² of occupied floor area, with the majority of peak parking demand ratios falling between 2 and 3 stalls per 100 m² of floor area.

When comparing the parking demand ratios to the parking supply ratios, we see that the average parking supply ratio (4.9 stalls per 100 m² of GFA) is almost twice the average parking demand ratio (2.7 stalls per 100 m² occupied floor area) associated with these sites.

Applying the seasonal adjustment to the peak parking demand ratios increases the average parking demand ratio for the sites to 4.1 stalls per 100 m² of occupied floor area. This brings the parking demand ratio closer to the parking supply ratio, however the parking supply ratio of 4.9 stalls per 100 m² is still higher than the seasonally adjusted parking demand ratio and industry suggested parking ratios.

3.4 LOCATIONAL ATTRIBUTES AND PARKING CHARACTERISTICS

Comparing the locational attributes of the survey sites with their inherent parking characteristics provides preliminary insights into the relationship between parking characteristics and general locational attributes associated with the surveyed sites.

Table 3-3, summarizes this comparison for the peak period of parking demand.

A direct correlation between locational attributes and parking characteristics of the survey sites could not be identified. The comparison of locational attributes and parking demand did not reveal conclusive evidence that there was a direct correlation between site location, adjacent development activity, the proximity to transit and parking characteristics.

The lack of definitive correlations between parking characteristics and locational attributes associated with the multi-tenant commercial sites surveyed could in part be due to the relatively small sample size (11 sites). This finding could also suggest that there are many other factors that could impact parking demand characteristics beyond those illustrated in Table 3-3.

The analysis did reveal that multi-tenant sites with lower parking supply ratios exhibited higher utilization rates. However, this finding is not necessarily solely related to locational attributes.

Additional factors and parameters that could impact parking activity at multi-tenant commercial sites could include:

- amount of patron activity and/or economic viability of the development;
- proximity to developments with similar commercial and retail outlets;;
- traffic volumes on the adjacent roadways and impacts of pass-by patronage;
- nature and characteristics of adjacent and abutting development (residential, competing commercial, household income, household automobile ownership characteristics and household size, etc.);
- proximity to transit / LRT including the quantity and quality of transit service provided; and,
- land use mix and diversity of land uses (internal site synergy).

Additional discussion on variables which can affect parking supply and demand is found in Section 4.0.

It is noted that the two inner city sites included relatively small on-site parking inventories primarily due to lack of available surplus land in the inner city. However the parking utilization and demand rates associated with the inner city sites were not significantly different from those associated with the suburban sites. Furthermore, although the suburban sites had larger parking inventories, the utilization data did not indicate that their parking facilities had higher or lower utilization rates.

Table 3-3: Locational Attributes and Peak Parking Characteristic Comparison

| Location Name | Location Description | Transit Centre within 400 m | Adjacent Development | On-site Parking Spaces | Parking Supply Ratio (stalls/100 m ²) | Peak Utilization | Peak Parking Demand Ratio (stalls/100 m ²) |
|------------------|---|-----------------------------|---|------------------------|---|------------------|--|
| Stadium | Inner City | Stadium Transit Centre | Multi-family, Commercial, Urban Service | 184 | 4.2 | 46% | 1.9 |
| Whyte Avenue | Inner City | No | Multi-family, Single-family, Commercial | 130 | 4.2 | 64% | 2.7 |
| Heritage | Established Suburban | No | Multi-family, Commercial, Park, Single family | 452 | 5.6 | 57% | 3.1 |
| Riverbend | Established Suburban | No | Single-family, Multi-family | 588 | 4.2 | 77% | 3.2 |
| Beaumaris | Established Suburban | Castle Downs Transit Centre | Multi-family, Commercial, Park, Single family | 492 | 5.2 | 49% | 2.5 |
| Belmont | Established Suburban | No | Multi-family, Single-family | 540 | 6.6 | 42% | 3.3 |
| Meadowbrook | New Suburban | No | Single-family, Multi-family | 315 | 4.4 | 65% | 2.9 |
| Mill Woods | Established Suburban | Mill Woods Transit Centre | Commercial, Professional, Multi-family, Park | 625 | 5.2 | 51% | 3.1 |
| Stony Plain Road | Established Suburban/ Edge of Inner City | No | Multi-family, Commercial, Single-family | 670 | 4.7 | 49% | 2.3 |
| Callingwood | Established Suburban | No | Multi-family, Commercial, Urban Service | 1006 | 5.0 | 51% | 2.6 |
| The Grange | New Suburban | No | Multi-family, Single-family | 502 | 4.6 | 40% | 1.8 |

Although no obvious correlation between the locational attributes and parking characteristics were determined (based on the number of survey sites selected and the number of survey hours recorded), there is still value in addressing parking requirements based on a site's locational attributes. In general, if parking stalls are not provided, alternative transportation choices must be available. Alternative transportation choices include transit and pedestrian oriented modes such as walking and cycling. Development sites with reduced parking supplies which integrate alternative transportation modes into their site design are able to accommodate overall parking demands with fewer parking spaces, while encouraging clientele to use alternative transportation modes at the same time.

The Whyte Avenue site examined in this study represents such an example. This site is characterized by a smaller on-site parking inventory however the parking utilization rates indicate that the parking facility does not experience congested conditions on a regular basis. Furthermore, the site is easily accessed by pedestrians and is in close proximity to multiple transit routes and a variety of housing types.

It is believed that this development site experiences higher percentage of clientele accessing the site via alternative modes of transportation and as a result, does not require a significant on-site parking complement.

3.5 SYNOPSIS OF MULTI-TENANT COMMERCIAL PARKING SURVEYS

While the parking supply and accumulation surveys completed as part of the data collection program indicate that the surveyed facilities were designed to satisfy parking demands during peak periods (e.g. the month of December), the observed utilization rates suggest during non-peak periods, the parking lots are not well utilized. Secondly, based on the surveys completed, it appears that current Zoning Bylaw parking regulations are typically being exceeded resulting in a surplus of on-site parking spaces.

The Urban Land Institute data indicates that typical parking utilization fluctuates between 55% and 70% of peak parking activity throughout the year. While accommodating peak parking demands is a critical component of any development concept, parking facilities that are underutilized during typical operating time periods are not supportive of transportation demand management and sustainable development initiatives. Giving careful consideration to land use mixes and incorporating more efficient parking management strategies, such as those that take advantage of shared use, synergistic and on-street parking management techniques could help reduce discrepancies between parking supply and typical parking demands. Further, it will help develop more efficient and effective sites that advance the sustainable development initiatives identified in the Draft Municipal Development Plan and the Transportation Master Plan.

The level of off - street parking for commercial land uses, i.e., should the off-street parking supply be based on accommodating peak period (December) shopping periods or should they be provided to meet typical Saturday peak periods of parking demands has been debated. It is recommended that the off-street parking inventory be based on achieving a level of parking supply that meets typical peak periods of

parking activity and should not be based on achieving December peak periods of parking demand.

This position is predicated on two primary findings. Firstly, limiting the number of off-street parking spaces to match typical peak parking demands would result in a reduced parking supply which is more in line with the City's sustainability, urban design and alternative transportation goals. The environmental and economic costs associated with a reduced parking supply can be substantial.

Secondly, commercial parking demands, particularly shopping centre parking demands can be managed. Given the number of days and hours a shopping centre is open, the time frame associated with shopping centre trips is flexible. Shoppers can modify their shopping patterns to other times during the week or during the day to avoid peak periods of parking demand.

Auto ownership and household income characteristics represent two key variables which can affect parking demands and supply requirements. This chapter reviews a number of parking parameters and variables that could impact parking supply characteristics.

4. INFLUENCING VARIABLES AFFECTING PARKING DEMAND AND SUPPLY

4.1 AUTO OWNERSHIP CHARACTERISTICS

The City's 2008 Municipal Census provided some insights into vehicle ownership patterns in the City. The Census information was based on a survey of about 310,000 households of which about 31,000 households did not respond. **Table 4-1** summarizes the number of vehicles per household for the city as a whole.

Table 4-1: Vehicles per Household (Whole City)

| Number of Passenger Vehicles | Number of Households | Total Passenger Vehicles | Percentage |
|------------------------------|----------------------|--------------------------|-------------|
| 0 | 37,066 | 0 | 13.3 |
| 1 | 107,751 | 107,751 | 38.7 |
| 2 | 98,319 | 196,638 | 35.3 |
| 3 | 25,736 | 77,208 | 9.2 |
| 4 | 9,895 | 39,580 | 3.5 |
| No response | 30,975 | | N/A |
| Total | 309,742 | 421,177 | 100% |

As presented in Table 4-1, approximately 75% of the households surveyed either have one or two vehicles. About 13% of the households surveyed have more than two vehicles. While stereotypical ideas may suggest that Edmonton is a two vehicle per household city, it is interesting to note that the survey results indicated that the number of households with only one vehicle is slightly larger than the number of households with two vehicles. The average number of vehicles per household has been established at about 1.5 vehicles per household.

Table 4-2 presents historical vehicle ownership statistics by household and by licensed driver. As presented in Table 4-2, the trend indicates that the number of vehicles per household has been increasing as have the number of licensed drivers. However, it is noted that household size has been declining and will most likely continue to decline in the future.

Evaluating the number of passenger vehicles per household on a ward basis provides some insights into the geographical trends associated with vehicle ownership. **Figure 4-1** summarizes the number of vehicles per household by Ward published in the 2008 Census. **Exhibit 4-1** illustrates the current Ward System boundaries.

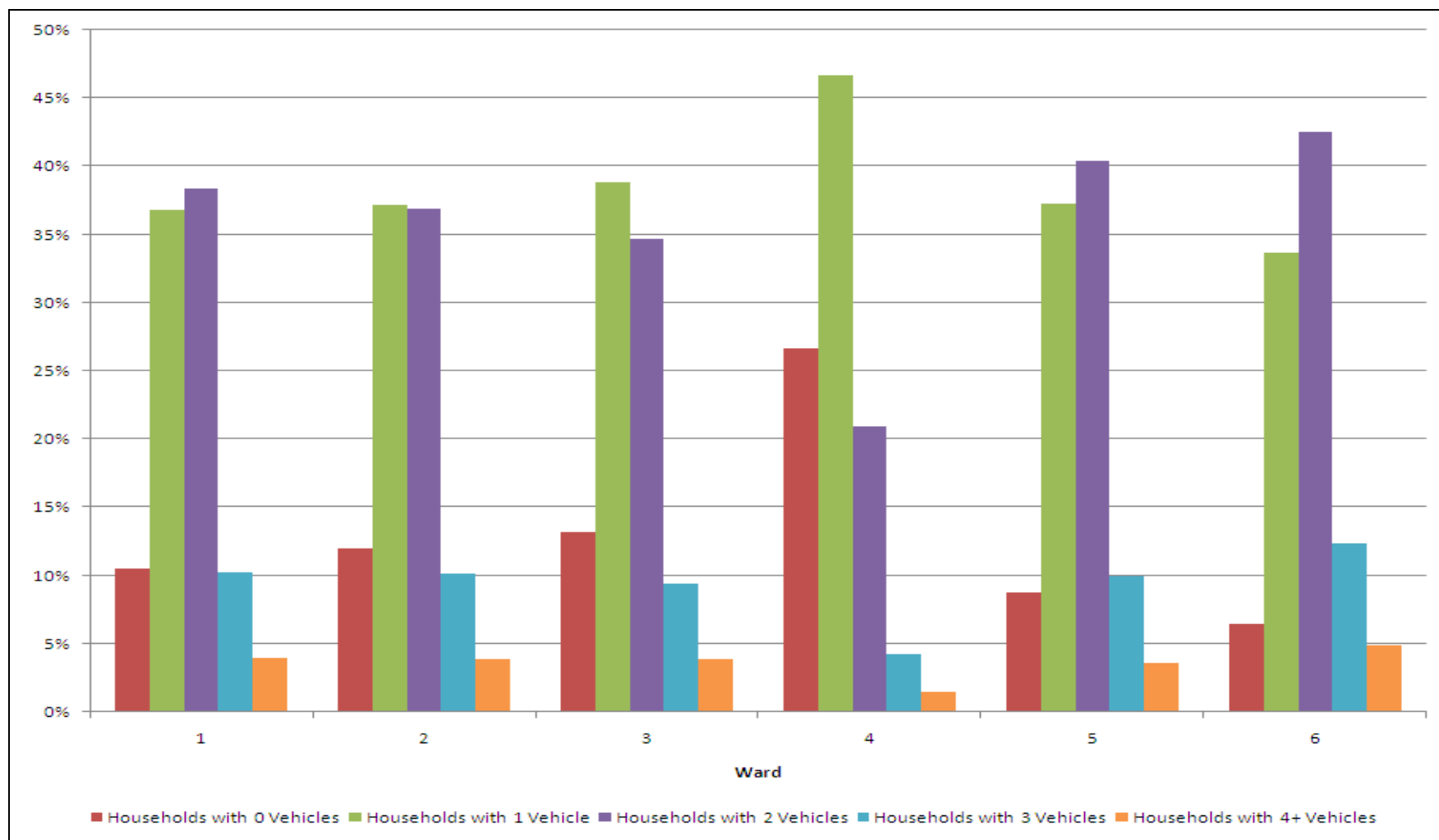
Table 4-2: Historical Vehicle Ownership

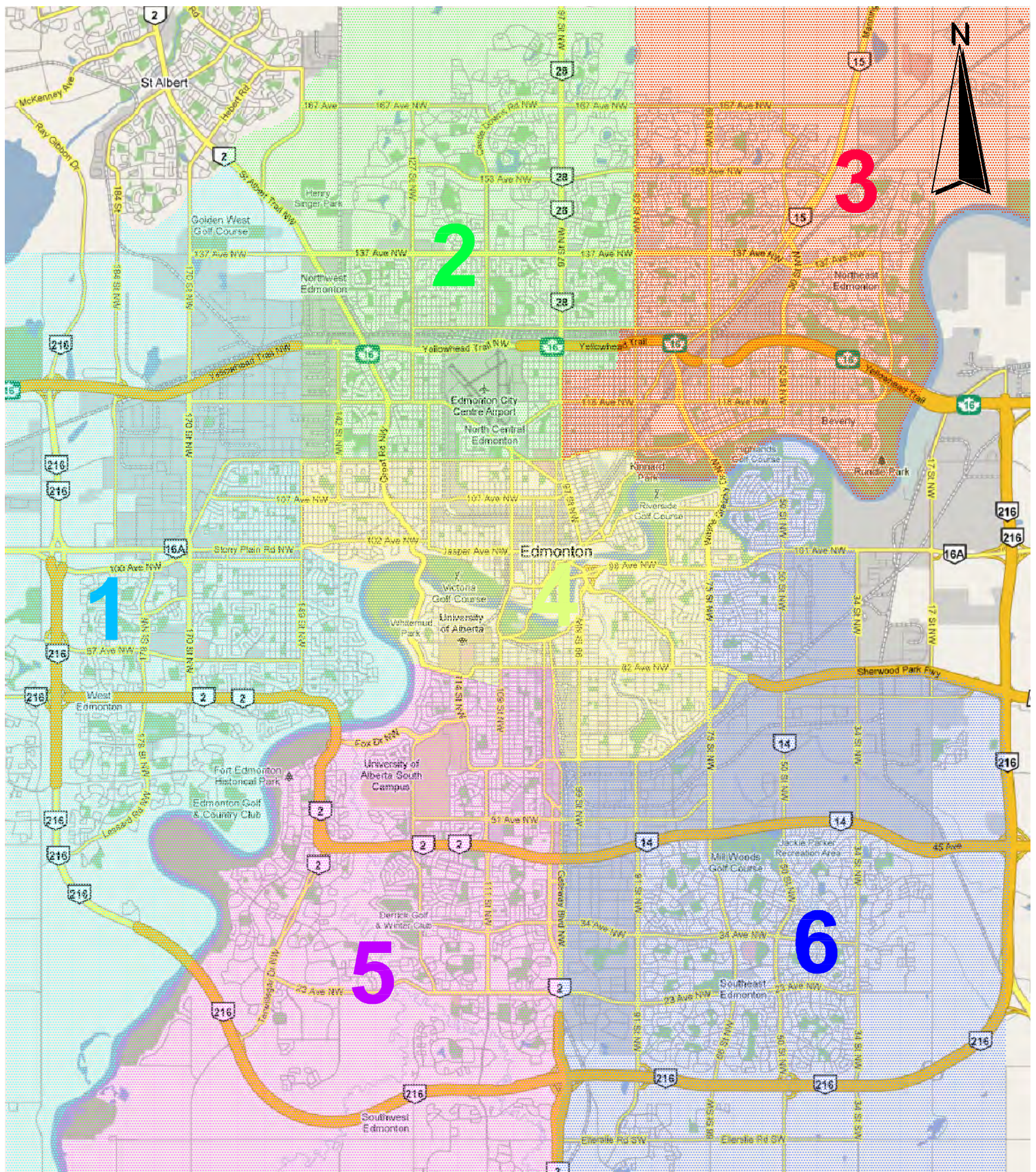
| Year | Passenger Vehicles / Licensed Drivers | Vehicle per Household | Household Size |
|------|--|--------------------------|----------------|
| 1987 | n/a | n/a | |
| 1988 | n/a | n/a | |
| 1989 | n/a | 1.40 | 2.51 |
| 1990 | n/a | 1.44 | 2.61 |
| 1991 | n/a | 1.40 | 2.56 |
| 1992 | n/a | 1.42 | 2.57 |
| 1993 | n/a | 1.39 | 2.57 |
| 1994 | n/a | n/a | |
| 1995 | n/a | n/a | |
| 1996 | n/a | 1.37 | 2.57 |
| 1997 | n/a | n/a | |
| 1998 | 0.762 | n/a | |
| 1999 | 0.770 | 1.34 | 2.49 |
| 2000 | 0.769 | n/a | |
| 2001 | 0.772 | 1.38 | 2.56 |
| 2002 | 0.779 | n/a | |
| 2003 | 0.778 | n/a | |
| 2004 | 0.781 | n/a | |
| 2005 | 0.793 | 1.34 | 2.46 |
| 2006 | 0.810 | n/a | |
| 2007 | 0.825 | n/a | |
| 2008 | 0.846 | 1.46 | 2.43 |

As illustrated in Figure 4-1, Ward 4, which primarily includes the Downtown and University areas of the City has the highest proportions of zero and single vehicle households and also has the fewest number of households with two, three or four or more vehicles. This finding is most likely due to area and destination characteristics including:

- predominance of high and medium density multi-family residential developments;
- LRT service and significant transit service availability to all areas of the City;
- ease of connectivity to alternative transportation modes; and,
- proximity to employment, service, entertainment and recreational facilities.

Figure 4-1: Vehicles per Household by Ward





It is interesting to note that Ward 3, although not significantly different from other suburban wards, has the next highest number of zero and single vehicle households. Ward 3 is serviced by the existing LRT route. It is likely that the availability of high speed transit has some impact on vehicle ownership. This finding could be extended to suggest that neighbourhoods that are in close proximity and/or are well serviced by the LRT may exhibit lower household vehicle ownership characteristics.

To evaluate this finding in greater detail, vehicle ownership trends associated with a select number of neighbourhoods were evaluated. Passenger vehicles per household statistics from the 2008 Census were evaluated for 25 different residential neighbourhoods throughout the City. The neighbourhoods included both newer suburban as well as established neighbourhoods located within the Mature Neighbourhood Overlay. The evaluation included neighbourhoods with transit centres or located close to transit centres or LRT Stations, neighbourhoods which include streets and avenues which accommodate multiple transit routes as well as neighbourhoods that are not located near active transit stations and which are serviced by typical transit service.

It is acknowledged that there are economic, housing type and urban form factors that impact vehicle ownership and utilization that are not accounted for in this analysis however, it does provide some insight into household vehicle trends as they relate to transit. **Figure 4-2** summarizes the results of this analysis.

As illustrated in Figure 4-2, neighbourhoods that are well serviced by transit and LRT typically have higher numbers of households with zero and single vehicles while neighbourhoods that have access to regular transit service are more likely to have higher percentages of 2 or more vehicles per household.

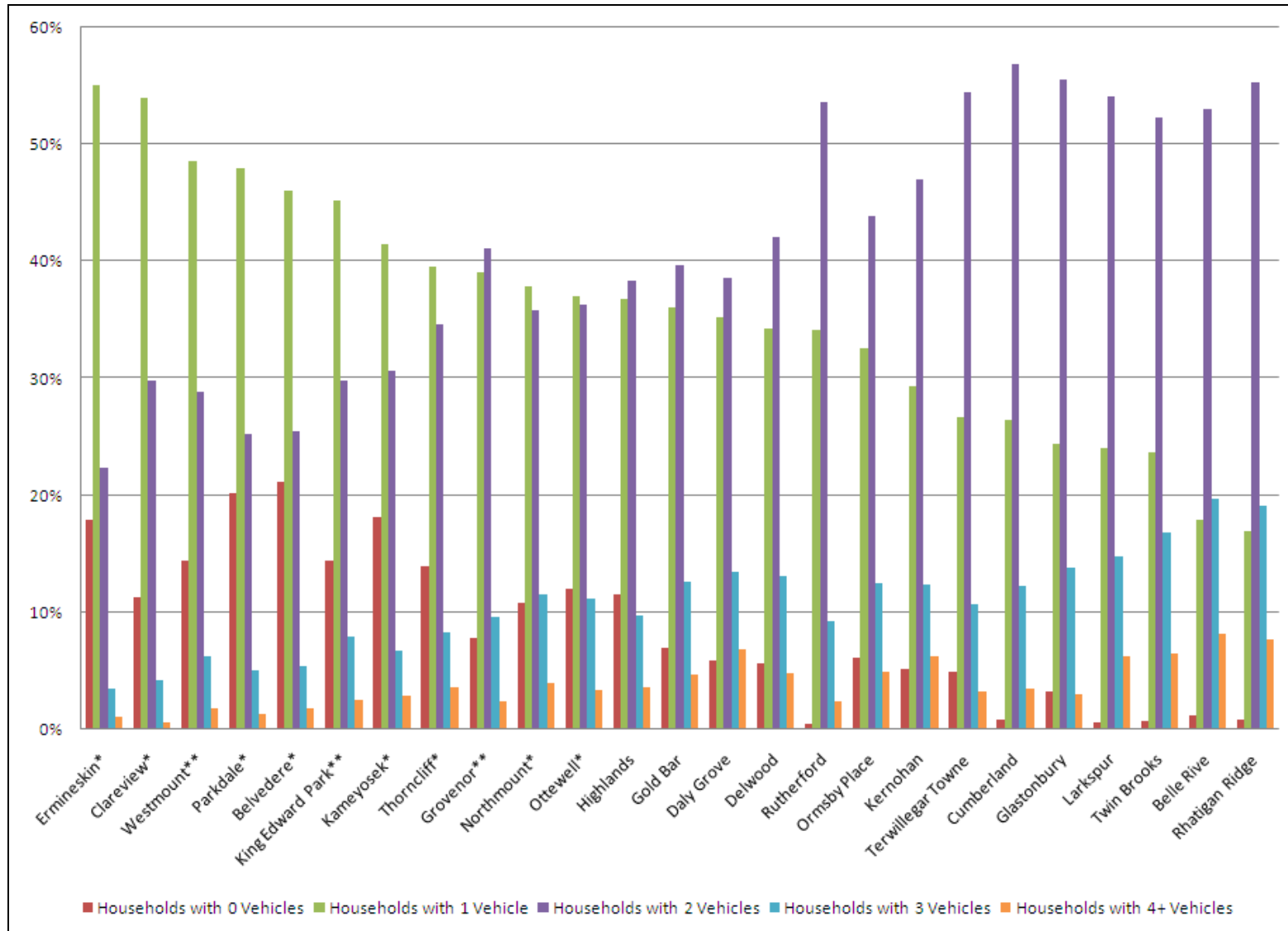
With respect to parking, the vehicle ownership evaluation offers some insight into parking requirements of residential developments throughout the City. In general this review indicates that, despite preconceived notions, not all households in Edmonton have two or more vehicles. It has been concluded that opportunities exist to evaluate and potentially reduce the parking requirements associated with residential development subject to location and proximity to transit and potentially other factors such as development type.

4.2 HOUSEHOLD INCOME CHARACTERISTICS

Household income is defined as the combined annual gross income (before taxes) for all members of a household. Household income is known to have a strong influence on travel characteristics and it is therefore useful to understand the level and distribution of household incomes.

Based on a review of a number of reference documents including the City of Edmonton 2005 Household Travel Survey and the 2001 Census of Canada (Statistics Canada), average household incomes are typically lower in inner City neighbourhoods which have excellent access to transit service. **Figure 4-3** presents a summary of household income by City Ward.

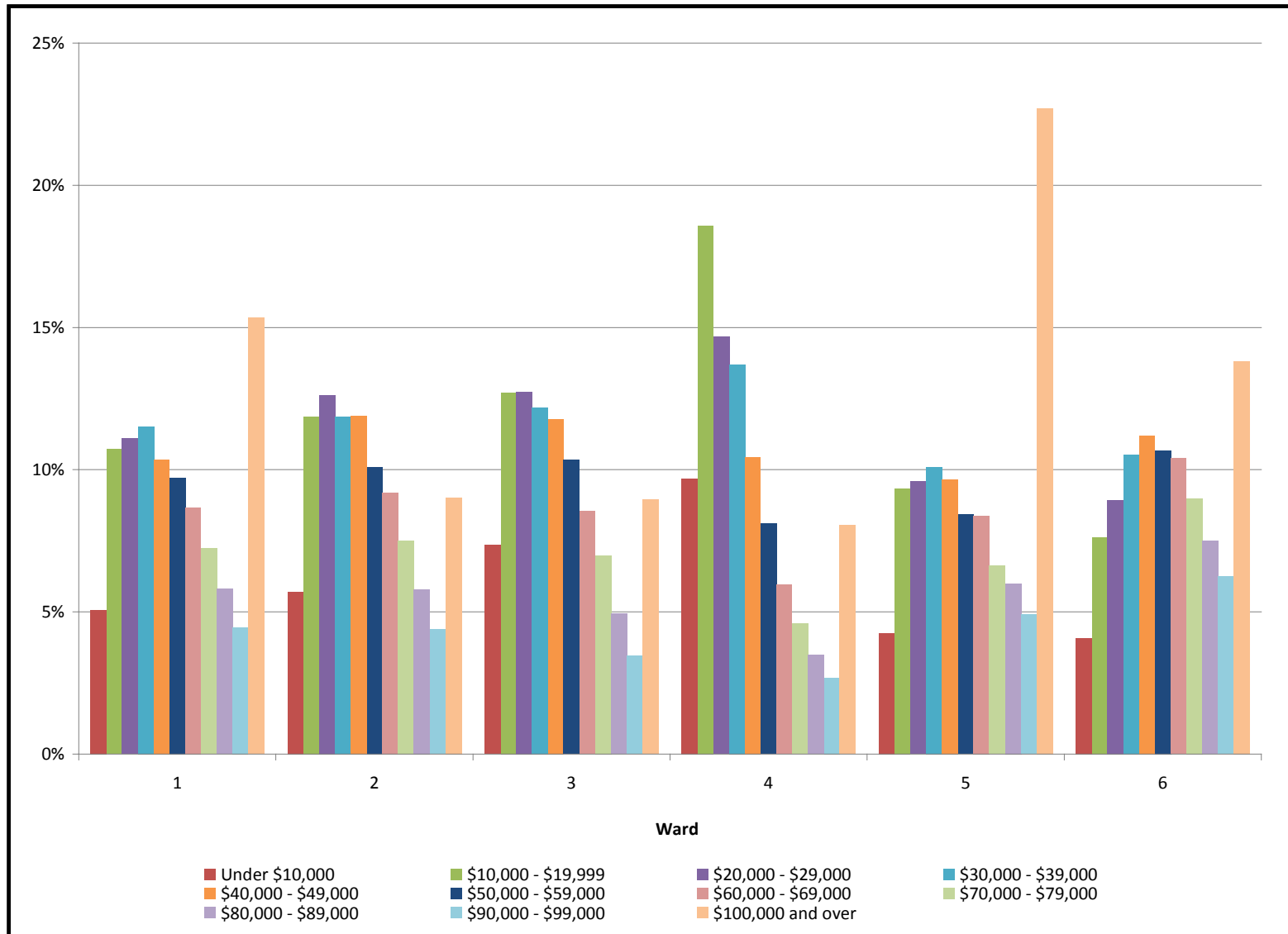
Figure 4-2 – Vehicles per Household Select Neighbourhoods



* Neighbourhoods with or that are adjacent to a Transit Centre or LRT Station

** Neighbourhoods which either incorporate or are adjacent to multiple transit routes

Figure 4-3 - Household Income by City Ward



As highlighted in Figure 4-3, there appears to be a correlation between auto ownership and household income. The Mature Area Overlay boundary does cover an extensive area of the City and includes neighbourhoods where frequent transit service may not be available. However, in general, neighbourhoods located within the Mature Area Overlay (where transit service is readily accessible) typically reflect lower auto ownership characteristics. The 2005 Household Travel Survey identified that the number of vehicle trips made per household increases with increased household income levels and that the mode split to transit decreases with higher household incomes.

4.3 RESIDENCE CHARACTERISTICS

Currently the City of Edmonton makes no differentiation between market and non-market housing. Non-market housing typically has lower parking demands per unit (due to smaller unit sizes and lower incomes of residents) and equally important, it often requires lower parking levels to make it affordable.

Most non-market housing is typically associated with multi-family developments although some single family homes can fall into non-market housing definitions. Parking requirements associated with non-market housing are usually lower than market housing parking requirements to reflect the fact that residents are expected to own fewer vehicles due to their lower incomes. However, it is noted that these types of developments are often located in areas with mixed uses and higher levels of transit, which helps offset the need for additional vehicles.

Some municipalities do specify separate parking requirements for non-market or affordable/non-profit/accessible housing. Parking regulations in the cities of Vancouver and Seattle include lower parking rates for low income multi-family developments. The parking rates associated with low income developments range from a low of 1 stall per 6 dwelling units to a high of 1 stall per 2 dwelling units which were applied to developments that achieved specific criteria. In Vancouver, developments are considered low income if they met the criteria set out under the National Housing Act while Seattle's requirements utilized location and income criteria laid out in its Municipal Code.

In addition to affordable housing, seniors housing is often considered a component of non-market housing. Some of the municipalities separate parking rates for seniors housing from other types of multi-family housing. Lower rates associated with seniors housing are typically associated with the notion that auto ownership and driving rates typically declines as people age.

The age of 65 is the point at which a person is generally considered a senior. However, auto ownership data indicates⁵ that at this age, most senior's households still have 1

⁵ Household Car Ownership in Different Countries: A Cohort Analysis, Alki Berri, INTRETS_DEST, June 14, 2005

vehicle per household, and driving characteristics research indicates that older drivers actually drive more kilometres than younger drivers.⁶

In addition, the term “seniors housing” often covers a broad range of age groups and housing types and therefore a single seniors housing parking requirement may not apply to all types of senior’s housing developments. While it is acknowledged that seniors housing developments often appeal to seniors who have lower levels of auto ownership, detailed review of parking demands associated with the various types of seniors developments found in Edmonton would be required prior to developing an overall parking requirement for seniors housing.

Generally speaking, seniors housing parking requirements need to be developed such that they best reflect the driving characteristics of the residents. Developments associated with younger more independent seniors should be more in line with typical market housing parking requirements and developments geared towards older and/or less independent residents could have lower parking requirements that are similar to typical non-market housing parking requirements.

In addition to senior and affordable housing, disabled housing can also be considered a component of non-market housing. Although often considered a component of assisted living facilities where the parking needs are primarily associated with staff and visitors, some disabled housing facilities that accommodate a more independent form of living may be more accurately assessed as non-market housing.

Reducing parking requirements is a primary method of addressing parking issues associated with non-market residential developments. As with any parking supply reduction, this must coincide with a decrease in parking demand. With respect to non-market housing, a reduction in parking demand is typically associated with lower auto ownership characteristics associated with lower incomes. While this is often the case, it is also important to recognize the importance of supporting measures including access to alternative modes of transportation including, walking and transit as well as proximity to complementary land uses including employment centres, commercial and entertainment developments.

Innovative approaches to non-market housing parking requirements can also include:

- Utilization of shared parking facilities. For example providing residential parking in facilities that are utilized by businesses during the day and residents during the evening;
- Utilization of on-street parking to accommodate visitor parking requirements; and,
- Cash-in-lieu fees which are specific to non-market housing developments. This could include lower than typical rates, or applying fees to a specific fund associated with affordable housing initiatives.

⁶ Driving Characteristics of the Young and Aging Population, John Nicoletta, Statistics Canada, 2002

4.4 PROXIMITY TO TRANSIT

Proximity to transit can be defined in many ways however it is most often specified based on distance to the facility and the type of facility.

Where bylaws have included parking reductions to account for proximity to a transit facility, distances used typically range between 400 m and 1 km and are most often in the range of 600 m. This distance is a distance often referenced in transit oriented development guidelines and roughly equates to a distance that a typical pedestrian can walk in 5 to 10 minutes.

Transit facilities are typically defined as transit centres, (with or without LRT Nodes) or as Transit Avenues. Transit Avenues are best characterized as linear corridors which provide a high level of transit service and where land use characteristics and urban design combine to create high density development opportunities. In some cases, parking reductions are also allowed for new developments located within a specified distance of major transit facilities not yet constructed but which are identified in planning documents.

Most parking management policies associated with "proximity to transit" allow for a reduction in the number of on-site parking stalls required by the development when the development is located in close proximity to a transit facility.

Where parking rates associated with proximity to transit are not specified, the parking reductions are often described as a percentage of the spaces required for an equivalent development that does not meet the proximity to transit criteria. For example, if development is developed within 600 m of a LRT station it will only require 80% of the parking required for the same development located outside of this distance.

4.5 OTHER VARIABLES THAT INFLUENCE PARKING DEMAND

In combination with household car ownership and household income characteristics, there are a number of other household demographic variables and other parameters which may impact the demand and hence the supply of parking required at development sites.

Based on a review of the TCRP Report 95, Traveller Response to Transportation System Changes, Chapter 17 - Transit Oriented Development, it has been identified that automobile ownership represents one of the most significant mode choice factors. This report suggests that individuals living in households with no vehicle or with fewer cars than licensed drivers are more likely to use transit, walk or carshare than individuals living in households with more cars.

Other demographic and transportation variables that could influence parking demands include but are not limited to:

- Household size and ownership (rental versus owned);
- Number of employees per household;
- Auto accessibility for the home zone (travel times);

- Employment accessibility requirements;
- Employment work schedules;
- Employer Transportation Demand Management Programs;
- Proximity of activities, walk and transit accessibility and availability (neighbourhood design);
- Parking competition (i.e. development parking versus park and ride at TOD developments); and,
- Cost of parking at home and at destination.

The aforementioned variables and factors all may affect parking demand and supply characteristics both at a resident's origin and destination. In many cases, the variables and influencing factors are interactive.

4.6 CASE STUDY – SKY TRAIN USAGE AND CAR OWNERSHIP PATTERNS

To determine the effect of Vancouver's SkyTrain on auto ownership patterns, a comprehensive household survey was undertaken to record information on car ownership, SkyTrain use and other parking characteristics. (Source: Car Ownership Patterns Near Rapid Transit Stations, Bunt & Associates Engineering Ltd., CITEBC, 1998).

Approximately 60 buildings containing 4,000 households in the east side of Vancouver and the west side of Burnaby were selected for the survey. The surveyed buildings were chosen to provide a mix of townhouse, low-rise and high-rise buildings of various sizes and to represent both rental and owner-occupied units. The buildings were also generally no more than 15 years old.

To test the effect of SkyTrain, the sample was broken into two groups (i) those within 300 meters walking distance of a SkyTrain station, and (ii) those beyond a reasonable walking distance, defined as at least 1,000 meters from the closest SkyTrain station. Thirty-three of the buildings selected were within walking distance of SkyTrain. At least two buildings were identified for each of five stations. Survey questionnaires were executed in three ways including telephone interviews, hand-out surveys and mail-back surveys administered by the City of Vancouver. Completed responses were collected from 555 households representing a response rate of about 14%.

The main findings from the survey are:

- For multi-family residential households located near SkyTrain Stations (within 300 meters or slightly less than a 5 minute walk), the average car ownership was 0.96 vehicles per unit. For more remote locations (1,000 meters plus), the average car ownership was 1.05 vehicles per unit, about a 10% increase. Interestingly as many as 24% of households living near SkyTrain reported not owning any vehicles.
- The effect of SkyTrain on car ownership is most clearly identified by comparing the reported frequency of transit usage with car ownership. Among households that use SkyTrain for more than 10 trips per month, car ownership has been determined to be in the order of 0.82 vehicles per unit. This finding can be compared with an average of 1.14 vehicles per unit for households where residents ride on SkyTrain

less than twice a month. These results tie back to proximity to SkyTrain in that the survey also found that the households nearer a Station are more frequent SkyTrain users. Located near a station, 47% of the households ride SkyTrain frequently (more than 10 trips per month) while only 18% of those households remote to SkyTrain ride frequently. Conversely, 24% of those near SkyTrain still are very infrequent users (less than 2 trips per month) but remote from SkyTrain that figure increases to 60%. This association confirms a major premise of the study: that location near to SkyTrain does correspond with more transit use, and car ownership is lower as a result.

- Whether near to SkyTrain, or more distant, beyond the 1,000 meter threshold walking distance to a station, car ownership on average is lower for households within the SkyTrain “corridor” in Vancouver and Burnaby than for more suburban locations away from the corridor. From the 555 survey responses collected, the average car ownership was 0.99 vehicles per household. This compares to a 1991 survey of 540 multi-family households in Coquitlam that revealed an average car ownership of 1.48 vehicles per household, and a 1990 survey of 760 households throughout Burnaby that showed an average car ownership of 1.40 vehicles per household.
- While the survey did identify a linkage between proximity to SkyTrain and car ownership, clearly the primary factor influencing car ownership, even in “Sky – Train neighbourhoods”, is the level of household income. The survey found those households earning more than \$70,000 per year on average own 1.51 vehicles while those earning less than \$30,000 on average own only 0.73 vehicles per household. Other related linkages confirmed by the study include increasing car ownership with increasing household size and increasing residential floor space area.
- Other variables tested in the survey included:
 - Walking Distance to SkyTrain: Among the buildings that are located within walking distance to SkyTrain, there was no clear gradient in car ownership between buildings located 50 meters or 300 meters;
 - Rental versus owner-occupied: car ownership among owner-occupied households was slightly higher than Rental households, but not substantially;
 - Length of Residency: Average residency for respondents at the current address was 2.8 years. Most (over 90%) reported no change in the number of cars owned over the previous two years. For those who reported changes, roughly as many increased the number of cars owned as decreased them;
 - Parking Costs: There was no apparent link between the cost of parking and car ownership.

4.7 SYNOPSIS

A number of parameters and variables that contribute to parking demand and parking supply have been identified. Based on a review of City of Edmonton characteristics, it

has been determined that neighbourhoods which are located in close proximity to regular and frequent transit service exhibit lower auto ownership patterns.

It has been concluded that on average, the rate of car ownership generally increases with distance from easily accessible transit routes and transit service. This broad finding would suggest that parking requirements in areas of the City which are well served by public transit may not require the same level of parking supply as areas of the City which are not as well served by public transit.

The Zoning Bylaw should address parking reductions for market versus non-market housing and for seniors housing by allowing the development authority to reduce parking requirements for these types of land uses.

Benchmarking is a valuable tool. Benchmarking studies can serve as a scorecard that sets similar criteria between municipalities and can act as an essential marker to determine where the City of Edmonton Zoning Bylaw parking standards fall relative to other municipalities. This chapter presents a summary of a comprehensive benchmarking exercise.

5. COMPARATIVE REVIEW OF CURRENT PRACTICES – OFF-STREET PARKING REQUIREMENTS

5.1 BENCHMARKING OVERVIEW

The benchmarking component of the study compares the existing City of Edmonton parking requirements (Schedule 1 of Section 54.2 of the Zoning Bylaw) with parking standards currently employed by a number of other North American cities. The purpose of completing the benchmarking exercise was four-fold:

- to allow a high level comparative analysis of City of Edmonton parking regulations relative to parking regulations used by other municipalities to be completed;
- to identify the variables /measurements other municipalities use to calculate parking requirements (i.e., floor area, number of units, patron space, employees, etc.);
- to review parking requirements used by other municipalities for a number of select land uses identified by the Planning and Development Department which were deemed problematic from a development permit approval perspective; and,
- to identify parking strategies and tactics being implemented by other municipalities and often incorporated into land use and zoning bylaws that may have applicability in the Edmonton context (cash in lieu policies, shared parking, TDM, etc.).

It is acknowledged that each of the selected municipalities has its own characteristics, population, geographic layout, level of transit service, levels of congestion, etc. These factors influence trip making activity and travel mode choices and as such, influence parking requirements. Although it is anticipated that each city would incorporate parking regulations which are based on their own unique characteristics and exhibited parking demands, there is some merit in completing a high level comparative analysis between City of Edmonton parking regulations and parking regulations found elsewhere. It is also acknowledged that reviewing parking regulations incorporated in land use and zoning bylaws found in other jurisdictions relates to overall parking supply requirements and does not provide definitive or relative information on parking demands.

5.1.1 Comparison Cities

Ten cities including 5 from Canada and 5 from the United States were included in the comparison. The cities evaluated include Calgary, Ottawa, Winnipeg, Vancouver, Burnaby, Minneapolis, Denver, Salt Lake City, Seattle and Portland. These cities were selected based on some similarities to Edmonton in terms of the following criteria:

- Population – Ranges between approximately 200,000 to 1,000,000 (in metropolitan areas).
- Climate – Similar climates to that of Edmonton; typically experiencing 3 or 4 distinct seasons.
- Area - Comparable in size with respect to land area.
- Density - Similar population densities, for the most part greater than 1,000 citizens/km².
- Urban Design/Land Use - Similar zoning, land use, transportation methods and services.

Table 5-1 summarizes the population, area and density for the selected comparison cities. Although it is recognized that some of the selected cities chosen for the benchmarking survey are smaller than the City of Edmonton, the importance of including them in the survey was to determine if some of the selected cities have implemented innovative parking management programs which may have applicability in Edmonton. It is often easier in smaller municipalities to implement new procedures and guidelines than in larger municipal organizations.

Table 5-1: Comparison City Statistics

| City | Population | Size (km ²) | Density (citizens/km ²) | Source |
|-----------------------|------------|-------------------------|-------------------------------------|------------------------------|
| <i>Edmonton</i> | 752,412 | 699 | 1075 | 2008 Civic Census |
| <i>Calgary</i> | 1,042,892 | 726 | 1436 | 2008 Civic Census |
| <i>Ottawa</i> | 877,300 | 2,796 | 314 | February 2009 City Website |
| <i>Winnipeg</i> | 633,451 | 464 | 1365 | 2006 Statistic Canada Census |
| <i>Vancouver</i> | 578,041 | 115 | 5039 | 2006 Statistic Canada Census |
| <i>Burnaby</i> | 202,799 | 89 | 2276 | 2006 Statistic Canada Census |
| <i>Denver</i> | 566,974 | 396 | 1432 | US Census Bureau |
| <i>Salt Lake City</i> | 181,743 | 288 | 631 | February 2009 City Website |
| <i>Minneapolis</i> | 382,618 | 139 | 2753 | US Census Bureau |
| <i>Seattle</i> | 582,454 | 214 | 2722 | US Census Bureau |
| <i>Portland</i> | 537,081 | 347 | 1548 | US Census Bureau |

As mentioned previously, parking demands, standards and regulations in other municipalities may to some extent be predicated on a number of local variables including the overall transportation network development, transit accommodation, network accessibility, auto ownership patterns, etc., which may reflect differing attributes to Edmonton.

Notwithstanding the above, and recognizing that caution must be taken when comparing parking regulations and guidelines from other municipalities, the completion of the benchmarking component does provide a baseline to allow for continuous improvements in parking management to be identified and explored.

5.1.2 Methodology

Each use listed under the “Use of Building or Site” component of Schedule 1 of Section 54.2 of the Zoning Bylaw, excluding those uses impacted by the Downtown Area Redevelopment Plan, was reviewed. Parking requirements associated with similar land uses from the comparison cities were then evaluated, and where applicable comparisons were made. This allowed for each city’s requirements and practices to be juxtaposed and compared to the City of Edmonton requirements on a use by use basis. The complete data set including a listing of the internet addresses through which the parking requirements were accessed is summarized in **Appendix C – Benchmarking Summary**.

During the review it was noted that many of the cities have separate parking requirements for their downtown cores. Where the parking regulations associated with downtown areas were easily separated from the general parking regulations they were excluded from the review. With respect to the parking regulations associated with each city the following is noted:

Calgary – Deals with its downtown area as a separate part of its Land Use Bylaw. Parking requirements for development within the downtown area are addressed within the downtown component of the bylaw and were not evaluated in this assessment.

Ottawa – Assesses parking requirements by both use class and location. The summary tables in Appendix C include all parking requirements for the City however, the summaries presented within this document focused on parking rates associated with areas outside of its Central and Inner City Areas.

Winnipeg – The Winnipeg Zoning Bylaw parking regulations apply to the entire City with some modifications applied to designated infill areas.

Vancouver – Has a very detailed Parking Bylaw and many of the residential related parking regulations are associated with zoning districts in addition to use classes. The regulations analyzed in this assessment exclude the regulations associated with the Downtown, Central Waterfront districts, the South East False Creek Area, designated Historic Areas and any areas where the parking regulations are designated in specific overlays or development plans.

Burnaby – Parking regulations are primarily based on use class. Some use classes are further classified based on zoning district or area requirements. For the purposes of this assessment all areas were included.

Minneapolis – Parking regulations assessed for this benchmarking exercise excluded the parking regulations associated with the City’s downtown district. With the exception of residential uses, Minneapolis lists both minimum and maximum parking requirements, both of which are included in this evaluation.

Denver – Designates parking requirements based on parking class and then designates specific use classes into the various parking classes. In this assessment, all parking and use classes were evaluated except where the parking regulations were governed by specific overlays or development areas.

Salt Lake City – Regulations apply to all use classes with exceptions associated with uses located in the downtown district. The downtown district exceptions were not evaluated as part of the benchmarking assessment.

Seattle - Parking regulations are primarily based on use class. Some use classes are further separated based on zoning district or area requirements. The parking regulations associated with downtown zones were not included in this assessment however where area specific regulations were easily evaluated, they were included.

Portland – Parking regulations in Portland are designated by zone and by use class. For the purpose of this assessment, only the use class parking regulations were evaluated. Where applicable, Portland lists both minimum and maximum parking requirements which have been included in this assessment.

5.2 BENCHMARKING – RESIDENTIAL USES PARKING REQUIREMENTS EVALUATION

In the City of Edmonton Zoning Bylaw, residential land uses can generally be classified into one of three major categories including:

- Apartment Housing, Row Housing and Stacked Row Housing;
- Boarding and Lodging Houses, Fraternity and Sorority Housing, Garage Suites and Secondary Suites; and,
- Duplex Housing, Mobile Homes (excluding mobile home parks), Semi Detached Housing and Single Detached Housing.

It can be stated that the above noted use classes are primarily categorized based on density. During the review process, it was noted that the majority of municipalities assess residential uses based on density however, there are other factors that affect residential parking demands including housing type (e.g. market vs., non-market housing, or seniors housing vs. assisted living housing), location and development mix. For example, some municipalities take adjacent development types into account when assessing residential development parking requirements.

Although there are other categories in the residential component of Schedule 1, they primarily deal with residential-related uses rather than pure residential uses and equivalent land uses were not always found in the comparison city's regulations. The following analysis summarizes the evaluation of the primary residential uses.

5.2.1 Apartment Housing, Row Housing and Stacked Row Housing

The apartment housing, row housing and stacked row housing use class is Edmonton's primary multi-family development use class. All of the comparison cities except Minneapolis and Portland delineated multi-family housing from single family housing, however the parking indices varied depending on the municipality.

Minneapolis's parking regulations did not differentiate between housing types, all residential uses are assessed as residential uses. Portland also primarily utilized only one use class for all residential uses. It did identify dedicated parking rates for multi-family developments in certain areas, however the parking index for these classes was not higher than the general residential use class parking requirement.

Most cities use a per unit variable for determining residential parking requirements. Some cities, like Edmonton, also utilize the number of rooms as a proxy variable to reflect unit sizes. Vancouver was the only comparison city that uses floor area as an independent variable for determining parking requirements for multi-family residential development. It is understood that their formulae have been developed based on detailed local observations of demand.

In general, the review indicated that parking requirements for typical multi-family housing ranged from a low of 0.5 stalls per unit to a high of 1.75 stalls per unit. The lower rates are typically associated with urban areas or development overlays that support smart choices, transit and pedestrian oriented development concepts.

This assessment suggests that there is value in reviewing Edmonton's multi-family development parking requirements to ensure that parking associated with these developments is not over supplied. It is anticipated that parking requirements associated with multi-family developments will become a more critical component of development concepts especially with respect to developments that are associated with transit oriented development nodes and smart choices strategies identified in the City's Draft Municipal Development Plan and Transportation Master plan.

Some municipalities set specific parking rates for multi-family developments that accommodate low income or senior citizens. Although in Edmonton, lodging for senior citizens can be assessed under the Boarding and Lodging use class, the types of development associated with senior citizens can vary greatly. The review revealed that most of the rates associated with seniors housing were assessed based on dwelling unit rather than room or sleeping unit and therefore they have been included in this portion of the review.

Typically, parking rates associated with low income and senior uses reflect the fact that residents are expected to own fewer vehicles due to their lower incomes, but also that this type of housing is typically located in areas with mixed uses and higher levels of transit. Furthermore, it is acknowledged that the provision of on-site parking has significant costs associated with it, which affects the affordability of such units. Thus the reduced parking requirements for these types of developments can also be a function of market forces.

While it is acknowledged that not all low income or senior's housing developments will have reduced vehicle use, the review provided some argument for introducing provisions for low income and seniors housing into the Zoning Bylaw. Additional provisions could be used to either supplement parking requirements associated with lodging for senior citizens assessed under the Boarding and Lodging use class, or include introduction of a new use class that builds on the City's affordable housing initiatives and the accessibility and aging population objectives identified in the Draft Municipal Development Plan.

With respect to visitor parking, only the Cities of Calgary, Ottawa, Winnipeg and Burnaby had explicit rates for visitor parking associated with multi-family housing developments. The visitor rates were typically between 0.1 and 0.25 stalls per unit. Edmonton's 1 stall per 7 units (0.14 stalls per unit) falls within this range.

5.2.2 Boarding, Lodging, Fraternity and Sorority Houses: Garage Suites: Secondary Suites

The boarding, lodging, fraternity and sorority houses, garage suites and secondary suites use class accommodates a component of residential housing stock that is associated with smaller residential units and group living situations where lodging or sleeping accommodation with or without meals is provided in exchange for remuneration. Similar use classes were found in all of the comparison cities although not all of the cities included a separate use class for fraternity and sorority houses.

Secondary and Garage suites are also assessed under this use class. Only some of the cities had specific parking requirements for secondary or accessory suites as they are referred to in the American cities.

With respect to the boarding and lodging type facilities, the variable used to determine parking requirements was either units, beds or residents. In a few cases the requirements are based on a floor area calculation. Typical rates were between 0.5 and 1 stall per unit/bed/resident although Winnipeg's rates were much lower at 0.33 or 0.2 stalls per bed/bedrooms. Edmonton's rate for boarding and lodging facilities falls within the range of rates typically used for these use classes.

With respect to secondary suites, the parking requirements range from no additional parking requirements to one additional stall 1 per unit. At 1 stall per 2 sleeping units, Edmonton's rate requires that each secondary suite have at least 1 parking stall (a bachelor or one bedroom suite would require 0.5 stalls which is rounded up to 1 stall) in addition the stalls required for the primary dwelling unit.

5.2.3 Single, Semi-detached, Duplex Housing and Mobile Homes

The duplex housing, mobile homes, semi-detached and single detached use class is Edmonton's primary single family development use class. All of the comparison cities except Minneapolis and Portland delineated multi-family housing from single family housing and although Denver has a definition for single family dwellings, it did not specify a parking requirement for this use class.

At two stalls per dwelling unit for all duplex housing, mobile homes, semi-detached and single detached buildings, Edmonton's parking regulations represent one of the higher parking requirements for single family developments. Most of the comparison cities have minimum parking requirements of 1 stall per dwelling unit.

At two stalls per unit, Edmonton's requirement could be interpreted as working against the sustainability and urban form principals laid out in the Draft Municipal Development Plan and Transportation Master Plan. It has been concluded that, as with the multi-family parking requirements, there is value in reviewing Edmonton's single family development parking requirements especially with respect to developments that are associated with transit oriented development nodes and smart choices strategies

identified in the City's Draft Municipal Development Plan and Transportation Master Plan.

5.2.4 Residential Uses Parking Requirements Summary

The benchmarking review revealed that the City of Edmonton's residential use classes are similar to the use classes used to define residential development in the comparison cities. While the parking requirements generally fall in line with the comparison cities, there are some areas that require further research and assessment. The areas identified as requiring additional review are as follows:

- That there is value in reviewing Edmonton's multi-family development parking requirements to ensure that parking associated with these developments is not over supplied. It is anticipated that parking requirements associated with multi-family developments will become a more critical component of development concepts especially with respect to developments that are associated with transit oriented development nodes and smart choices strategies identified in the City's Draft Municipal Development Plan and Transportation Master Plan.
- The review provides some argument for introducing provisions for low income and seniors housing into the bylaw. Additional provisions could be used to either supplement parking requirements associated with lodging for senior citizens assessed under the Boarding and Lodging use class, or could include introduction of a new use class that builds on the City's affordable housing initiatives as well as the accessibility and aging population objectives identified in the Draft Municipal Development Plan.
- In general, the parking requirements associated with the boarding, lodging, fraternity and sorority houses, garage suites and secondary suites component of the bylaw are reasonable. Further review of residential parking requirements could include this use class however it is not deemed necessary based on this review.
- As with the multi-family parking requirements, there is value in reviewing Edmonton's single family development parking requirements especially with respect to developments that are associated with transit oriented development nodes and smart choices strategies identified in the City's Draft Municipal Development Plan and Transportation Master Plan.

5.3 BENCHMARKING – NON-RESIDENTIAL USES PARKING REQUIREMENTS EVALUATION

The Zoning Bylaw provides parking requirements for various non-residential uses including, commercial uses, industrial uses, basic service uses and uses that fall under the community, educational, recreational and cultural use class. The benchmarking exercise revealed that many of the use classes identified in the City's Bylaw are unique to the City of Edmonton and comparison cities did not have equivalent uses. This also worked in reverse, as comparison cities often had parking requirements for use classes not definitively identified in the Zoning Bylaw.

The benchmarking exercise compared the parking requirements associated with the non-residential use classes listed in Schedule 1 of Section 54.2 to parking requirements for similar use classes from the comparison cities. The preliminary evaluation analyzed every non-residential use class listed in Schedule 1. However, the analysis presented within this report focuses a select group of critical use classes. These use classes were selected for further evaluation as they typically represent non-residential uses that are associated with multi-tenant commercial services sites similar to the sites survey in the baseline conditions assessment (Section 3.0) and/or are use classes whose parking requirements are often challenged by proponents or the administration. The specific use classes evaluated further include:

- Commercial Use Classes Not Listed Separately
- Health Services
- Major Alcohol Sales
- Professional, Financial and Office Support Services
- Restaurants
- Child Care Services

5.3.1 Commercial Use Classes

In addition to the commercial use classes that are not listed separately, there are 14 separate commercial uses denoted in Section 54.2, Schedule 1 of the Zoning Bylaw. However, they do not cover all commercial uses or developments. As a result, many commercial developments in Edmonton are assessed under the “Commercial Use Classes Not Listed Separately” category. Uses typically assessed under this requirement are listed in Section 7.4 of the Zoning Bylaw and include developments such as Automotive and Equipment Repair Shops, Business Support Services, Convenience Retail Stores, Gas Bars, and Personal Service Shops.

Parking requirements associated with this category are determined based on floor area of development with requirements ranging from 2.5 stalls per 100m² to 4.0 stalls per 100m² depending on the size of the development. It is noted that these are minimum requirements, and there are no maximum requirements or caps associated with this use class.

The benchmarking review revealed that most cities are relatively prescriptive when it comes to commercial use parking requirements. Although the comparison cities specified rates for uses that are assessed under the commercial development not listed separately use category in Edmonton, often times the rates were repetitive or varied only slightly from one another. In addition, it is noted that some of the requirements are based on floor area and some on gross floor area. Furthermore, some requirements incorporate useable or leasable area variables into their requirements. For the purposes of this analysis, no distinction was made between the floor area definitions utilized by the comparison cities.

In general, the City of Edmonton’s commercial parking requirements fall within the range of parking requirements applied by the comparison cities. Edmonton’s lowest rate (2.5 stalls per 100 m²) is higher than some of the lower rates utilized by the

comparison cities. The lowest rate was found to be 0.5 stalls per 100 m² however most cities have a minimum rate closer to 1 stall per 100 m².

With respect to varying parking requirements based on the size of the building, Vancouver was the only other city with parking requirements that are dependent on the size of the development. However, Vancouver's parking rate is a tiered rate that utilizes varying rates for one development whereas Edmonton applies one rate to development depending on its overall size. While there is some validity to the argument that larger developments generally have higher parking demands this argument does not account for on-site synergies and potential parking demand reductions associated with shared uses that can be associated with larger developments.

It is noted that most cities use the conventional approach to non-residential parking supply and only prescribe minimum parking requirements in their bylaws. While this ensures that sites are designed to accommodate peak parking demands for their own individual needs, it does not stop sites from being over supplied with respect to typical parking demands. Minneapolis and Portland were the only two cities that impose maximum parking requirements on commercial developments. While these maximums do not impede development of appropriately sized parking facilities, they do prevent excessive parking facilities and have potential to encourage development of more efficient parking management strategies that take advantage of shared use and on-street parking supplies.

5.3.2 Health Services

According to the Zoning Bylaw, Health Services typically include medical and dental offices, health clinics and counselling services. Many of these services are found in multi-tenant commercial sites and as such are considered an integral component of commercial development sites in Edmonton. A number of the sites surveyed in the existing conditions assessment contained medical and/or dental office uses.

All of the comparison cities had prescriptive parking requirements for uses that fall within the Health Services use class. Although Edmonton's Health Services parking requirement falls within the range of parking rates typically applied to similar uses in other cities, it is at the higher end of the range.

In general it is acknowledged that Edmonton's Health Services parking rate is reasonable, however these facilities are also considered ideal candidates for the application of synergistic shared use parking principles.

5.3.3 Major Alcohol Sales

Major Alcohol Sales establishments are a specific use class often found in multi-tenant commercial sites. Although the Bylaw requires a separate calculation, actual parking demands associated with this use class are an integral component of the overall parking demands of the site as a whole.

Only five out of the ten comparison cities had specific parking requirements associated with this use class. Requirements ranged from a low of 2.5 stalls per 100 m² of gross floor area to a high of 5.4 stalls per 100 m² of gross floor area. In some cases liquor stores are assessed as general retail establishments. Edmonton's Major Alcohol Sales parking requirement is within the range of parking requirements associated with similar uses in

the comparison cities. While there isn't need to adjust this parking rate, there may be opportunities to evaluate this rate further as it relates to shared use parking requirements.

5.3.4 Professional, Financial and Office Support Services

Professional, Financial and Office Support Services typically include professional, management, administrative, consulting, and financial service establishments but do not include Health or Government Services. While many of these developments currently operate as independent sites, there is a desire to include more of these developments in mixed - use sites and it is anticipated that they will become integral components of the employment nodes.

The parking requirements range from a low of 1.1 to a high of 5.4 spaces per 100 m² for office type land uses. Although at the high end of the range, Edmonton's Professional, Financial and Office Support Services use class parking requirement are within the range of parking requirements associated with similar uses in the comparison cities.

Based on this evaluation, there is no evidence to suggest that Edmonton's parking rate does or does not accommodate typical peak parking demands associated with these uses. However, it is anticipated that that developments associated with this use class will become a prominent component of mixed - use and employment development nodes. In conjunction with this, the parking requirements associated with this use class may need to be adjusted to incorporate more innovative parking management strategies. For example, the City of Ottawa has implemented separate parking requirements for developments located in close proximity to transit while the City of Portland caps the number of parking stalls associated with these facilities.

5.3.5 Restaurants

The restaurant use class includes developments where the primary purpose of the facility is the sale of prepared foods and beverages and includes both fast food and family restaurants. These types of establishments are often found in multi-tenant commercial sites either as standalone buildings or as integrated components of commercial shopping centres. They represent an interesting component of commercial sites as they are typically a significant parking generator however they are also a synergistic use of the site. Parking associated with restaurants typically peaks during the noon hour and the dinner rush however higher parking demands can expand into the evening hours as the dinner rush tends to spread beyond PM peak hour associated with shopping and traffic activity.

With respect to drive through restaurants, parking requirements are based on the public space within the building as per restaurant use class requirements. It is noted that there is a Drive-in Food Service use class defined under the Commercial Use Classes of the Bylaw, however this use class primarily deals with queuing space requirements associated with the drive through component of the development.

Although Edmonton's restaurant rate is based on public space and the majority of the other parking rates are based on floor area, the parking rates have been normalized to Edmonton's 3.6 m² factor whether it represents public space or floor area.

Edmonton's restaurant use class parking requirements are higher than the parking requirements of most of the comparison cities. It is acknowledged that Edmonton's rate is based on public space rather than overall floor area, however assuming that public space represents 60% of the overall floor area Edmonton's rate would still be higher than the majority of parking rates associated with restaurants in the comparison cities.

It is acknowledged that there is no demand based evidence supporting any of the rates used in the comparison cities. However, the discrepancy between rates suggests that further review of the parking requirements associated with restaurants may be warranted in conjunction with further updates to the Zoning Bylaw.

5.3.6 Child Care Services

The Child Care establishments represent one of the land uses identified under the Community, Educational, Recreational and Cultural Service category in Section 54.2, Schedule 1. Generally this use includes daycare, out-of-school care and drop-in centres and nursery schools. Although not necessarily a commercial use, they can be located within neighbourhood commercial sites and are often located in residential neighbourhoods.

The City of Edmonton identified Child Care facilities as a use of interest due to the fact that parking requirements associated with these land use are often cited as an obstacle associated with the creation of new child care centres, particularly in residential areas. Furthermore there is colloquial evidence suggesting that the employees of such facilities do not frequently use private vehicles to get to work, and therefore the primary parking demands associated with child care services is pick-up and drop-off stalls rather than long term daily parking stalls.

When compared to other stall per employee rates, Edmonton's one stall per employee requirement is one of the higher parking rates associated with child care facilities. If the colloquial evidence is correct and the majority of employees do not drive to work, this rate has potential to require excessive long term parking stalls associated with these facilities. An onerous parking requirement may preclude the development of such facilities.

However it is also likely that stalls associated with these facilities are utilized as drop-off/pick-up stalls associated with general traffic activity at these facilities. The current Bylaw requires one parent drop-off space per 10 children.

The benchmarking review and historical concerns raised by the City indicates that there is value in reviewing parking requirements associated with child care facilities, particularly when they are located in residential areas.

It is clear from the benchmarking summary that there is variation in parking standards associated with these types of developments and that there is no clear methodology to determine the required number of parking spaces. In many situations, it becomes a merit based assessment, dependant on a number of influencing factors including size and location of the facility, site frontage, existing and future traffic movements on the adjacent roadway and the availability of on-street parking.

It is important to achieve a balance between maintaining the character of a residential neighbourhood and providing sufficient parking to accommodate employees and parents dropping off or picking up children from the facility. Objections about child care facilities include the use of curb side on-street parking spaces for parking associated with the facility. This is more of an issue in suburban areas. Day care facilities located in areas which exhibit high on-street parking activity are not as problematic.

When day care parking requirements are required to occur on site in a residential area, parking issues could result in negative streetscape impacts for a number of reasons including:

- need for increased hard paved area (increased storm water runoff);
- disruption to the residential streetscape;
- increased conflict potential between children and vehicles;
- possible reduction in landscaped areas;
- reduction in area that can be used for children's play; and,
- inefficient use of space when used for only a small portion of the day (7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM).

This leads to the conclusion that parking on a residential site should be minimized, even though it is anticipated that most parents generally drive to child care centres to drop-off and pick up children.

Drop- Off Requirements

In general, it is anticipated that the majority of parking associated with child care facilities is associated with drop-off/pick-up activity rather than staff parking requirements and therefore there would be value in addressing this within the Bylaw parking regulations.

Parents usually arrive to pick up/drop off their children at child care centres over a two hour period from 7:00 AM to 9:00 AM and from 4:00 PM to 6:0 PM. Average stay is anticipated to be in the order of 5 to 10 minutes. Day care drop-off activity is typically staggered and the stay is usually short.

In regards to parent drop-off parking requirements, it is suggested that street parking could be considered as a short term parking area for two hours during the weekday morning and evening periods.

As a minimum, it is suggested that two drop-off spaces be required for up to 10 children. An additional drop-off space for every 10 children should also be required. Although this requirement is more onerous than existing requirements, it will reduce neighbourhood parking impacts.

Employee Parking Requirements

In regards to employee parking, the number of staff employed at a centre is dependent upon the number of children in each age range. For a 40 place centre, there would be around 5 - 6 staff. Options for staff parking are:

- provide spaces on the property (may include tandem parking);
- rely on on-street parking; and,
- rely on public transport, walking or cycling or a combination of the above.

It is suggested that 1 stall per employee be required for the first 2 employees and that 0.5 spaces be required for additional staff. This requirement recognizes that not all staff drive to work.

It is further suggested that day care facilities located in close proximity to transit or other commercial centres where off-street parking may be available could be eligible for a reduction in staff parking requirements and parent drop-off parking spaces. Detailed surveys of a select group of sites, including surveys of the employees and drop-off/pick-up activity should be completed to confirm this modified parking rate.

5.3.7 Non-Residential Uses Parking Requirements Summary

As indicated previously, the non-residential use parking requirements evaluation focused on land uses associated with multi-tenant and mixed-use commercial sites typically developed in the City of Edmonton, and/or use classes that have parking requirements that are often challenged by proponents or the administration. This focus allowed for a comprehensive evaluation of a few critical use classes and detailed evaluation of the strength and weaknesses associated with the City of Edmonton's parking requirements.

While the review indicated that Edmonton's parking requirements generally fall in line with parking requirements of similar use classes in the comparison cities, it also revealed that there are some areas that require further research and assessment. The areas identified as requiring additional review are as follows:

- The existing Bylaw groups a number of establishments within the Commercial Use Class Not Listed Separately category. Parking requirements for these uses are based on the floor area of the establishment. While the generality of parking requirements can be beneficial to the review and approval process, it does not encourage use of more efficient parking management strategies that take advantage of shared use/ synergistic parking programs and on-street parking supplies. With respect to this issue, further review into the benefits of implementing parking maximums for this use class, and/or the implementation of parking management programs into the Bylaw would be beneficial.
- Although at the higher end of the parking rates reviewed, Edmonton's Health Services use class is within the range of rates typically used for determining parking requirements for similar facilities in other cities. Although the review indicated, that the rates do not necessarily need to be adjusted, these facilities are excellent candidates for inclusion in synergistic and mixed use parking requirements calculations.
- There is no evidence to suggest that parking rates associated with the Professional, Financial and Office Support Services use class do or do not accommodate typical peak parking demands related to this type of development activity. However, with implementation of the objectives laid out in

the Draft Municipal Development Plan and Transportation Master Plan, it is anticipated that developments associated with this use class will become a prominent component of mixed-use and employment development nodes. In conjunction with this, parking requirements associated with these land uses should be adjusted to incorporate more innovative parking management strategies such as shared parking, TDM program parking reductions and or parking maximums.

- With respect to the restaurant land uses, the discrepancy between rates used in the comparison cities suggests that further review of the parking requirements associated with restaurants may be warranted in conjunction with further updates to the Zoning Bylaw. Again, due to the peak operating time periods associated with restaurants they are an ideal candidate for assessment under a shared use parking management program.
- The Child Care Services parking requirements review indicated that there may be value in reviewing parking requirements associated with child care facilities. Detailed surveys of select sites, including surveys of the employees and drop-off/pick-up activity would be required to determine an appropriate local rate. In general, it is anticipated that the majority of parking associated with child care facilities is associated with drop-off/pick-up activity rather than staff parking requirements and there may be value in addressing this within the Bylaw parking regulations.

5.4 PARKING STANDARD MEASUREMENT CONVENTIONS

Parking standards for residential developments are typically expressed on a “per unit” basis and while non-residential land use parking regulations are expressed in terms of floor space. In the City of Edmonton, some land use parking regulations (i.e. restaurants) are based on patron floor space.

In regards to variables utilized to identify parking requirements, consideration should be given to evaluating the sensitivity of utilizing unit size (floor area) as opposed to number of bedrooms in evaluating multi-family residential development parking requirements. The use of unit size as opposed to number of bedrooms may have applicability particularly when investigating seniors and affordable housing residential developments. As the number of bedrooms is not often known at the planning stages of a development, it may be more appropriate to use residential units or unit size as the more appropriate variable.

Consideration should also be given to expressing parking rates based on the lowest number of parking spaces required (i.e. 1 space per xxx. m²) rather than relating parking requirements to a relationship of xxx spaces per 100 m². For example, in the City of Edmonton, parking requirements for Professional, Financial and Office Support land uses would be defined by 1 space per 30 m² as opposed to 3.4 spaces per 100 m².

5.5 AREAS OF FURTHER STUDY

During the completion of the City of Edmonton Zoning Bylaw Parking Study, in addition to the completion of parking surveys at selected multi-tenant commercial development sites, consideration was also given to gathering observational parking related evidence for a number of other select land uses. A number of data limitations were identified which resulted in these additional surveys not being completed. The two primary reasons included:

- inability to appropriately cordon the area of significant parking influence associated with multi-family residential developments, neighbourhood bars and pubs and private clubs in a reasonable fashion; and,
- Inability to gain access to underground parking garages associated with multi-family residential developments.

As a result of the above, a number of land uses which were initially targeted for assessment have been identified for further study. These include:

- Parking requirements for rental and owner occupied multi-family developments and Live/work units particularly residential developments located in close proximity to LRT Nodes, Transit Centres and Transit Avenues;
- Parking requirements for seniors facilities and affordable housing developments;
- Parking requirements for Nightclubs, Bars and Neighbourhood Pubs and Private clubs; and,
- Parking requirements for Restaurants and Specialty Food Services.

In order to complete parking demand surveys for these types of land uses, the need to complete empirical surveys to complement observation surveys may be required. Utilizing empirical surveys would also allow for information to be gained in regards to parking needs and the characteristics of parking demands.

This chapter presents the results of the benchmarking assessment completed in regards to loading and unloading parking requirements. This assessment was completed to determine the different approaches used by other Canadian cities in the provision of loading spaces.

6. COMPARATIVE REVIEW OF CURRENT PRACTICES - LOADING AND UNLOADING REQUIREMENTS

6.1 CITY OF EDMONTON CURRENT LOADING AND UNLOADING REQUIREMENTS

Table 6-1 presents current City of Edmonton Bylaw requirements for loading and unloading spaces. These regulations have been in place since 2000.

As presented in Table 6-1, existing regulations identify loading and unloading requirements for two basic groups of establishments; commercial and industrial uses and all other uses including Professional, Financial and Office Support Services.

Table 6-1: City of Edmonton Loading Space Requirements

| Use of Building or Site | Total Floor Area of Building | Minimum Number of Loading Spaces Required |
|---|--|---|
| Any development within the Commercial or Industrial Use Classes, excluding Professional, Financial and Office Support Services | Less than 465 m ² | 1 |
| | 465 m ² to 2,300 m ² | 2 |
| | Each additional 2,300 m ² or fraction thereof | 1 additional |
| Any development within the Residential-Related, Basic Services or Community, Educational, Recreational and Cultural Service Use Classes and Professional, Financial and Office Support Services | Up to 2,800 m ² | 1 |
| | Each additional 2,800 m ² | 1 additional |

6.2 REVIEW OF OTHER MUNICIPALITIES' LOADING AND UNLOADING REQUIREMENTS

Table 6-2 and **Table 6-3** present loading and unloading requirements required in a number of municipalities located in central and western Canada. The intent of this review was to illustrate the number of loading and unloading spaces required and how other municipalities' segment vehicle loading and unloading spaces by land use or establishment.

Table 6-2: Loading and Unloading Requirements from Burnaby, Calgary and Vancouver

| Municipality | Land uses | Variable | Loading Spaces |
|------------------|---|--|---|
| Burnaby | Retail Store, business, industry, warehouse or similar use | Less than 460 m ² | 1 |
| | | 460 m ² to 2,300 m ² | 2 |
| | | 2,300 m ² to 4,600 m ² | 3 |
| | | 4,600 m ² or more | 1.0 space for each additional 4,600 m ² or fraction thereof in excess of 2,300 m ² |
| | Office building, place of public assembly, hospital, institution, hotel, auditorium, public utility, school or other similar use | Less than 2,800 m ² | 1 |
| | | 2,800 m ² to 5,600 m ² | 1 |
| | | 5,600 m ² or more | 1.0 space for each additional 5,600 m ² or fraction thereof in excess of 2,800 m ² |
| Calgary | Liquor Store | Store | 1.0 space |
| | Community Recreation Facility, Hospital, Indoor Recreation Facility, Library, Museum, Performing Arts Centre, Place of Worship (large and medium), School Authority -School, Spectator Sports Facility located in all special purpose districts | Gross Floor Area | 1.0 space / 9,300 m ² GFA |
| | Multi-Residential Developments | 20 or more units | 1.0 space |
| | Commercial multi-residential uses (Exceeding 300 m ²) Convenience Food Store, Small Drinking Establishment, Personal Apparel Service, Print Centre, Restaurant – Food Service Only (small), Licensed Restaurant (small), Retail Store, Specialty Food Store, and Take Out Service | Gross Floor Area | 1.0 space / 9,300 m ² GFA |
| Vancouver | Dwelling Use or Neighbourhood Grocery Store | Establishment | No requirement |
| | Hotel/Motel, Special Needs Residential Facility, Office, Business School, Medical/Dental Office, Hospital, Church, School, College, Community Centre, Library, Gallery, Museum, Theatre, Auditorium, Stadium, Arena, Exhibition Hall, Health Club, or similar establishment | Gross Floor Area | 1.0 for each 2,800 m ² of GFA |
| | Billiard Hall or Racquet Ball Court, Archery, Golf Driving Range | Gross Floor Area | 1.0 for the first 4,650 m ² of GFA plus 1.0 for any portion of the next 1,860 m ² and one additional for each additional 1,325 m ² |
| | Retail (except for Neighbourhood Grocery), Restaurant, Broadcasting Studio, Manufacturing Assembly and General industrial, Wholesale, Distribution, repair, service, processing and laboratory facilities, Warehousing | Gross Floor Area | 1.0 for the first 465 m ² of GFA plus 1.0 for any portion of the next 1,860 m ² and one additional for each additional 2,325 m ² |

Table 6-3: Loading and Unloading Requirements from Winnipeg and Regina

| Municipality | Land uses | Variable | Loading Spaces |
|--------------|---|--|--|
| Winnipeg | College or University, Library, Museum, Private Club (not licensed), Place of Worship, Assisted Living Facility, Auditorium, Concert Hall, Theatre, Funeral Chapel, Hospital, Sports or Entertainment Arena | Less than 1,000 m ² | 0 |
| | | 1,000 m ² to 18,600 m ² | 1 |
| | | 18,600 m ² or more | 1 space for every 18,600 m ² or fraction thereof in excess of 18,600 m ² |
| | Cheque Cashing Facility, Commercial School, Hall Rental, Medical / Dental /Counselling Clinic, Office, Personal Service Use, Research Institution | Less than 6,000 m ² | 0 |
| | | 6,000 m ² to 18,600 m ² | 1 |
| | | 18,600 m ² or more | 1 space for every 18,600 m ² or fraction thereof in excess of 18,600 m ² |
| | Uses not elsewhere classified and primarily concerned with handling of goods | Less than 2,000 m ² | 1 |
| | | 2,000 m ² to 5,500 m ² | 2 |
| | | 5,500 m ² to 9,300 m ² | 3 |
| | | 9,300 m ² or more | 1 additional for every 4,600 m ² or fraction thereof in excess of 1,000 m ² |
| Regina | Industrial Use, All Manufacturing Use, All Personal Service Establishments, Repair Shops, Restaurants, Retail Stores | 100 m ² to 800 m ² | 1.0 Delivery Space (2-axle), No Requirement for Loading Space (tractor trailer unit) |
| | | 800 m ² to 1,400 m ² | 2.0 Delivery Spaces, No Requirement for Loading Space |
| | | 1,400 m ² to 2,500 m ² | No Delivery Spaces, 2.0 Loading Spaces |
| | | 2,500 m ² to 10,000 m ² | No Delivery Spaces, 2.0 Loading Spaces plus one additional space for each additional 2,500 m ² |
| | | More than 10,000 m ² | No Delivery Spaces, 5.0 Loading Spaces plus one additional space for each additional 4,000 m ² |
| | Assembly Place, Club, Hospital Nursing Home, Office Building, Public Utility, School | 100 m ² to 1,400 m ² | 1.0 Delivery Space, No Requirement for Loading Space |
| | | 1,401 m ² to 3,000 m ² | No Delivery Spaces, 1.0 Loading Space |
| | | 3,000 m ² to 6,000 m ² | 1.0 Delivery Space, 1.0 Loading Space |
| | | 6,000 m ² to 10,000 m ² | 2.0 Delivery Spaces, 1.0 Loading Space |
| | | 10,000 m ² to 15,000 m ² | 3.0 Delivery Spaces, 1.0 Loading Space |
| | | 15,000 m ² to 20,000 m ² | 3.0 Delivery Spaces, 2.0 Loading Spaces |
| | | More than 20,000 m ² | 4.0 Delivery Spaces, 2.0 Loading Spaces |
| | | More than 27,000 m ² | Council at its discretion may require additional loading spaces for buildings in excess of 27,000 m ² |

Based on a review of the information, it has been determined that most municipalities, like the City of Edmonton, create a grouping of land uses which exhibit similar loading and unloading requirements. The following items are also noted:

- Calgary excludes a number of establishments from requiring loading and unloading spaces including - Minor Auto Service, Billiard parlour, Bulk Fuel Sales, Gas Bars and Car Washes, Child Care Facility, Residential Care Facility, Computer Games and Video Store, Counselling Service, Drive Through Establishments, Financial Institutions, Fitness Centres, Pet Care Centres, Medical Clinics, Photographic Studios and Churches;
- Calgary has also identified a separate loading requirement for liquor stores;
- Regina distinguishes between the need to provide a delivery space from a loading space. A delivery space is a space used by a two axle vehicle while a loading space is typically used by a tractor semi-trailer vehicle.
- Winnipeg also excludes certain land uses from the requirement to provide loading or unloading spaces, based on floor area.

6.3 SUMMARY OF FINDINGS

Based on the review of loading and unloading requirements required in a number of municipalities, coupled with high level discussions with property managers, there is no compelling reason to modify current City of Edmonton loading and unloading requirements at this time.

Consideration could be given to identifying establishments where no loading requirement would be required and that the provision of loading would be dealt with during the site plan review.

In addition, given the land requirements associated with loading /unloading areas, consideration should be given to the development of shared loading facilities wherever possible to minimize land requirements.

Additional consideration could also be given to the use of alternative truck movement tactics such as truck turntables.

Although not always obvious, parking is an integral component of most land uses found in Edmonton. A number of factors influence parking demand including land use and land use mix, transportation policies, transit service, support for alternative modes of transportation, parking availability, parking price and societal perceptions. This chapter presents a summary of a number of parking management strategies which can assist the City in developing parking policies which are in balance and align with other overarching local goals.

7. PARKING MANAGEMENT

The City of Edmonton is working to create walkable, transit oriented districts to provide residents with lifestyle and alternative transportation choices. A significant obstacle in creating these types of neighbourhoods is changing conventional parking regulations which encourage free parking and auto use which discourage transit supportive communities. The challenge is to update and modify current parking regulations and policies that support walkability and increased transit use as key elements in the development of sustainable communities.

7.1 PARKING POLICY REVIEW

Societal perceptions associated with parking are often very strong. In many cases, parking is considered a right. A few of the societal perceptions impacting parking supply and demand include ease of access, proximity to destination, safety and security and perception of need. Although harder to incorporate into policy and bylaw requirements, societal perceptions should be recognized when evaluating, developing and implementing parking policies.

Development in Edmonton is governed by the City's Zoning Bylaw and as a result, land use policies are one of the driving factors behind Edmonton's parking characteristics. Research indicates that development patterns are strongly influenced by transportation infrastructure and policy. Although parking facilities are often privately owned and operated and not specifically involved in the transport of people or goods, parking infrastructure should be considered integral components of the City's transportation infrastructure and land use foundation. The Draft Municipal Development Plan and the Transportation Master Plan recognize and acknowledge this relationship and goals, objectives and actions that address these relationships have been developed.

The evaluation of land use policy impacts on parking highlights the integrated nature of land use and transportation. Sustainable development and land use concepts often speak to limiting supply of parking, decreasing demand for parking or improving

utilization characteristics of existing parking facilities. When evaluating methods to achieve these objectives, the integrated nature of land use and transportation becomes more apparent. Implementation of successful sustainable parking practices requires both land use and transportation policies that combine to facilitate parking goals.

With respect to transit, quality of public transit service, route frequency, type of facility (i.e. LRT, regular bus or mini-bus) and schedule can all have an impact on parking demand. Current trends in parking policies as they relate to transit are mainly associated with two land use strategies which include reducing parking requirements for:

- transit oriented development plans; and,
- developments located within a specified distance to a Transit Centre, LRT Node or Transit Avenue.

The benchmarking assessment indicated that both the cities of Calgary and Ottawa identify specific parking requirements associated with developments located in close proximity to transit facilities. It is also noted that many of the other cities are currently reviewing parking requirements as they relate to transit. Generally speaking, if parking supply is reduced, efforts must also be made to limit parking demand. Having convenient access to adequate transit service is one method of reducing parking demand.

In addition to transit, alternative modes of transportation including pedestrian modes such as walking, rollerblading or skateboarding, biking and taxi also impact parking requirements. Like transit users, people who utilize these alternative modes do not require a vehicle parking stall when they arrive at their destination. In addition, the infrastructure utilized by alternative transportation users is also infrastructure that supports parking management strategies.

For example a sidewalk utilized by a commuter who walks to work can be the same sidewalk that is utilized by a commuter who travels by car but parks in a shared parking facility and walks from the parking facility to work. Thus land use policies developed to promote and support alternative transportation modes also support parking policies that promote sustainable compact urban development.

Policy developments tying parking and alternative transportation modes together could include:

- Allowing parking reductions when developments are located within a specified distance and/or have direct pedestrian connections to shared parking facilities;
- Requiring different types of bicycle parking facilities, including short term outdoor and longer term secure bicycle parking facilities, and;
- Allowing parking reductions when transportation demand management initiatives (e.g. secure bicycle parking and trip-end facilities, dedicated parking stalls for high occupancy vehicles, transit incentives) are incorporated into development plans.

In addition, it is important to recognize that the layout of the road network, the ease of travel from origins to destinations and the capacity of the roadway network also have an impact on parking demand. In general it can be stated that, if varying land uses (e.g. work and home) are relatively isolated from one another, travel by vehicle is fairly easy and parking readily available, people will typically choose to drive and park rather than use alternative modes. Thus parking demand is not only driven by the attractiveness of the destination, but also by the locational attributes of the destination and associated travel routes.

The City's New Neighbourhood Design Guidelines (March 2009 Draft) includes a series of development guidelines that expand on the ideas laid out in the Integrated Transit and Land Use Framework document. The New Neighbourhood Design Guidelines build on the theory that the organization and distribution of land uses is one of the primary determinants of travel demand, which as indicated previously, can have a direct impact on parking demands. The guidelines developed in the document encourage development of neighbourhoods that incorporate sustainable design principles including providing a range of building/development types in close proximity to one another, developing street roadway networks that facilitate ease of travel by multiple modes, and evaluating parking requirements at the subdivision stage.

While the primary focus of the New Neighbourhood Design Guidelines is for new suburban neighbourhoods, a number of the principles identified in the document will play a role in the development of parking policy development for the City as a whole.

7.2 PARKING MANAGEMENT BEST PRACTICES

Parking management techniques can be grouped by characteristics including locational attributes, land use or development type or even pure policy requirements. These categories are not mutually exclusive and the specific strategies are often utilized in conjunction with one another as part of an overall parking management program.

The following sections provide descriptions of parking management strategies and frameworks which support smart growth which the City of Edmonton could consider incorporating into its Zoning Bylaw and land use development policies. The strategies and tactics would assist in promoting alternative modes of transportation including promoting transit as a primary means of movement. Strategies include practices that limit parking supply (minimum and maximum parking requirements, area wide caps and shared parking). Strategies to reduce the demand for parking such as transit investments, transit oriented development, transportation demand management and unbundled parking are also discussed.

This review represents a first step towards assisting the City of Edmonton in developing the right mix and combination of strategies, tactics and programs to achieve the City's goals and vision of a sustainable transportation plan.

7.3 PARKING MANAGEMENT STRATEGIES AND PRACTICES WHICH LIMIT PARKING SUPPLY

The following parking management practices and strategies would result in limiting or reducing development related parking requirements.

7.3.1 Area Wide Parking Management Strategies

Areas within the City of Edmonton exhibit different and distinctive land use characteristics and as such have differing transportation and parking requirements at a local sub-area. Acknowledging the unique needs and expectations of these areas and tailoring parking requirements such that they reflect the nuances found in these areas can assist in creating more liveable places to live, shop and work in. These types of parking regulations are referred to as area specific parking regulations and are often based on the location attributes of an area, neighbourhood or corridor.

Technically, the City already incorporates area specific parking regulations in the Zoning Bylaw. For example, parking requirements associated with developments in the Downtown Area Redevelopment Plan and developments located within the Old Strathcona area are subject to reduced parking requirements. While this study did not focus on the parking requirements associated with the downtown area, the review revealed that there are other parts of the City that may benefit from area specific parking requirements.

Typically area specific parking regulations allow for a reduction in parking due to the locational attributes associated with the area in which the development is located. One of the concerns associated with allowing reduced parking requirements is that in the future, the use of the establishment could change resulting in an inadequate on-site parking supply. The reality is parking demands are influenced by more than just land use and are likely to change over time with or without changes in land use. One approach to accommodating this uncertainty is to allow parking availability to dictate site marketability and developability. In other words, if parking is in limited supply at a site, generally speaking, that site will not be appealing to developers who require additional parking to meet anticipated parking demands.

Area specific parking caps require careful analysis of anticipated parking demands and considerable administrative effort. In addition, they often require implementation of complementary measures such as development of shared parking facilities, easy access to transit service and a real estate market where the locational advantages outweigh perceived drawbacks associated with limited parking supply.

7.3.1.1 Business Revitalization Zones

A possible model to manage parking activity within Business Revitalization Zones (BRZ's) that could be considered by the City is to allow BRZ's to function as Business Improvements Districts (BID's). In this model, BRZ's would be able to use funds collected from local businesses, supplemented by parking revenues to be more actively engaged in parking planning and parking capital improvements. This would allow BRZ's an

opportunity to improve district parking characteristics to achieve broader economic and business development goals.

The Business Improvement District model has several benefits which may have some applicability within Edmonton. By being able to apply area parking revenues to district improvements, local business can buy into district parking policies and objectives and can increase the attractiveness of the area.

The creation of BID's represents a well tested strategy and has been employed in a number of cities including Tempe Arizona, Boulder Colorado and Pasadena California.

7.3.1.2 Commercial / Pedestrian Corridors

The parking requirements associated with commercial and/or pedestrian corridors can also benefit from the application of parking management initiatives. Components that could be incorporated into these areas include location requirements that facilitate developing surface parking behind buildings rather than in front, supporting use of shared parking facilities and parking reductions associated with synergistic developments or land uses. Promoting cash-in-lieu fees to facilitate development of shared parking facilities and encouraging on-street parking to buffer pedestrians from moving vehicles and enhance activity on the street should also be considered.

7.3.2 Minimum Parking Requirements

The City of Edmonton's Zoning Bylaw has historically controlled the amount of parking at a development site by imposing minimum parking requirements. Parking indices vary by land use type. Rather than imposing inflexible requirements, the Zoning Bylaw could incorporate mechanisms to tailor parking requirements to specific development projects. The following list of factors should be considered.

- Locational Factors: The location of the proposed project will impact parking demand. For example, if a project is well served by high speed transit, the project might generate a lower parking demand than what would otherwise be anticipated relying on generic parking generation formulas. Moreover, if the proposed project is located amidst high-density development with a mix of land uses, there might be existing parking facilities nearby, thus reducing the demand for parking on-site. Users may also access the project and other nearby uses on foot, further reducing parking demand.
- Demographic Factors: Demographics associated with the anticipated users of a project, including employees, customers, and residents will impact parking demand. For example, due to the high cost of car ownership, low-income residents generally have lower levels of car ownership than others. If the anticipated users of a proposed project have low levels of car ownership, the project might generate a lower parking demand than what would otherwise be anticipated. The age distribution of anticipated users will also be indicative of parking demand. For example, if the anticipated users of a proposed project are seniors, the project could necessitate less parking than what would otherwise be anticipated.

In addition to tailoring parking requirements to project-specific conditions such as locational and demographic factors, the Zoning Bylaw might also prescribe reductions to minimum parking requirements on a project-by-project basis in exchange for a developer's commitment to a transportation demand management program or payment of cash in lieu of providing the required parking.

7.3.3 Maximum Parking Requirements

Some developers provide an oversupply of parking to achieve financial obligations or potential tenant requirements or to cater to a particular market or due to perceptions created or reinforced from other projects or jurisdictions. Some of these situations can be countered by implementing parking maximums.

Maximum parking requirements specify the maximum allowable number of parking stalls that can be developed for a particular land use or development site. Maximum requirements restrict the number of on-site parking spaces a developer can provide whereas minimum parking requirements prescribe the minimum number of stalls required and allow the developer to determine if additional spaces are required. Parking maximums attempt to balance land utilization through specific regulations whereas parking minimums specify minimum requirements which can be exceeded. Implementing parking maximums would discourage over development of surface parking facilities and would support transit oriented development and rapid transit facilities.

Generally speaking, parking maximums can be easily incorporated into land use policies and zoning bylaws and should be set to reflect locational factors, demographics, parking demands and land use requirements.

Parking maximums can be applied to both commercial and residential land uses. In some cases they can be area specific while in others they can be solely based on the development. The benchmarking review revealed that the cities of Minneapolis, Salt Lake City, Portland, Seattle, Calgary, Vancouver, and Ottawa all include some sort of maximum parking requirement in their bylaws. The maximums specified in these bylaws are typically based on the type of land use and in some cases are also subject to the location of the development. Location based criteria utilized in the bylaws include zoning districts, area overlays and proximity to rapid transit facilities.

For example, the City of Minneapolis specifies minimum and maximum parking requirements for the majority of use classes in its bylaw. The City of Ottawa primarily uses parking minimums however specifies maximum parking rates for developments in close proximity to rapid transit facilities.

The City of Portland is an example of another city that has established maximum parking regulations. The Portland City Code has implemented parking maximums to complement parking minimums in areas outside the Central City district. Zoning regulations specify that the purpose of such provisions is to promote the efficient use of land, enhance urban form, encourage use of alternative modes of transportation, provide for better pedestrian movement, and protect air and water quality. The maximums vary with the use the parking is serving and the location of the use. Areas

that are zoned for more intense development and are easily reached by alternative modes of transportation have lower maximums than areas of less intense development or less frequent or no transit service. For example, the minimum parking requirement for general office use is 1 space per 47 m² of floor area, and the maximum parking requirement is 1 space per 28 m² of floor area. However, if the development is located more than 400 m from a transit stop with 20-minute peak-hour bus service and more than 800 m from a transit stop or station with 20-minute peak-hour light rail or streetcar service, the maximum number of parking spaces is actually increased to 125% of what otherwise would be the maximum requirement.

Parking maximums leave little room for mistakes in projecting parking demand and can result in an undersupply of parking. Undersupply of parking can lead to spillover parking into adjacent areas, which can be a serious concern in residential areas. Parking maximums can be resisted by developers who determine parking requirements based on financing standards, tenant requirements or to cater to particular market conditions.

If developed properly, parking maximums can become an integral component of an overall parking management program for an area or development.

To mitigate concerns associated with maximum parking requirements, the following initiatives can be included as part of a parking maximum program:

- Banking land for development as future parking areas – such that if actual parking demand is higher than originally forecast or to accommodate future expansion, the developer can provide more parking after the fact. This method is not necessarily appropriate when the purpose of the parking maximum is to promote efficient use of land, however it does remove some of the risk and uncertainty associated with parking maximums not meeting demand. In many cases, landscaping can be used to turn this set-aside land into an attractive amenity for the development or wider community. Such policies have been implemented in cities throughout Oregon and others such as Palo Alto and Carmel in California, Cleveland, Ohio and Iowa City, Iowa. Palo Alto, for example, allows reductions of up to 50 percent in minimum parking requirements provided that the difference is made up through a landscape reserve.
- Using parking maximums in conjunction with measures that control parking demand – in this situation, parking maximums are allowed in areas where transit improvements, land use policies and transportation demand management measures that are aimed at reducing parking demand are in place.

7.3.4 Shared Use Parking Opportunities

Shared parking is defined as the use of parking spaces by two or more different land uses. This is possible when adjacent land uses experience different peak parking periods. Shared parking takes advantage of the fact that most parking spaces are only used part of the time by a particular land use, and many parking facilities have a significant portion of unused space, with utilization patterns that follow predictable

daily, weekly and annual cycles⁷. In other words, the shared parking concept builds upon the assumption that land uses in mixed - use developments often do not share the same peak demand period, so spaces can be shared between the different land uses during different peak periods of parking demand.

Historically, local zoning parking regulations have not permitted shared parking-stating that if two or more uses are located on the same lot or in the same structure the total number of parking spaces required equals the sum of spaces required for each individual use. Since most parking spaces are only used part time, this policy leads to the underutilization of many parking facilities, with a significant portion of spaces unused. Allowing and encouraging shared parking can decrease the total number of spaces required relative to the total number of spaces needed for each land use separately and creates more opportunities for creative site planning and landscaping.

Some local jurisdictions do include regulations to permit and even encourage shared parking. These jurisdictions allow shared parking to meet minimum parking requirements for uses located within the same lot or building and also permit off-site shared parking arrangements to meet on-site parking requirements for complementary uses within a defined area. One way in which local regulations help enable shared parking is to allow for off-street parking facilities to be located off-site of the lot on which the structure or use being served is located. Such regulations usually specify a maximum distance from the structure or use within which the off-site parking facility must be located. These location requirements are typically based on acceptable walking distances. For example, the San Diego (CA) Municipal Code states that shared parking facilities must be located within 200m of the uses served. In addition to revisions to local zoning codes to enable shared parking, shared parking arrangements can be implemented through shared parking agreements between individual developers or the construction of public parking facilities.

Many cities allow shared parking and grant developers a reduction to the minimum number of parking spaces required for a combination of land uses accessing a common parking facility. Typically, cities either prescribe a methodology to be used for estimating the number of shared parking spaces required or leave the approval of parking reductions associated with shared parking facilities to the approving authority. When no methodology is prescribed for determining shared use parking requirements, a parking study is typically required and development approvals are subject to review and approval of the study. Currently the City of Edmonton allows shared parking; however, it is subject to the review and approval of a parking impact assessment for the site.

With respect to prescribed shared use parking calculations, the benchmarking review revealed that the cities of Ottawa and Salt Lake City include methodologies for calculating shared use parking requirements listed directly in their bylaws. In these

⁷Victoria Transport Policy Institute, Online TDM Encyclopedia, <http://www.vtpi.org/tdm/tdm89.htm>. Accessed May 5, 2009

calculations, the standard regulations associated with the individual land uses sharing a parking facility are reduced by various amounts based on the time of day, day of week and the type of land use. The required number of parking stalls is the maximum number of stalls required based on the various scenarios evaluated. **Appendix D – Shared Parking Calculation Examples** include some examples of shared use parking regulations.

The Ottawa and Salt Lake City methods are similar to the methodology presented in the Urban Land Use Institute's book *Shared Parking Second Edition* (2005). The variables included in the urban land institute's shared parking methodology include time of day, day of the week, and month of the year. The Urban Land Institute's methodology involves parking factors for each land use, adjusting these factors for season, mode of transportation and then multiplying by hourly accumulation factor to obtain the parking demand for each hour of the day. The hour of the day that produces the highest parking demand becomes the design hour, and the parking demand for that hour is the minimum number of shared parking spaces required to satisfy the parking demand for the facility.

The methodologies utilized by Ottawa and Salt Lake City represent a simplified version of the Urban Land Institute's methodology. They utilize the critical variables associated with shared use parking, time of day, day of week and type of land use, and provide an efficient and consistent procedure for estimating shared use parking for a broad range of sites.

There are several barriers to implementing shared parking arrangements. In particular, there is a considerable amount of planning needed to determine the appropriate number of parking spaces under shared parking arrangements. In addition, since changes in ownership, operations, or use, might alter future parking demands, many regulations that allow for shared parking require contingency plans to accommodate additional parking that may be necessary in the future.

7.3.4.1 Synergistic Parking

When there are accessory uses developed in conjunction to a principle use, the number of parking stalls required may not be proportional to the areas occupied by all the land uses associated with the development. For example, a coffee shop in an office complex does not necessarily generate new parking demand different from that generated by the office complex as the majority of coffee shop patrons are often employees in the office complex. Thus the uses are considered synergistic and requiring parking for both the office building and the coffee shop would result in an oversupply of on-site parking.

Although similar to shared parking, mixed - use or synergistic parking requirements are not as straight forward to calculate. While there are many synergistic combinations of land uses (e.g. movie theatres and restaurants, medical clinics and drug stores, residential development and grocery stores), the reductions in parking demand associated with the synergy are often site specific and influenced by many factors. It is often difficult to specify specific parking reductions associated with site synergies.

Notwithstanding this complexity, synergistic parking reductions should be encouraged. This can be accomplished through development of land use policies that allow parking reductions for large scale mixed - use development sites as well as smaller scale sites where the developer can prove that there will be cross over uses on the site. Generally speaking, the size of the reduction should be based on substantive empirical evidence as provided by the City or developer. The Bylaw should address parking reductions with synergistic developments by allowing the development authority to reduce parking requirements for these types of land use combinations.

7.3.4.2 Complementary Land Uses

Complementary land use parking regulations are typically accounted for as part of shared use and synergistic parking requirements however there may be opportunities to include specific regulations for complementary land uses directly within the Zoning Bylaw. For example, City of Burnaby's Senior Citizens Housing parking requirement allows for a reduction in parking for developments that are located within 0.4 km from established bus routes and commercial facilities.

As most complementary land use parking requirements can be assessed using shared use or synergistic parking policies or requirements, opportunities to develop specific regulations may be limited. It is important to recognize that there may be developments that are not easily assessed under shared use parking policies. In such cases, site or development specific regulations may help achieve desired development outcomes and parking management strategies of both the municipality and the developer.

7.3.5 Cash-in-lieu

Cash-in-lieu (also called fee-in-lieu or payment-in-lieu) parking programs allow developers to provide fewer on-site parking stalls in exchange for contributing money to the cash-in-lieu fund. Typically these funds are then used to facilitate construction of off-site shared parking facilities.

Most often, cash-in-lieu is intended to allow commercial development to occur, especially the redevelopment of existing buildings on lots that are too small to accommodate on-site parking, without providing the full amount of parking that is required under the Bylaw. Although not as common, it can also be utilized for residential development. In addition, cash-in-lieu policies can be a key component of mixed - use and transit oriented development nodes because they can facilitate development of shared parking facilities that promote sustainable development standards such as "park-once" development concepts.

Cash-in-lieu policies typically define the areas in which they are applicable, what the allowable parking reductions are, and the rates used to determine cash-in-lieu payments. The rates are typically calculated on a per stall basis. For example, the City of Vancouver accepts money in lieu of the requirement to provide a certain number of parking spaces for commercial or industrial developments in certain areas of the city. As of March 2007, Vancouver's cash-in-lieu charge was \$20,200 per parking space and each application is dealt with on an individual basis. For details of Vancouver's

Payment-in-lieu requirements see **Appendix E – Cash-in-lieu Requirement Examples**. The City of Calgary also has established a cash-in-lieu fee policy for its City Centre Mixed Use District. Calgary's Bylaw states that the cash-in-lieu rates are based on per stall construction costs established by Council at the time the payment is made.

In addition to specifying applicable areas, allowable reductions and rates, cash-in-lieu policies can also specify how the monies collected are used. Typically cash-in-lieu funds are used for construction of new parking facilities, purchase of additional lands to be used for development of parking facilities, or for maintenance and operation of existing shared parking facilities.

Advantages of cash-in-lieu policies can include reducing vehicle trips to an area by capping the amount of parking provided and supporting development of businesses that otherwise would not be able to meet the minimum parking requirements on-site. When combined with land use policies, cash-in-lieu programs help promote sustainable parking practices that encourage use of alternative modes of transportation including transit, walking and bicycle.

Success of cash-in-lieu programs is often related to how the fees charged relate to the actual costs of constructing parking facilities and associated land values. Generally speaking, as land values and construction costs increase, cash-in-lieu policies become more attractive. In areas where promotion of cash-in-lieu for parking is extremely desirable, additional incentives such as density bonuses can encourage program use.

Notwithstanding the above, there are some disadvantages associated with cash-in-lieu fees that should be evaluated as part of program development. These include:

- discrepancies between funds available and the actual costs required to build the parking facility;
- may be difficult for smaller infill or change of use applications;
- probability that a contributor to the fund does not have direct benefit from the parking facility (either due to delay in development or placement of the facility), and;
- pro forma or leasing issues experienced by the developer because they are not supplying on-site parking.

As well, these programs require the municipal government to expand their involvement in the parking business. It is acknowledged that the City of Edmonton is already involved in the parking business because it owns and operates a number of parking facilities in the City. The development of a cash-in-lieu program would likely require additional resources to ensure successful application of the program and management of additional parking facilities.

7.4 PARKING MANAGEMENT STRATEGIES AND PRACTICES WHICH INFLUENCE PARKING DEMAND

Effective ways of limiting parking supply include measures which control parking demand. To complement parking supply management strategies, influencing demand through investments in alternative modes of transportation, direct financial incentives for non-single occupancy vehicle use, pricing strategies and policies supportive of transit-oriented development and traditional neighbourhood design can also reduce parking demands.

This section of the chapter describes a series of public and private sector practices and strategies which can influence parking demand, thus reducing the need for and subsequent supply of parking.

7.4.1 Transit Incentives

One of the most effective ways of reducing parking demands is by providing a viable alternative to private auto travel.

The City of Edmonton has embarked on an aggressive transit improvement program. In addition to the development of new transit centres, the City is making a commitment and is planning for a significant expansion of the LRT system. In combination with this transit initiative, the City will be improving complementary surface transit systems and infrastructure through expansion of existing routes, adding new routes, improvements to fare structures, enhanced passenger amenities and implementing operational improvements such as scheduling changes to offer more frequent and convenient service. These improvements will better meet the needs of existing users and potentially attract new users.

Capital and operational investments and improvements should be complemented by marketing campaigns to help people realize the value of substituting transit for single occupancy vehicle use.

7.4.2 Transportation Demand Management

According to the 2005 Household Travel Survey, it is estimated that car driver trips represent 57% of all trips made in the City of Edmonton, while about 9% of all trips are transit trips. The remaining trips include a combination of car passenger (20%), walk (11%), bicycle (1%) and school/work bus (1%).

There are various reasons why City residents continue to use their personal automobiles for their commute to work. People may not live (or work) in an area that is within close proximity to transit service, people may want to have their personal automobile at work to perform errands or in case of emergency or they may have off-site meetings during the day which require personal auto travel.

In addition, free or subsidized parking at their workplace plays a significant role in influencing this journey-to-work behaviour. Most people want parking at work to be easily accessible and convenient so getting to and from the car does not add additional time to the workday. In response to these needs, free or subsidized on-site

parking has become a fringe benefit and a factor in the ability to recruit and retain employees. Without financial incentives for alternative travel modes to reduce single occupancy vehicle travel or the implementation of programs that alleviate the need for a personal automobile at work, single occupancy vehicle use will remain the preferred mode of transportation to work.

Many local jurisdictions (and employers) have begun to implement transportation demand management (TDM) programs to influence travel behaviour and promote alternative modes to the personal automobile. TDM strategies are implemented to decrease the demand for parking and other single-occupancy vehicle travel characteristics and to provide individuals with viable options to driving alone.

TDM programs can either be employer led programs designed to reduce the parking demand generated by employees or publicly initiated programs to reduce the overall parking demand for all trips, not just journey to work trips. Examples of TDM programs might include direct financial incentives to use alternative travel modes or inducements such as amenities, shuttles from peripheral parking locations and transit stations, car sharing programs, guaranteed ride homes and congestion pricing.

Carsharing programs represent an important Transportation Demand Management tool and have been found to offer a number of parking management benefits. Implementation of carsharing programs should result in reduced trip making activity and in some cases may reduce individual car ownership needs. By increasing the number of users per vehicle and encouraging more frequent use of a singular vehicle, carsharing programs can reduce parking demands.

An example of a jurisdiction that reduces minimum parking requirements in exchange for an employer's creation and implementation of a TDM program is Hartford, Connecticut, where parking requirements can be reduced up to 30 percent in exchange for discounted carpool parking, rideshare promotions, subsidized transit passes and shuttle service from off-site parking. Promising TDM programs within the Edmonton context include:

- Transit pass funding programs (i.e. U-pass);
- Carsharing programs; and,
- Employer based TDM programs.

7.4.3 Transit Oriented Development

To help promote pedestrian and transit friendly communities in which people do not need to rely exclusively on the personal automobile, the City of Edmonton should continue to develop land use policies that encourage transit-oriented development and traditional neighbourhood designs. One of the key principles associated with TOD developments is easily accessible transit, reducing the reliance on the personal automobile and the subsequent need for parking facilities.

Parking is a critical component of transit oriented and mixed - use development nodes and often parking management programs associated with these developments

incorporate many of the parking management initiatives discussed in this Section of the report in varying degrees.

In general, parking management initiatives utilized in transit oriented or mixed-use development nodes allow parking reductions based on proximity to transit or implementation of transportation demand management initiatives. They also promote shared use parking facilities and the use of on-street parking. Emphasis is placed on the location of parking facilities (e.g. in structures and/or behind buildings) and encouraging motorists to park once and travel by foot. TDM related parking programs often discourage free parking and parking subsidies associated with employee and residential development. Parking is considered an integral component of the development concept rather than a specific requirement of each land use within the development.

An example of how parking regulations are incorporated into TOD initiatives can be illustrated by the Unified Development Ordinance of the City of Concord, North Carolina⁸. The City of Concord designates transit-oriented development districts to encourage a mixture of residential, commercial, and employment opportunities within a specified radius of identified light rail stations or other public transit stations. The TOD zone allows for more intense and efficient use of land for the mutual benefit of public investments and private development in transit areas.

TOD zones are divided into two distinct districts – TOD core and TOD periphery. All areas within 400m of a transit station are classified as TOD core areas and all areas between 400m and 800m of a transit station are classified as TOD periphery areas. Regulations reduce minimum parking requirements in portions of TOD zones. If a site is within 150m of a light rail alignment, the minimum required parking spaces is 50% of what otherwise would be required by city regulations. In addition, the Ordinance prohibits all surface parking facilities in the TOD core areas and allows for surface parking for only commercial uses in TOD periphery areas.

Although the benefits of Transit Oriented developments are well documented, there remain many challenges including community fears that increased densities will increase traffic congestion and lower property values, and developer and lender fears that TOD projects have higher costs and risks than conventional development projects.

The City of Edmonton can help promote Transit Oriented Developments by revising local zoning regulations to include zones that allow for a mixing of uses and increased densities and prescribe design guidelines such as site development design criteria, street and streetscape design criteria, landscape design criteria and environmental standards which allow for reduced parking requirements.

The City's investment in the Quarters area represents an example where the City is providing some capital investment to assist in land assembly to allow Transit Oriented Developments to be initiated.

⁸ Wilbur Smith and Associates, Technical Paper – Existing Bay Area Parking Policies, April 2007

7.4.3.1 Infill Developments

With respect to infill developments, it is acknowledged that not all infill developments would require or benefit from parking management plans. However, there are instances where implementing parking management initiatives may be beneficial. For larger or comprehensive infill development projects, applying typical suburban parking requirements can undermine the development initiative by placing excessive emphasis on parking in areas where existing infrastructure including complementary land uses, on-street parking and transit are readily available and have potential to offset on-site parking requirements. In addition, the capital costs and land requirements associated with developing on-site parking facilities can inflate development costs and degrade the overall development concept.

It is also important to note that infill developments often face resistance from existing abutting residential developments and parking provisions are usually a contentious issue in this regard. Establishing a policy that provides opportunity to address parking requirements for infill developments in a comprehensive manner is important. Although it may not be possible to identify specific parking requirements for infill developments in the Bylaw, land use policies and review processes should be flexible to accepting parking management strategies for infill development opportunities.

7.4.4 Unbundled Parking

The cost to park in a facility is often bundled into the rent or purchase price for residential and commercial units and buildings. This practice assumes that all tenants and owners have the same parking demand. As such, regardless of car ownership characteristics, all tenants and owners bear the costs of parking through increased rents. Including costs of parking in rents and purchase prices encourages automobile ownership and is a disincentive for using alternative transportation modes.

On the other hand separating the payment of parking from rent or lease payment or purchase price can provide a more equitable allocation of costs as tenants and owners pay for the parking they use. This can reduce parking demand by making households pay the full cost of parking. Given that unbundling can reduce parking demand, development projects that unbundle parking or provide rebates to households who own fewer or no vehicles and will not use their allotted parking space or spaces could provide less parking than what otherwise might be required.

7.4.5 Improvements to Pedestrian and Bicycle Facilities

Demand for parking can be reduced by providing pedestrian and bicycle amenities that make it easier and more pleasant for people to walk or bicycle rather than drive.

Low cost amenities can be as simple as providing bicycle racks and walkways to improve land use connectivity and connectivity to transit. Providing shower and locker facilities also encourage bicycling, rollerblading, and walking to work.

Promoting bicycle and pedestrian transport modes can also be accomplished through simple design changes.

7.4.6 Bonusing for Underground or Structured Parking

Bonusing grants an increase in floor area ratio (FAR) for principal uses when certain conditions are met. A number of cities have adopted an increase in the floor area ratio when all or a percentage of the minimum parking requirements are contained within a structure. Notable cities are Minneapolis and Salt Lake City which allow density bonusing. Edmonton has also proposed increasing the floor area ratios in select districts when underground parking is provided. Ottawa, in its transportation plans, proposes to encourage parking structures in order to have a more compact development pattern. Calgary also accommodates bonusing when considering downtown office applications in order to further develop the existing Plus 15 internal pedestrian route.

The rationale behind density bonusing is the efficient use of available land. If parking is contained within a parking structure associated with the principal land use, a reduced land requirement may be the outcome. As structured parking is significantly more expensive than surface parking, the city allows the developer to offset the cost of providing the structured parking by increasing the proportion of land that can be used to generate revenue.

It is recommended that the benefit of bonusing be subject to further study. Allowing an increase in the FAR if a sizable fraction of the required parking is contained in a structure would encourage densification and is in line with sustainability goals and objectives.

7.5 CONTEXT SPECIFIC PARKING REGULATIONS

Utilizing parking management initiatives in specific areas can help realize the development goals of those areas. Although it is not realistic to have specific parking requirements for every neighbourhood in the City, there are situations where they may be beneficial. These include:

- major infill developments;
- transit oriented and mixed - use development nodes;
- commercial or pedestrian corridors;
- areas located in close proximity to the central business district; and,
- established area overlays associated with the existing Zoning Bylaw, such as the Mature Neighbourhood Overlay.

7.6 ON-STREET PARKING

Various forms of on-street or curb side parking exist in virtually all municipalities in Canada. Stalls are typically developed as parallel parking stalls but can also be developed as angled parking stalls. On street parking spaces are either available for free or have fees associated with their use. Fees associated with on-street parking are collected via parking meters or pay and display type collection systems. Fees for on-street parking are most often set based on area or development zone (e.g. the central

business district or a commercial zone) with suburban areas usually having free on-street parking. Where fees are charged, they are typically higher than those associated with less convenient longer term parking facilities. When set appropriately, higher fees associated with on-street parking can encourage short term use, higher turnover of parking stalls, and, when set in conjunction with transit fees, can encourage transit utilization.

On-street parking represents a convenient form of short term parking. In non-residential areas, on-street parking often accommodates short term parking requirements associated with daily business and commercial transactions; while in residential areas it often accommodates parking demands related with visitor parking and/or spill over associated with multiple vehicle households. When associated with commercial land use activity, on-street parking can be used to accommodate spikes in parking demands associated with abutting businesses that may not be able to accommodate peak period parking loads on-site.

In addition to accommodating parking needs of the adjacent developments, on-street parking also provides land use benefits including providing a buffer between pedestrians and moving vehicles, encouraging active street front environments and in some cases, off-peak utilization of roadway infrastructure.

Although not often accounted for in parking regulations, on-street parking can represent an essential component of available parking inventory. The Edmonton Draft Integrated and Land Use Framework indicated that on-street parking is appropriate in most development circumstances and should be allowed on most roadways.

Acknowledging on-street parking in Zoning Bylaw parking requirements can be challenging as it is difficult to assign inventory to specific land uses. In addition, allocating on-street parking as a component of an off-street parking requirement may be questioned by business owners who may perceive a loss of revenue associated with reduced on-site parking. For example, many retailers continue to require a prescribed parking ratio in lease agreements.

Methods used to account for these issues include:

- Allowing general parking reductions rather than specifically assigning on-street parking to specific uses. In these cases, parking requirements are reduced in areas where on-street parking is available and well managed (i.e. pedestrian oriented commercial zones or specific planning overlay areas).
- Developing revenue sharing policies that reinvest a percentage of the revenues associated with on-street parking facilities back into the community or benefiting area.

Managing on-street parking requires additional administration. A key component of any on-street parking plan is to ensure that on-street parking operations are routinely monitored and utilization and turnover data is collected to assess and evaluate area parking characteristics. Collecting on-street parking data would provide insights into overall parking surpluses and deficits and would provide a framework within which on-street operations can be evaluated

The use of on-street parking is an efficient use of public infrastructure. As such, on-street parking should be considered an integral component of the overall parking management strategy for an area and as a result, land use and development policies should reflect this finding. A key element in the development of a parking management program which includes on - street parking is to determine the purpose and priority for on-street parking.

7.7 CONTINGENCY PLANS

To successfully facilitate reduced parking requirements, limits on parking supply must coincide with initiatives that help reduce vehicle travel and parking demands. Variations in parking demand are a common occurrence and parking standards, whether minimum or maximum requirements, do not always reflect actual parking demands associated with a development. In addition, parking demands are not static and change as land use and travel characteristics change.

Discrepancies between the effectiveness of initiatives that reduce parking supply and demand can undermine the effectiveness of parking management initiatives. For example, reducing on-site parking requirements can be an effective method of reducing vehicle trips to an area however it also requires that infrastructure and programs that support alternative modes of transportation are available. In other words, one without the other will not produce the desired outcome.

Contingency plans attempt to accommodate changes in parking demand associated with changes in land use or travel characteristics. The most basic contingency plan involves regularly reviewing the appropriateness of parking standards and the effectiveness of parking management policies. This helps ensure that parking supply continues to meet typical parking demands and allows for incorporation of local parking characteristics into bylaw regulations. However, contingency plans can also be site specific initiatives such as development of overflow parking plans, development of staged development plans that allow for potential increases and decreases in future parking demands, and evaluating existing parking facilities to increase parking facility capacity and utilization.

7.8 PARKING MANAGEMENT ORGANIZATIONS

To meet the needs of employees, residents and visitors, all within the context of smart growth, the City needs to acknowledge and consider all aspects of parking including:

- parking supply and demand;
- parking location;
- parking financing;
- public and private parking facilities; and,
- Enforcement and parking design.

The key is to develop and adjust current parking strategies and tactics to ensure that a balanced and sustainable transportation plan and an integrated parking system are achieved.

One way to ensure the effective and efficient operation of an overall parking system in a coordinated fashion is through the establishment of a singular group/organization whose responsibility it is to manage an area's parking system.

The City has considered the establishment of a centralized parking organization. A number of studies have been commissioned by the City which explore various types of parking governance organizations and the merits, benefits, advantages and disadvantages of different models and organizational structures. Some of these models included Parking Authorities, Downtown Parking Advisory Committees and Centralized Civic Parking Branches. At this time, a centralized coordinated organization which would be responsible for the administration and operation of all publicly owned and operated parking facilities has not been established by the City of Edmonton.

Based on a review of the literature on Parking Management, successful municipal parking management systems are those that maintain active on-going management programs organized within an institutional framework that centralizes and coordinates decision making. The primary purpose of such an organization would be to create a "single-point of responsibility" for parking within the civic administration as opposed to the existing fragmented system. In order to ensure that all parking components and elements are considered in a coordinated fashion, the scope of a centralized parking organization should include public and privately controlled parking facilities.

A centralized parking organization could have the following functions:

- Planning – Undertakes parking needs studies, keeps up-to date information of parking supply inventory to ensure the effective and efficient delivery of current and future parking services. The review of Development Permit applications as they relate to parking would still fall under the jurisdiction of the Planning and Development Department but however should be coordinated with the new Parking Agency;
- Facility development – Responsible for creating a master plan for parking and be proactive in the provision of parking facilities as demand warrants;
- Operations – Manage both on-street and off-street parking. This would include the review of new technologies to manage and operate the parking system;
- Maintenance – Responsible for the on-going maintenance of parking facilities;
- Special Events – Responsible for coordinating special event parking;
- Parking Administration – Responsible for the normal administrative functions of a civic organization, and be responsible for the planning, implementation and administration of parking facilities, and;
- Enforcement – Responsible for parking related by-law enforcement activities.

A centralized parking agency would promote better project design, reduce construction and operational costs and add value to development projects. The intent would be to streamline and improve the efficiency of the delivery of parking services through modification of current approaches, practices, procedures and the organizational structure from which parking services are delivered.

It is recommended that the City of Edmonton reconsider the establishment of a centralized parking agency. This agency would become the authority on parking related matters. Implementation of a centralized parking management organization would require the involvement of the Transportation Department, the Planning and development Department and Asset Management and Public Works.

7.9 PARKING MANAGEMENT STRATEGIES - OPTIONS FOR CONSIDERATION

Parking management strategies that could assist in implementing land use, transportation and parking initiatives identified in the Draft Municipal Development Plan and Transportation Master Plan were reviewed.

It is recommended that the City consider evaluating and incorporating into the Zoning Bylaw a number of limiting and controlling parking management strategies. The parking management strategies identified in **Table 7-1** were considered as representing the most effective and applicable parking management strategies within the Edmonton context. The implementation of these strategies will best address critical initiatives identified in the Draft Municipal Development Plan and the Transportation Master Plan.

Parking demands are dynamic and change as development contexts change. Although it is not realistic to implement all of the aforementioned initiatives in the short term time horizon, promoting TOD initiatives, the implementation of Travel Demand Management strategies and the incorporation of flexible parking requirements including parking maximums can be implemented in a relatively short term time frame. These parking management strategies have been proven to represent successful parking management strategies.

The incorporation of flexible parking requirements, including the incorporation of parking maximum requirements, are considered to represent parking management strategies that should be considered by the City to control parking supply requirements. In high density zones where there is high transit accessibility, parking maximums could be considered. In medium density areas, both minimum and maximum parking requirements could be considered while in low density areas, only minimum parking requirements could be considered.

Where specific area plans and zoning regulations are developed to facilitate development of new transit orientated and mixed - use development nodes and redevelopment in infill areas, flexible parking requirements could be incorporated into the planning documents. Although it may not be possible to identify specific parking requirements and regulations for all development scenarios, recognizing and accepting parking management initiatives as acceptable methods for determining

overall parking requirements for a development site or area should be an integral component of the City's approach to parking management.

Table 7-1: List of Effective and Applicable Parking Management Strategies

| Parking Strategy | Rationale | Implementation |
|---|---|------------------------------------|
| Establish minimum and maximum parking requirements for selected land uses | <ul style="list-style-type: none"> Control and limit parking supply | Zoning Bylaw |
| Establish flexible parking regulations | <ul style="list-style-type: none"> Acknowledge the relative location of land use development activity to LRT, transit centres and transit avenues Appropriately reflect unique characteristics and site specific parking demands and to provide options based on potential variations in parking demand (e.g. Seniors housing, affordable housing) | Zoning Bylaw |
| Incorporate shared use parking options | <ul style="list-style-type: none"> Reduce overall parking supply | Zoning Bylaw |
| Encourage Transit Oriented Developments | <ul style="list-style-type: none"> Encourage mixed-use high density development, the efficient use of parking and the promotion of transit as the primary means of transportation | Municipal Development Plan |
| Incorporate Transportation Demand Management strategies | <ul style="list-style-type: none"> Allow for parking supply reductions through the implementation of TDM programs and incentives <ul style="list-style-type: none"> Carsharing Carpooling Walking /cycling/transit integration TDM Trip reduction and parking management plan Walking and cycling -provide improved connectivity to transit and adjacent land uses | Zoning Bylaw |
| Implement cash-in-lieu parking policies | <ul style="list-style-type: none"> Reduce on-site parking space requirements | Zoning Bylaw, Municipal operations |
| Consider the establishment Parking Management Organization | <ul style="list-style-type: none"> Facilitate the overall planning of parking, to create supportive parking control and requirements that support parking management strategies | Municipal operations |
| On street parking | <ul style="list-style-type: none"> Improve utilization characteristics, parking pricing, increase capacity of supply | Municipal operations |
| Parking pricing | <ul style="list-style-type: none"> Unbundle parking | Private sector |

It has been determined that the implementation of Transportation Demand Management measures have the ability to reduce parking demands between 5% and 35% depending on the extent of the of Transportation Demand Management strategies

implemented (Commute Trip Reduction, Programs That Encourage Employees to Use Efficient Commute Options, TDM Encyclopedia, Victoria Transport Policy Institute, Updated 25 January 2010).

In addition, it has been determined that parking requirements serving TOD developments are generally lower as compared to conventional developments for a number of reasons including lower vehicle ownership, higher non-auto mode shares and more shared parking opportunities. Although the literature suggests that further research is required to more definitively determine parking demand characteristics associated with TOD and non TOD developments, municipalities have clearly granted significant parking reductions at TOD developments. These reductions range from 18% to 60% with reductions in the order of 20% being the norm. These parking reductions can be used as a proxy to suggest that TOD developments do have the ability to significantly reduce overall parking supply requirements.

One source of information related to possible reductions in on-site parking supply requirements is a summary table presented in the Parking Management: Strategies, Evaluation and Planning, Victoria Transport Policy Institute report, November 2008. This report identified possible parking supply reductions associated with various land use, geographic, residential and employment density, Transportation Demand Management and parking pricing factors. In general, parking supply reductions of between 5% and 30% could be achieved depending on the individual factor.

Based on the research completed, the examination of the existing development context and the City's land use goals, current trends in parking management and parking policies, modifications to the Zoning Bylaw are recommended. A framework for modifying parking regulations is proposed. This chapter presents a series of parking management strategies that should be implemented by the City of Edmonton to better align existing parking regulations with overarching sustainable growth strategies established in the Municipal Development Plan and Transportation Master Plan.

8. ZONING BYLAW ASSESSMENT

8.1 WHY IMPLEMENT ZONING BYLAW MODIFICATIONS

Parking strategies and standards should reflect overarching growth strategies established in the Draft Municipal Development Plan and Transportation Master Plan and should reflect increased transit use policies associated with these plans and the environmental direction being pursued by the City. Combining land use and transportation policies in the Draft Municipal Development Plan and Transportation Master Plan with parking management strategies in the Zoning Bylaw will help ensure that land development in the City of Edmonton will be sustainable and the initiatives laid out in the plans will be successful.

Zoning Bylaw parking requirements can be modified to more appropriately complement the land use and development activity that they are intended to support. In general, parking requirements should be developed to allow for flexibility in application and acknowledge variables affecting parking demand including development density, proximity to transit and demographic characteristics.

In addition, flexibility in parking standards can expedite the planning process by limiting the number of variances required to accommodate developments that do not fit within the current regulations. Some circumstances in which flexibility in parking requirements may be appropriate include shared parking opportunities, captive markets, off-site parking availability as well as locational attributes (transit accessibility) and developments that incorporate transportation demand management initiatives.

Potential modifications to parking supply regulations are discussed in this chapter with respect to implementation. While the following modifications to parking supply requirements and parking management techniques are treated separately, it should be acknowledged that it is the combination of parking requirements and management techniques that creates a comprehensive and integrated parking management program.

8.2 POTENTIAL ZONING BYLAW PARKING MANAGEMENT STRATEGIES

The City should incorporate parking management strategies and tactics into land development policies and Zoning Bylaw parking regulations.

Parking management strategies come in many shapes and sizes and can be grouped by characteristics including locational attributes, land use or development type or even pure policy requirements. The strategies identified below are not mutually exclusive and the specific strategies are often utilized in conjunction with one another as part of an overall integrated management program. The parking management strategies recommended at this time include:

- Area based parking approach –Transit Overlay Zones;
- Parking maximums;
- Shared use parking requirements;
- Transportation Demand Management; and,
- Cash-in-lieu parking policies.

8.2.1 Area Based Parking Approach

At the present time, the Zoning Bylaw basically creates two categories of parking indices. The Zoning Bylaw establishes parking requirements for land use development activity located within the Downtown Area Redevelopment Plan boundary and for land uses located elsewhere in the City. It is recognized that the current Zoning Bylaw does provide modified parking standards within certain districts and areas of the city (i.e. Pedestrian Commercial Shopping Street Overlay, Major Commercial Corridors Overlay).

It has been determined that locational and demographic attributes represent key variables when considering off-street parking requirements. It is recommended that the City establish separate parking requirements for specific geographical defined areas. This would allow the City to focus and tailor parking requirements to take better advantage of existing and future investments in transit and to implement parking regulations and land use policies that support infill and transit oriented developments.

Two alternative scenarios for area based parking requirements were considered.

The first scenario builds on existing area boundaries included in the City's Zoning Bylaw including the Downtown ARP and Mature Neighbourhood Overlay. Areas would be defined in a radial fashion from the downtown core using the Downtown ARP and Mature Neighbourhood Overlay boundaries as reference points. This type of area definition is based on the knowledge that proximity to the city centre provides access to infrastructure including employment opportunities and transit availability that helps facilitate reduced parking demands.

The second scenario builds on the integrated transit and land use concept identified in the Draft Integrated Transit and Land Use Framework. In this scenario, specific areas would be defined based on their location relative to LRT Nodes, Transit Centres and Transit Avenues. This concept builds on the idea that parking requirements can be

reduced when alternative transportation options are integrated with land use development activity.

Given the geographic characteristics of the City, the location of employment opportunities and residential development activity, the existing and future alignment of LRT routes and Transit Centres and the location of existing and future Transit Avenues, it is recommended that the City of Edmonton adopt area specific parking requirements based on a development's attributes and proximity to LRT Nodes, Transit Centres and Transit Avenues. Implementing an area based parking program would allow parking supply reductions to be considered in all sectors of the City not just for land use development activity located in close proximity to the downtown core. In this fashion, development activity can be used to extend the reach of and leverage transit system use.

8.2.1.1 Transit Overlay Zones

It will be necessary for the City to describe the influence area where area based parking reductions can be incorporated into development plans. Overlay zoning is a regulatory tool used by the City that creates a special zoning district, placed over an existing base zone(s), which identifies special provisions in addition to those in the underlying zone. Specific regulations are attached to the overlay district to guide development within a special area.

In order to provide development guidance in the establishment of an area based parking approach, it is recommended that the City employ the use of a Transit Overlay Zone to establish the influence area or precincts within the City where development opportunities could take advantage of reduced parking requirements. Land use developments located within 800m walking distance of an LRT Node, 400m from a Transit Centre or 200m from a Transit Avenue should be eligible for reduced parking requirements.

In support of the Area Based Parking Approach, **Appendix F** presents a reproduction of two City of Edmonton plans. **Exhibit F-1**, Existing & Planned LRT System, identifies the existing and proposed LRT network plan including existing transit centres. **Exhibit F-2**, Transit Avenues & Transit Centres illustrates the location of Transit Avenues and transit centres. In combination, these plans illustrate the LRT Nodes, employment nodes and general corridor locations where modified parking requirements could be employed.

8.2.1.2 A Framework for Area Based Parking Rates for Multi-Family Residential Developments

Table 8-1 presents the application of area based parking rates for multi-family market housing (rental accommodation) and multi-family condominiums. The rates presented in Table 8-1 represent parking rates for multi-family residential developments proposed to be implemented in the City of Toronto (City of Toronto, Parking Standards Review, Phase Two Apartment Building / Multi-Unit Block Developments Component, New Zoning Bylaw Project, Cansult Limited, February, 2007). As illustrated in Table 8-1, a series of area based parking rates have been identified based on the locational attributes of a development.

Table 8-1: Multi-Family Residential Developments Area-Based Parking Regulations - Toronto

| Location | Resident Standard (to accommodate personal vehicles) | | | | | | | | Visitor Parking |
|--|--|---------|-----------|---------|------------|---------|-----------------|---------|-----------------|
| | Bachelor* | | 1 Bedroom | | 2 Bedrooms | | 3 Plus Bedrooms | | |
| | Minimum | Maximum | Minimum | Maximum | Minimum | Maximum | Minimum | Maximum | |
| Condominium Apartments | | | | | | | | | |
| Downtown Core | 0.30 | 0.45 | 0.50 | 0.75 | 0.70 | 1.05 | 0.90 | 1.35 | 0.10 |
| Downtown and Central Waterfront | 0.30 | 0.45 | 0.50 | 0.75 | 0.80 | 1.20 | 1.00 | 1.50 | 0.10 |
| Centres and Avenues on Subways | 0.60 | 0.90 | 0.70 | 1.05 | 0.90 | 1.35 | 1.00 | 1.50 | 0.10 |
| Other Avenues (well served by Surface Transit) | 0.70 | 1.05 | 0.80 | 1.20 | 0.90 | 1.35 | 1.10 | 1.65 | 0.15 |
| Rest of City | 0.80 | - | 0.90 | - | 1.00 | - | 1.20 | | |
| Rental Apartments | | | | | | | | | |
| Downtown Core | 0.20 | 0.30 | 0.40 | 0.60 | 0.50 | 0.75 | 0.70 | 1.05 | 0.10 |
| Downtown and Central Waterfront | 0.20 | 0.30 | 0.40 | 0.60 | 0.60 | 0.90 | 0.80 | 1.20 | 0.10 |
| Centres and Avenues on Subways | 0.40 | 0.60 | 0.50 | 0.75 | 0.70 | 1.05 | 0.80 | 1.20 | 0.10 |
| Other Avenues (well served by Surface Transit) | 0.50 | 0.75 | 0.60 | 0.90 | 0.70 | 1.05 | 0.90 | 1.35 | 0.15 |
| Rest of City | 0.80 | - | 0.90 | - | 1.00 | - | 1.20 | - | 0.20 |

*40 m² (~ 430 ft²) or less

Notes:

1. Maximum standards are 50% higher than the minimum standards except for the Rest of the City where there are no maximum standards.
2. Due to under representation of bachelor units in the survey results the bachelor standards were developed based on consideration of the existing standards and in relation to the 1 bedroom standards.
3. Rental apartment minimum standards are generally about 75% of the recommended condominium minimum standards except for the Rest of the City category where the standards are the same as for condominiums.

Table 8-2 presents a preliminary area based parking requirement framework for multi-family residential developments in the Edmonton context. Development projects within the City have been segmented into three basic sub-areas including:

- Land uses within the Downtown ARP boundary;
- Land uses located within an 800m walking distance of an LRT Node, 400m from a Transit Centre, or 200m from a Transit Avenue; and,
- Land uses located in all other areas of the City.

Table 8-2: Suggested Zoning Bylaw Parking Regulation Framework

| Location | Multi Family Residential |
|--|--|
| Downtown ARP (Existing Zoning Bylaw) | <ul style="list-style-type: none"> • 0.5 parking space per Bachelor Suite * and Bed Sitting Room, plus • 0.75 parking spaces per 1 Bedroom Dwelling, plus • 1.0 parking space per 2 or-more Bedroom Dwelling |
| Land uses located within 800m walking distance of an LRT Node, 400m from a Transit Centre, or 200m from a Transit Avenue | <ul style="list-style-type: none"> • 0.7 parking spaces per Bachelor Suite* and Bed Sitting Room to a maximum of 0.9 spaces per unit , plus • 0.80 parking spaces per 1 Bedroom Dwelling to a maximum of 1.0 space per unit, plus • 1.0 parking spaces per 2 or-more Bedroom Dwelling to a maximum of 1.3 spaces per unit, plus • 1.25 parking spaces per 3 or-more Bedroom Dwelling to a maximum of 1.5 spaces per unit |
| All other areas of the City (Existing Zoning Bylaw) | <ul style="list-style-type: none"> • 1.0 parking space per Bachelor Suite* and Bed Sitting Room, plus • 1.0 parking space per 1 bedroom Dwelling, plus • 1.5 parking spaces per 2 bedroom Dwelling, plus • 1.75 parking spaces per 3 or more bedroom Dwelling |

*40 m² (~ 430 ft²) or less

Notes

- 1: Does not include visitor parking which is currently established at 1 space per 7 dwelling units

Although the purpose of this project was not to explore parking requirements within the Downtown ARP boundary, this area of the City was included in Table 8-2 for comparison and illustrative purposes (The downtown parking rates represent minimum parking stall requirements). The parking rates identified for development activity in "All other areas of the City" represent existing Zoning Bylaw parking regulations and also represent minimum parking requirements.

As illustrated in Table 8-2, parking requirements associated with market housing multi-family developments located within an 800m walking distance of an LRT Node, 400m from a Transit Centre, or 200m from a Transit Avenue are approximately 25% lower than the equivalent parking requirement if the multi-family development was not located within easy walking distance of higher order transit facilities. This magnitude of parking reduction is in line with estimated parking reduction factors as presented in the work completed by the Victoria Transport Policy Institute (Parking Management, Strategies, Evaluation and Planning Report, Todd Litman, November 2008).

In addition, parking reductions in the order of 25% are also in line with observational evidence associated with the implementation of Transportation Demand Management strategies and parking reductions associated with TOD.

In order to promote transit use and compact pedestrian oriented development, maximum parking restrictions have been identified to limit parking rates within development areas located within 800m of an LRT Node, 400m of a Transit Centre or 200m from a Transit Avenue.

It is noted that unlike the Toronto framework, Table 8-2 does not include a parking framework for both market apartments and condominiums (to identify possible differences in parking requirements between these two multi-family residential developments). Based upon a review of the Consult Report, it was observed that parking ownership characteristics differ between rental apartments and condominiums. In the Toronto study, it was determined that auto ownership characteristics in condominium developments were higher than auto ownership characteristics in market apartments.

It is recommended that additional research be completed to develop multi-family residential parking indices within the Edmonton context but that the general framework presented in Table 8-2 be adopted. It is also recommended that further research be completed in regards to the differences in auto ownership characteristics between rental and condominium developments as tenure and building type in combination with a series of other factors may influence auto ownership characteristics. In regards to the inclusion of condominium developments, it is also acknowledged that the conversion from rental accommodation to condominiums is difficult to track.

8.2.1.3 A Framework for Area Based Parking Rates for Other Basic Land Use Categories

Table 8-3 presents an illustrative parking regulation framework for the application of area based parking reduction factors for a number of basic land uses including Professional, Financial and Office Support Services, Health Services, General Retail and other commercial uses if located within 800m of an LRT Node, 400m from a Transit Centre, or 200m from a Transit Avenue.

Current Zoning Bylaw parking rates have been used as the basis to illustrate the potential impacts of applying area based parking reductions to these basic land use categories. It is acknowledged that changes in the base rates could impact the establishment of area based parking rates.

In general, the framework presented in Table 8-3 assumes that off-street parking for Professional, Financial and Office Support Services, Health Services, General Retail and other commercial uses if located within 800m of an LRT Node, 400m from a Transit Centre, or 200m from a Transit Avenue is approximately 75% of parking required in other areas of the City (exclusive of developments within the Downtown ARP Boundary). This parking supply reduction is in line with published data regarding the impact of TOD and TDM strategies on parking requirements. As in the case of multi-family residential developments, parking maximums have been identified.

Table 8-3: Basic Land Use Category Parking Regulations Framework

| | Downtown ARP (Existing Zoning Bylaw) | Land uses located within 800m of an LRT Node, 400m from a Transit Centre, or 200m from a Transit Avenue | All other Areas of the City (Existing Zoning Bylaw) |
|--|---|---|---|
| Professional, Financial and Office Support Services | <ul style="list-style-type: none"> 1 parking space per 300 m² of Floor Area; notwithstanding this minimum, the maximum shall be 1 parking space per 100 m² of Floor Area | <ul style="list-style-type: none"> 2.5 spaces per 100 m² of Gross Floor Area; notwithstanding this minimum, the maximum shall be 3.0 parking spaces per 100 m² of Gross Floor Area | <ul style="list-style-type: none"> 3.4 parking spaces per 100 m² of Gross Floor Area |
| Health Services | | <ul style="list-style-type: none"> 3.5 parking spaces per 100 m² of Gross Floor Area; notwithstanding this minimum, the maximum shall be 4.5 parking spaces per 100 m² of Gross Floor Area | <ul style="list-style-type: none"> 4.5 parking space per 100 m² of Floor Area |
| General Retail | | <ul style="list-style-type: none"> 2.0 parking spaces for developments of less than 5,000 m², to a maximum of 2.5 spaces per 100 m² 2.5 parking spaces for developments between 5,000 m² – 10,000 m², to a maximum of 3.0 spaces per 100 m² 3.0 parking spaces for developments of greater than 10,000 m² to a maximum of 3.5 spaces per 100 m² | <ul style="list-style-type: none"> 2.5 parking spaces per 100 m² of Floor Area (for development less than 4,500 m²) 3.0 parking spaces per 100 m² of Floor Area (for development between 4,500 m² and 9,000 m²) 3.5 parking spaces per 100 m² of Floor Area (for development between 9,000 m² and 28,000 m²) 4.0 parking spaces per 100 m² of Floor Area (for development greater than 28,000 m²) |
| Other Non residential | | <ul style="list-style-type: none"> Minimum amount of off street parking should be 20% less than existing Zoning Bylaw requirements and this reduction shall represent the maximum number of parking spaces. | <ul style="list-style-type: none"> Varies with use |

Whether the City chooses to develop areas based on a radial or an integrated transit/land use approach, there may be instances when supplementary area and site specific parking requirements would be beneficial. These could include specific parking requirements for:

- infill developments;
- areas with significant on-street parking; and,
- existing commercial Overlay Areas and/or Business Revitalization Areas.

It is important to ensure that land use policies and review processes recognize alternative parking considerations and where appropriate, alternative parking regulations and requirements should also be acknowledged in the supporting transportation and planning policy documents. For example, further parking supply reductions could be considered through the completion of a comprehensive parking study. In addition, a project site may in fact exceed a maximum allowable parking requirement if the parking supply is to also serve an area wide commercial parking lot or where shared use parking opportunities exist.

8.2.2 Parking Maximums

To promote the efficient use of land, improve urban form, and encourage the use alternative transportation modes including transit and walking, the introduction of minimum and maximum parking supply regulations for some land uses represents an appropriate parking management strategy. These strategies are particularly well suited for developments well served by transit.

Minimum and maximum parking requirements should be established in consideration of location, development intensity and transit availability. Consideration should also be given to the possible impacts of spill over parking and on-site circulation requirements. Maximum parking regulations can support minimum parking indices by providing a threshold parking supply level. This would allow developers flexibility in determining an appropriate off-street parking inventory. Based on the results of the multi-tenant commercial site surveys, the imposition of maximum parking regulations could have resulted in more compact development forms.

It is recommended that the City consider incorporating area specific parking maximums into the Bylaw. Specific instances where parking maximums may be beneficial include developments located within an effective walking distance of major transit facilities, residential development infill areas and large commercial developments that incorporate large surface parking facilities (big box retail formats). As parking maximums represent absolute limits, care and attention should be given to their development. Parking maximums should represent flexible parking regulations to accommodate the locational attributes of development activity. This will allow for the parking regulations to be more cognizant of travel demand impacts and effects, ease of implementation and neighbourhood concerns and issues.

At this time it is not recommended that the City develop maximum parking requirements for every use class identified in Schedule 1 of Section 54.2 of the Zoning Bylaw.

As indicated previously, careful analysis and consultation will be required in developing maximum parking requirements. This will ensure that the parking maximums do not result in an undersupply of parking stalls and that maximum parking requirements are not met with resistance by the development community or adjacent neighbourhoods. It is acknowledged that the implementation of residential parking programs may be considered where warranted but must have the community approval prior to implementation.

In addition imposing parking maximums often requires implementation of complementary measures such as development of shared parking facilities, easy access to transit facilities and a real estate market where the locational advantages outweigh perceived drawbacks associated with limited parking supply.

8.2.3 Shared Use Parking Requirements

Although the City of Edmonton does acknowledge the merits and benefits associated with shared use parking, the need to complete detailed shared use parking assessments often delay the development approval for multi-tenant and mixed-use development projects. While there will always be developments that require more detailed assessments of parking requirements, incorporating a standard shared use parking calculation into the Bylaw would be beneficial. Having a basic shared use parking calculation directly in the Bylaw would expedite the approval process, reduce costs incurred by developers submitting detailed parking impact assessment reports and has potential to encourage efficient parking facilities.

A shared use parking calculation should be based on shared use parking calculations supported by the Urban Land Institute and transportation engineering analysis principles. Generally speaking this calculation should identify use classes that can be included in the calculations, the variables that must be accounted for in the calculation (e.g. time of day, day of the week, and month of the year) and a description of the methodology used to determine the required number of parking stalls.

Table 8-4 presents an example of a preliminary shared use parking framework. The framework identifies a series of complementary land uses and their typical peak period parking demands which can be used to determine an overall site's peak parking demand period and parking requirement.

Table 8-4: Preliminary Determination of Shared Parking Requirements

| Land Use | Weekdays | | | Weekends | | |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | 2:00 AM to 7:00 AM | 7:00 AM to 6:00 PM | 6:00 PM to 2:00 AM | 1:00 AM to 7:00 AM | 7:00 AM to 6:00 PM | 6:00 PM to 1:00 AM |
| Professional Office | 10% | 100% | 15% | 5% | 10% | 5% |
| Health Services | 5% | 100% | 15% | 5% | 80% | 5% |
| Financial Institution | 5% | 100% | 15% | 5% | 80% | 5% |
| Hotel | | | | | | |
| Restaurant /Lounge | 40% | 70% | 100% | 50% | 70% | 100% |
| Guest Rooms | 100% | 60% | 100% | 100% | 60% | 100% |
| Conference Rooms | 0% | 100% | 100% | 0% | 100% | 100% |
| | | | | | | |
| General Retail | 0% | 100% | 75% | 0% | 100% | 50% |
| Restaurant | 50% | 70% | 100% | 50% | 70% | 100% |
| Theatre/ Entertainment | 0% | 50% | 90% | 0% | 70% | 100% |
| Residential | 100% | 50% | 90% | 100% | 75% | 90% |

In order to determine the parking requirements for a mixed-use complex:

- calculate the number of parking spaces required for each individual land use as if it were the only land use within the development. The basic parking requirements would be based on the parking requirements identified in Section 54.2, Schedule 1 of the Bylaw;
- calculate the number of parking spaces required for each individual land use for all six time periods based on the percentage of use;
- for each time period, total the number of spaces required for all applicable land uses, and;
- identify the time period with the highest total parking requirement. The number of spaces identified represents the shared parking requirement.

By allowing for and encouraging shared parking, the City of Edmonton can decrease the total number of spaces required relative to the total number of spaces needed for each land use separately. Allowing for shared parking arrangements significantly reduces the amount of land devoted to parking and, in so doing, creates more opportunities for creative site planning and landscaping. In addition, it has potential to encourage developers to build more efficient parking facilities rather than overbuilding parking facilities.

8.2.4 Transportation Demand Management

Transportation Demand Management strategies represent parking tactics which are designed to reduce overall parking demands generated by residents, employees and visitors. These types of programs might include direct financial incentives, i.e. to promote transit as the primary mode of choice or other types of programs which would have the effect of reducing parking demands (i.e. carshare, carpool and vanpool programs).

The City of Edmonton could consider implementing the following supportive TDM strategies within the Zoning Bylaw:

- Reduce parking requirements when TDM programs are implemented such as carpooling, carsharing programs and when bicycle storage facilities including end of use facilities (lockers, showers, etc.) are incorporated;
- Create incentives for developers to use transit friendly parking plans and programs;
- Consider bonusing for underground or structured parking; and,
- Allow for shared parking at mixed-use developments projects and in mixed-use zones.

The following examples represent parking regulations that can be incorporated directly into the Zoning Bylaw that incorporate TDM strategies to reduce parking demands:

- For every certified carpool space, the total parking requirement may be reduced by 3 spaces up to a maximum of 15% of the total parking requirement;

- For every certified vanpool purchased or leased by the applicant for employee use, the total parking requirement may be reduced by 5 spaces up to a maximum of 15% of the total parking requirement;
- If transit passes are provided to all employees and if the development is located within 800m of an LRT Node, 400m from a Transit Centre, or 200m from a Transit Avenue, the total parking requirement may be reduced up to 10%; and,
- For every 4 covered bicycle parking spaces provided, the total parking requirement may be reduced by 1 space up to a maximum of 5% of the total parking requirement.

In addition to the above, the City of Edmonton should:

- encourage major employers (including the City of Edmonton) to implement Transportation Demand Management Trip Reduction and Parking Management Plans.
- encourage employers who offer subsidized parking to offer employees the option of taking the cash equivalent of free parking; and,
- encourage developers to unbundle parking from the rent or purchase price of a residential unit or building.

8.2.5 Cash-in-lieu Parking Policies

Although identified as a separate strategy, cash-in-lieu parking programs are often an integral component of area specific parking requirements. It is recommended that the City explore a cash-in-lieu parking program as it is anticipated that shared parking facilities developed with cash-in-lieu funds represent critical components of the land use and transportation policies identified in the Draft Municipal Development Plan and Transportation Master Plan.

A cash-in-lieu program needs to define the areas of the City within which they are applicable, what the allowable parking reductions are, and the rates used to determine cash-in-lieu payments. In addition, the cash-in-lieu program should specify how the monies collected are used. Typically cash-in-lieu funds are used for constructing new parking facilities, purchase of additional lands to be used for developing parking facilities, or for maintenance and operation of existing shared parking facilities.

8.3 POTENTIAL PARKING SUPPLY OPTIONS FOR SELECTED LAND USES

In addition to recommending that the City consider implementing a transit/land use approach in the Zoning Bylaw, additional parking requirement modifications should be considered for some select land uses. Proposed modifications are primarily based on the results of the benchmarking evaluation presented in Section 4.1.

As indicated previously, specific rates associated with the individual use classes do not necessarily reflect actual parking demand and further surveys of the various use classes may be required to reconfirm actual parking demands for these uses in the Edmonton context.

8.3.1 Suggested Parking Rate Modifications Associated with Residential Land Uses

Single Family Housing

The benchmarking review revealed that Edmonton's single family housing requirement of 2 stalls per dwelling is one of the higher requirements. Existing auto ownership statistics indicate that there are a significant number of single auto households in the City. It is concluded that as with multi-family parking requirements, there is value in further reviewing and potentially lowering Edmonton's single family development parking requirements per household.

Multi-Family Housing

At a maximum of 1.75 stalls for a 3 bedroom dwelling unit, Edmonton's multi-family residential parking rate is one of the higher multi-family residential parking rates identified in the benchmarking review. It is recommended that the parking requirements associated with multi-family housing be further evaluated and revised to reflect actual parking demands associated with these types of developments. It is anticipated that this will result in a reduction to the minimum number of parking stalls required for multi-family developments.

When reviewing the parking requirements associated with multi-family residential developments, the assessment should investigate the relationship between locational attributes (reduce parking requirements for developments located in close proximity to transit), auto ownership, household income, building type and tenure (rental or condominium). In addition, the assessment should include discussions with building managers.

Non-Market Housing

The benchmarking review revealed that the Zoning Bylaw as it currently stands does not address the parking requirements associated with non-market housing including affordable housing. The economic, social and physical attributes associated with low income, seniors and in some cases, disabled housing facilities have potential to impact parking demands. Parking supply requirements for these developments should better reflect these factors.

The review indicated that provisions for low income and seniors housing should be introduced into the Bylaw. Additional provisions could be used to supplement parking requirements under the Apartment Housing, Row Housing and Stacked Row Housing and Boarding and Lodging use classes.

8.3.2 Parking Rate Modifications Associated with Non-Residential Land Uses

Parking rates required under Edmonton's commercial development not listed separately category were found to be at the higher end of rates in the comparison cities. In general, all City of Edmonton parking supply rates for those land uses investigated were typically at the higher end of all the jurisdictions reviewed.

Commercial Development

Table 8-5 on the following page presents a summary table of the parking surveys completed at the 11 multi-tenant commercial sites. As can be highlighted, all of the multi-tenant commercial developments surveyed provided an excess parking complement as compared to current Zoning Bylaw requirements. It is noted however that when the raw parking accumulation data was factored to account for peak parking conditions (December), the resultant parking index derived is closer to the required City of Edmonton parking indices.

The estimated peak period parking demand rates have been determined to be closer to achieving required City parking supply requirements. This would suggest that existing City parking supply rates may in fact represent appropriate parking rates when considering peak period parking demands.

Table 8-5: Multi Tenant Site Surveys – Peak Period Parking Demand Index

| Site | Gross Floor Area (m ²) (1) | Parking Supply (2) | Parking Index (spaces/100 m ²) | | |
|------------------|---|-----------------------|--|---------------------|---------------------|
| | | | Existing On Site (3) | Zoning Bylaw (4) | Peak Parking (5) |
| Stadium | 4,335 | 184 | 4.3 | 2.5 | 3.0 |
| Whyte Avenue | 3,129 | 130 | 4.2 | 2.5 | 4.2 |
| Heritage | 8,138 | 452 | 5.5 | 3.0 | 4.9 |
| Riverbend | 13,960 | 588 | 4.2 | 3.5 | 4.9 |
| Beaumaris | 9,529 | 492 | 5.2 | 3.5 | 3.9 |
| Belmont | 8,129 | 540 | 6.6 | 3.0 | 4.3 |
| Meadowbrook | 7,155 | 315 | 4.4 | 3.0 | 4.4 |
| Mill Woods | 12,074 | 625 | 5.2 | 3.5 | 4.2 |
| Stony Plain Road | 14,327 | 670 | 4.7 | 3.5 | 3.5 |
| Callingwood | 20,188 | 1,006 | 5.0 | 4.0 | 4.0 |
| The Grange | 11,005 | 502 | 4.6 | 3.5 | 2.7 |

- (1) Gross floor area of multi tenant commercial development
- (2) Existing on-site parking supply
- (3) Parking index based on existing supply
- (4) Zoning Bylaw parking index
- (5) Adjusted parking index to represent peak period parking demands

Notwithstanding the above, most of the sites surveyed continued to exhibit an over-supply of off-street parking. As such, there is merit in reviewing parking requirements associated with multi-tenant commercial sites.

Parking supply modifications for multi-tenant commercial sites should attempt to encourage use of more efficient parking management strategies that take advantage of shared use/synergistic parking programs and on-street parking supplies. The use of parking maximums should be considered for multi-tenant commercial sites located in close proximity to LRT Stations, Transit Centres and Transit Avenues. Although placing maximum parking restrictions on all multi-tenant commercial sites located in suburban

locations is not recommended at this time, placing parking maximums (subject to locational attributes) may be more equitable.

The review of off-street parking requirements for these types of developments would also assist in confirming the recommendation that typical /average months be used as the benchmark upon which to provide an appropriate off-street parking complement as opposed to providing a parking supply which is based on accommodating "December" peak periods of parking demand.

In addition to the above, through the completion of supporting surveys, consideration should be given to the development of separate parking regulations for large grocery stores and large format retail outlets.

Health Services

Although at the higher end of the parking rates reviewed, Edmonton's Health Services use class is within the range of rates typically used for determining parking requirements for similar facilities in other cities. These facilities are excellent candidates for inclusion in synergistic and mixed - use parking calculations.

Professional, Financial and Office Support Services

With implementation of the objectives laid out in the Draft Municipal Development Plan and Transportation Master Plan, it is anticipated that developments associated with this use class will become a prominent component of multi-tenant, employment development nodes or TOD initiatives. Parking requirements associated with this use class may want to be adjusted to incorporate more innovative parking management strategies such as shared parking and Transportation Demand Management program parking reductions and or parking maximums.

Restaurants

With respect to the Restaurant use class, the discrepancy between rates used in the comparison cities suggests that further review of the parking requirements associated with restaurant uses may be warranted in conjunction with further updates to the Zoning Bylaw. Due to the peak operating time periods associated with restaurants, they are an ideal candidate for assessment under a shared use parking management program. Consideration could be given to imposing maximum parking requirements on restaurants, subject to locational considerations.

In addition to the above, with the support of observational evidence, separate parking standards for eating establishments (in current bylaw), specialty foods facilities (in current bylaw) and drive through restaurants should be considered.

Child Care Services

The Child Care Services parking requirements review indicated that there may be value in reviewing parking requirements associated with child care facilities. Detailed surveys of select sites, including surveys of the employees and drop-off/pick-up activity would be required to determine an appropriate local rate. In general, it is anticipated that the majority of parking associated with child care facilities is associated with drop-off/pick-up activity rather than staff parking requirements and there may be value in addressing this within the Zoning Bylaw parking regulations.

8.4 PERFORMANCE MEASURES AND MONITORING

Performance indicators and associated metrics provide qualitative and/or quantitative information to measure the extent to which particular actions are achieving their intended goals and objectives.

In order to determine how well the recommended parking management strategies (area based parking, parking maximums, shared use parking, transportation demand management and cash-in-lieu) perform over time and achieve their desired outcomes, several performance measures should be monitored to determine the progress being made.

Table 8-6 presents a series of draft parking management performance measures which are intended to describe progress on the recommended parking management strategies. It is recommended that the City formalize these draft performance measures and update the measures every couple of years. This will ensure that the City continues to employ the most up to date and available metrics to assess implementation objectives.

The measures presented in Table 8-6 describe the extent to which the recommended parking management strategies are being implemented. Progress measurement with respect to the outcomes/impacts that these strategies have on the transportation and land use systems will be incorporated in the Progress Measure and Implementation Plans of the Transportation Master Plan, Municipal Development Plan, and other City Strategic Plans."

Table 8-6: Draft Parking Management Performance Measures

| Basic Strategy | Objective | Performance Measures | Source and Data Collection Frequency | Monitoring and Performance Targets | Responsibility and Priority |
|--|---|---|--|--|-----------------------------|
| Area based Parking Management Strategy | Encourage increased transit utilization and alternative mode choice and to reduce off-street parking requirements | <ul style="list-style-type: none"> Number of development permit applications advanced within 800m of an LRT Node, 400m of a Transit Centre or 200m of a Transit Avenue | <ul style="list-style-type: none"> Development permit applications (annually) | <ul style="list-style-type: none"> Undertake annual monitoring over a two year period to assist in establishing performance targets to be achieved and future monitoring time frames. | City -High |
| Parking Maximums | Reduce oversupply of off-street parking and improve design efficiency | <ul style="list-style-type: none"> Number of development permit applications received where parking maximum rates have been applied | | | City -High |
| Shared Use Parking | Encourage more compact mixed and multi-tenant development and design efficiency | <ul style="list-style-type: none"> Number of new shared use parking opportunities created | | | City -Medium |
| Transportation Demand Management | Reduce parking demands by increasing opportunities for alternative modes of transportation | <ul style="list-style-type: none"> Number of development permit applications received where reduced parking requirements have been approved on the basis of TDM programs | | | City -High |
| Cash - in - lieu | Increase development efficiency by coordinating the construction of public shared use parking facilities | <ul style="list-style-type: none"> Number of development permit applications received where cash in lieu has been used to reduce off-street parking supply requirements Dollars collected to fund public parking facilities | <ul style="list-style-type: none"> Development permit applications (annually) Cash -in - lieu fund(annually) | | City -Medium |

Longer term changes to current parking management practices to better accommodate and manage the impact of future land development initiatives and their inherent parking demand requirements are necessary. This section of the report summarizes the results of a comprehensive and integrated parking assessment which included a review of potential Zoning Bylaw parking regulations and management strategies that would support smart growth parking practices and foster over-arching sustainability and alternative transportation goals.

9. SUMMARY OF KEY STUDY FINDINGS

9.1 STUDY SYNOPSIS

As a major component of any development initiative, parking represents a significant element of the City's urban environment. The criteria against which parking requirements are determined and evaluated should align with the principles laid out in the City's strategic planning documents including the City's Strategic Plan, Draft Municipal Development Plan and Transportation Master Plan.

The purpose of this study was to provide input and guidance into the development of new and appropriate Zoning Bylaw parking regulations, management tactics and practices which reflect current and future trends and realities. Study findings support a series of complementary studies being undertaken by the City which include over-arching sustainability goals and policies. Reduced parking standards should be considered to primarily support and acknowledge the City's smart growth initiatives and focus on promoting and developing transit as a primary means of transportation.

The basic study goals were to:

- Provide direction in the development of modified Zoning Bylaw parking regulations; and,
- Identify innovative and effective parking management strategies that when combined with modified parking regulations, will assist the Administration to assume a stronger role in achieving the vision of a sustainable parking management plan including the goal of higher transit use.

Study findings can be linked and coordinated with on-going initiatives being completed by the Planning and Development and Transportation Departments.

In general, the study included:

- The completion of parking surveys at multi-tenant commercial development sites to ascertain current parking demand and utilization characteristics;

- A review of auto ownership characteristics and possible impacts on parking demand;
- A review of parking regulations from comparable jurisdictions;
- The review of parking management strategies and tactics that could be considered in the Edmonton context; and,
- The identification of potential changes and modifications in regards to parking supply regulations and parking management.

9.2 STUDY CONCLUSIONS

Based on the research completed, it has been determined that there are opportunities to reduce off-street parking supply requirements in the Zoning Bylaw for selected individual land uses and for groups of lands uses. These reductions could be further supported through the implementation of Transportation Demand Management initiatives.

The following major findings are highlighted:

- Parking regulations and practices should reflect overarching growth strategies established in the Draft Municipal Development Plan and Transportation Master Plan and should reflect smart growth initiatives, increased transit use policies and the environmental direction being pursued by the City. Combining land use and transportation policies with appropriate parking management methods will assist in promoting sustainable development in the City;
- Based on the completion of surveys at multi-tenant commercial sites it was determined that:
 - Off-street parking facilities associated with the surveyed sites were designed to ensure that parking demands during peak periods (e.g. the month of December) were more than adequate to accommodate anticipated parking demands;
 - Observed utilization rates suggest that during non-peak periods the parking lots are not well utilized and the excessive supply would also be anticipated to exceed seasonal peak period parking demands; and,
 - Current Zoning Bylaw parking regulations are typically being exceeded resulting in a surplus of on-site parking spaces.
- It is recommended that off-street parking inventories for multi-tenant commercial sites be based on achieving a level of parking supply that meets typical peak periods of parking activity and should not be based on achieving December peak periods of parking demand.
- Neighbourhoods which are located in close proximity to regular and higher order transit service exhibit lower auto ownership patterns. It has been concluded that on average, the rate of car ownership generally increases with distance from easily accessible transit routes and transit service. This broad finding would suggest that parking requirements in areas of the City which are well served by

public transit may not require the same level of parking supply as areas of the City which are not as well served by public transit;

- Although household income and household auto ownership most likely represent the greatest influences on parking demand, there are a number of other demographic variables and parameters which may impact the demand and hence the supply of parking required at development sites and include:
 - Household size;
 - Household ownership (rental versus owned) and building type;
 - Auto accessibility within the originating home zone;
 - Proximity of activities;
 - Cost of parking;
 - Number of employees per household; and,
 - Walk and transit accessibility and availability.
- The benchmarking review indicated that Edmonton's parking requirements generally either fall in line with or are at the higher end of the parking regulation spectrum for like establishments in the comparison cities. Further to the above, it is noted that the benchmarking exercise investigated parking regulations from a parking supply perspective and that parking demands exhibited by land use activity in the comparison cities was not examined;
- The existing Zoning Bylaw groups a number of establishments within a single commercial use class category. Parking requirements for these uses are based on the floor area of the establishment. While the generality of parking requirements can be beneficial to the review and approval process, it does not encourage use of more efficient parking management strategies that take advantage of shared use/ synergistic parking programs and on-street parking supplies;
- Through the use of parking management, Zoning Bylaw parking requirements can be modified to more appropriately compliment the land use and development activity that they are intended to support. Parking requirements should be developed to allow flexibility in application and acknowledge variables affecting parking demand including development density, transit availability, auto ownership trends and household income.
- Flexibility in parking standards can expedite the planning process by limiting Zoning Bylaw variances. Some of the circumstances in which flexibility in parking requirements may be appropriate include shared use parking opportunities, locational attributes and developments that incorporate transportation demand management initiatives.
- Locational and demographic attributes represent key variables when considering off-street parking requirements.

- Based on the review of the City's current loading and unloading requirements, there is no compelling reason to modify current requirements at this time. Consideration could be given to identifying establishments where no loading requirement would be required.

9.3 STUDY RECOMMENDATIONS

Smart growth recognizes that the future vitality of our city is dependent upon our ability to foster a better planned, more environmentally protective, more sustainable pattern of development. This type of growth comes with many challenges and no aspect of development illustrates this more than parking.

Communities following the policies of smart growth are identifying new ways to address the need for parking while minimizing its negative impacts and encouraging better and different design. Parking consumes a huge amount of land that could otherwise be developed; surface and structured parking lots can present sterile, unattractive environments that isolate uses and preclude pedestrian-friendly streets. Today, parking requirements now drive many site designs and even the financial viability of new developments.

The successful application of smart growth principles is expected to reduce parking demands at both resident origins and destinations.

9.3.1 Summary of Study Recommendations

To assist and guide the City of Edmonton in developing smart growth principles related to parking, a number of study recommendations are advanced as presented in **Table 9-1**.

It is expected that the recommended strategies will continue to evolve after the conclusion of this project. They will however provide insight and direction into the development of new and modified regulations to better manage on and off street parking.

In addition, the strategies and frameworks could lend support and assist in coordinating parking related initiatives and demonstration projects to address specific area issues (i.e. Business Revitalization Zone parking issues).

Table 9-1: Summary of Study Recommendations

| Item | Basis for the Recommendation | Recommendation |
|---------------------------|--|--|
| Area Based Parking | <ul style="list-style-type: none"> To take advantage of existing transit service, to leverage the reach of the future transit system and to implement parking regulations in combination with City land use policies that support infill and transit oriented developments. | <ul style="list-style-type: none"> Define and establish areas or precincts within which modified (flexible) parking requirements can be incorporated. Transit Overlay Zones or similar regulatory tools should be employed to establish the influence area or precincts within the City where development opportunities could take advantage of reduced parking requirements. The area of significant parking influence within which reduced parking requirements can be incorporated represents an area within 800m of an LRT Node, 400 m of a Transit Centre or 200 m from a Transit Avenue. |
| Parking Maximums | <ul style="list-style-type: none"> Parking maximums represent an enforceable tool to influence (discourage) the over-supply of off-street parking. | <ul style="list-style-type: none"> Incorporate area specific parking maximums to complement parking minimums into the Bylaw. Multi-family developments, employment nodes, multi-tenant commercial sites located within 800m of an LRT Node, 400 m of a Transit Centre or 200 m from a Transit Avenue should be subject to parking maximums. Parking maximums should also be considered for residential development infill areas and large commercial developments that incorporate large surface parking facilities (big box retail formats). Parking maximums should represent flexible parking regulations to accommodate the locational attributes of development activity. At this time it is not recommended that the City develop maximum parking requirements for every use class identified in Schedule 1 of Section 54.2 of the Zoning Bylaw. |
| Shared Parking | <ul style="list-style-type: none"> To take advantage of differing parking demand patterns associated with multi tenant and mixed-use development nodes. | <ul style="list-style-type: none"> Maximize the use of parking facilities by promoting shared use opportunities compatible with surrounding land use development and to provide for variable parking standards that reflect the availability and ease of access to transit. Shared use opportunities should be considered regardless of a development sites location. Shared parking should be considered for both single developments and where opportunities exist between several developments. The Zoning Bylaw should incorporate a shared use framework to identify complementary land uses where shared use parking opportunities exist. |

Table 9-1: Summary of Study Recommendations (continued)

| Item | Basis for the Recommendation | Recommendation |
|----------------------------------|--|--|
| Transportation Demand Management | <ul style="list-style-type: none"> Transportation Demand Management strategies which have the ability to reduce transportation demands also have the ability to reduce parking demands. | <ul style="list-style-type: none"> Revise Zoning Bylaw to acknowledge possible parking reductions associated with the implementation of TDM programs which could include the provision of carpool and carshare spaces and bicycle storage /end of trip facilities. Incorporate TDM strategies directly into the Zoning Bylaw which could include the following parking demand reduction regulations: <ul style="list-style-type: none"> For every certified carpool space, the total parking requirement may be reduced by 3 spaces up to a maximum of 10% of the total parking requirement; For every certified vanpool purchased or leased by the applicant for employee use, the total parking requirement may be reduced by 5 spaces up to a maximum of 15% of the total parking requirement; If transit passes are provided to all employees and if the development is located within 800m of an LRT Node, 400m from a Transit Centre, or 200m from a Transit Avenue, the total parking requirement may be reduced up to 10%; and, For every 4 covered bicycle parking spaces provided, the total parking requirement may be reduced by 1 space up to a maximum of 5% of the total parking requirement. Require new commercial activity centre of significant size or regional importance to complete a TDM Plan for the purpose of evaluating trip reduction and parking reduction opportunities. Take a more active role in influencing parking costs in strategic areas through control of the City's parking supply and consider bonusing for underground or structured parking. Creating incentives for developers to use transit friendly parking plans and programs. |

Table 9-1: Summary of Study Recommendations (continued)

| Item | Basis for the Recommendation | Recommendation |
|--|--|---|
| Single Family Residential Parking Standards | To consider reducing single family residential parking supply regulations. | <ul style="list-style-type: none"> Review single family development parking requirements especially with respect to developments associated with transit oriented development nodes. |
| Multi-family Residential Parking Standards | To consider reducing multi-family residential parking supply regulations and to distinguish between different housing types that may exhibit unique parking characteristics. | <ul style="list-style-type: none"> It is recommended that the parking supply requirements associated with multi-family developments located within 800m of an LRT Node, 400 m of a Transit Centre or 200 m from a Transit Avenue be less than the equivalent multi-family parking supply requirements in all areas of the city other than within the Downtown Area Redevelopment Plan boundaries. Further to the completion of additional surveys and assessments, it is recommended that minimum and maximum parking supply rates be established. The following multi-family residential parking rates (exclusive of visitor parking requirements) represent parking rates which are about 25% less than current multi-family parking rates: <ul style="list-style-type: none"> 0.7 parking spaces per Bachelor Suite and Bed Sitting Room to a maximum of 0.9 spaces per unit, plus 0.80 parking spaces per 1 Bedroom Dwelling to a maximum of 1.0 space per unit, plus 1.0 parking spaces per 2 or-more Bedroom Dwelling to a maximum of 1.3 spaces per unit, plus 1.25 parking spaces per 3 or-more Bedroom Dwelling to a maximum of 1.5 spaces per unit Evaluate and revise as required (based on the completion of a formal survey program) parking demands associated with multi-family developments to reflect auto ownership, household income, building type and tenure (rental or condominium). Establish a clear definition for Seniors Housing and develop a separate parking rate for Seniors Housing, Senior's Independent Living and Designated Assisted Living. Establish parking rates for low income housing (affordable and transitional housing). Encourage unbundling parking spaces. |

Table 9-1: Summary of Study Recommendations (continued)

| Item | Basis for the Recommendation | Recommendation |
|--|--|---|
| Multi-tenant Commercial Parking Standards | <ul style="list-style-type: none"> To investigate the parking requirements associated with different commercial establishments which may have distinctly different parking demands and supply requirements given their locational attributes. | <ul style="list-style-type: none"> It is recommended that parking supply requirements associated with multi-tenant commercial developments located within 800m of an LRT Node, 400 m of a Transit Centre or 200 m from a Transit Avenue be less than the equivalent multi-tenant commercial parking supply requirements in all areas of the city other than within the Downtown Area Redevelopment Plan boundaries. Further to the completion of additional surveys and assessments, it is recommended that minimum and maximum parking supply rates be established. The following multi-tenant commercial parking rates represent parking rates which are about 20% less than current commercial parking rates: <ul style="list-style-type: none"> 2.0 parking spaces for developments of less than 5,000 m², to a maximum of 2.5 spaces per 100 m² 2.5 parking spaces for developments between 5,000 m² – 10,000 m², to a maximum of 3.0 spaces per 100 m² 3.0 parking spaces for developments of greater than 10,000 m² to a maximum of 3.5 spaces per 100 m² Encourage use of more efficient parking management strategies that take advantage of shared use/synergistic parking programs and on-street parking supplies. Placing maximum parking restrictions on all multi-tenant commercial sites located in suburban locations is not recommended at this time. However, placing parking maximums (subject to locational attributes) may be more equitable. Typical /average months should be used as the benchmark upon which to provide an appropriate off-street parking complement as opposed providing a parking supply which is based on accommodating December peak periods of parking demand. |
| Other Retail Parking Standards | <ul style="list-style-type: none"> To recognize the differing parking requirements associated with smaller and larger retail formats. | <ul style="list-style-type: none"> Through the completion of supporting surveys, develop separate parking regulations for small retail stores, large grocery stores and large format retail outlets. |

Table 9-1: Summary of Study Recommendations (continued)

| Item | Basis for the Recommendation | Recommendation |
|---|---|--|
| Professional, Financial and Office Support Parking Standards | <ul style="list-style-type: none"> To respond to the incorporation of innovative parking management strategies such as shared parking and Transportation Demand Management programs and to recognize the locational attributes of office developments. | <ul style="list-style-type: none"> It is recommended that parking supply requirements associated with office developments located within 800m of an LRT Node, 400 m of a Transit Centre or 200 m from a Transit Avenue be less than the equivalent office parking supply requirement in all areas of the city other than within the Downtown Area Redevelopment Plan boundaries. Further to the completion of additional surveys and assessments, it is recommended that minimum and maximum parking supply rates be established. The following rates represent parking rates which are about 25% less than current commercial parking rates: <ul style="list-style-type: none"> 2.5 spaces per 100 m² of Gross Floor Area, and notwithstanding this minimum, the maximum shall be 3.0 parking spaces per 100 m² of Gross Floor Area. Encourage unbundling parking spaces. |
| Health Services Parking Standards | <ul style="list-style-type: none"> To take advantage of differing parking demand patterns associated with Health Service establishments developed in conjunction with multi-tenant commercial sites and mixed-use development nodes. | <ul style="list-style-type: none"> It is recommended that parking supply requirements associated with health services developments located within 800m of an LRT Node, 400 m of a Transit Centre or 200 m from a Transit Avenue be approximately 25% less than the equivalent health services parking supply requirement in all areas of the city other than within the Downtown Area Redevelopment Plan boundaries. Further to the completion of additional surveys and assessments, it is recommended that the following parking supply rates be considered: <ul style="list-style-type: none"> 3.5 parking spaces per 100 m² of Gross Floor Area; notwithstanding this minimum, the maximum shall be 4.5 parking spaces per 100 m² of Gross Floor Area |
| Restaurant Parking Standards | <ul style="list-style-type: none"> To recognize the differing parking requirements associated with different types of restaurant developments. | <ul style="list-style-type: none"> Further to the completion of additional surveys and assessments, identify separate parking standards for eating establishments (in current bylaw), specialty foods uses (in current bylaw) and drive through restaurants. |
| Child Care Services Parking Standards | <ul style="list-style-type: none"> To maintain the character of the development's location and to recognize shared use parking opportunities. | <ul style="list-style-type: none"> Further to the completion of additional surveys and assessments, it is recommended that the following parking supply rates be considered: <ul style="list-style-type: none"> Two parent drop-off spaces be required for up to 10 children. An additional drop-off space for every 10 children should also be required, and; 1 stall per employee be required for the first 2 employees and that 0.5 spaces be required for additional staff. |

Table 9-1: Summary of Study Recommendations (continued)

| Item | Basis for the Recommendation | Recommendation |
|---------------------------|--|---|
| Cash in lieu | <ul style="list-style-type: none"> To allow parking facilities to be located in optimal locations, to meet urban design objectives and to accommodate shared parking opportunities. | <ul style="list-style-type: none"> Consider the use of cash-in lieu as a means of reducing development related parking requirements by: <ul style="list-style-type: none"> Establishing a new bylaw creating a cash-in-lieu requirement for new parking spaces required by new development activity, and /or; Allowing City Council to enter into agreements with the owners of land to exempt or partially exempt the owner from constructing off-street parking spaces as required by the Zoning Bylaw in exchange for money. |
| Parking Ratio Measurement | <ul style="list-style-type: none"> To maintain consistent parking conventions. | <ul style="list-style-type: none"> Consider using unit size as opposed to number of bedrooms in evaluating multi-family residential development parking requirements. Consider expressing parking rates based on the lowest number of parking spaces required (i.e. 1 space per xxx m²) rather than relating parking requirements to a relationship of xxx spaces per 100 m². |

APPENDIX A

Current City of Edmonton Zoning Bylaw Parking Regulations

Edmonton Zoning Bylaw 12800

54.1 Off-street Parking and Loading Regulations

1. Applicability and Exceptions
 - a. When any development takes place on any Site, off-street parking and loading facilities for each building type or Use, including Accessory Uses, shall be provided and maintained in accordance with the regulations and standards of this Bylaw.
 - b. Notwithstanding the above, the regulations contained within this Section shall not apply to buildings or Uses existing at the time of the adoption of this Bylaw, except that:
 - i. where any building or structure undergoes an increase in Floor Area due to addition or external renovation, off-street parking, including parking for the disabled and visitors, shall be increased to equal or exceed the off-street parking requirements resulting from application of the provisions of this Bylaw to the entire building, structure or Use as modified in size:
 - ii. where any building or Use undergoes a change of Use, intensity of Use or capacity and the change results in an increase in the parking requirements, the off-street parking, including parking for the disabled and visitors, shall be increased to equal or exceed the off-street parking requirements resulting from application of the provisions of this Bylaw to the entire building, structure or Use as modified in use; and
 - iii. where off-street parking facilities or loading facilities are provided when not required, the location, design and operation of such facilities shall comply with all the regulations of this Bylaw.
 - c. All required parking and loading facilities shall only be used for the purpose of accommodating the vehicles of clients, customers, employees, members, residents or visitors in connection with the building or Use for which the parking and loading facilities are provided, and the parking and loading facilities shall not be used for driveways, access or egress, commercial repair work, display, sale or storage of goods of any kind.
2. General Requirements
 - a. Where provision of off-street vehicular parking, Garage spaces, Bicycle Parking or loading spaces is required by this Bylaw with the exception of [Single Detached Housing](#) , [Duplex Housing](#) , and [Semi-detached Housing](#) , a plan of the proposed Site layout shall be included with the Development Permit Application. The Site Plan must be drawn to scale and must clearly illustrate

the lot size and configuration, building locations, site access, parking and loading spaces, on-site circulation and any other details relevant to the review of the development proposal.

- b. The number of off-street vehicular parking spaces, Bicycle Parking spaces and loading spaces required for any Use is specified in Schedule 1, Schedule 2 and Schedule 3 respectively.
 - c. Where Schedules 1, 2 and 3 do not clearly define regulations for a particular development, the single Use Class or combination of Use Classes most representative of the proposed development shall be used by the Development Officer to determine the vehicular parking, Bicycle Parking and loading requirements.
 - d. Where the total number of vehicular parking spaces, Bicycle Parking spaces or loading facilities is determined by reference to a unit such as the number of seats or Floor Area, the next higher whole number shall be required where the calculation results in a fractional number of required spaces.
 - e. Where more than one calculation of parking space requirements is specified for a Use, the greater requirement shall be applied.
 - f. Unless otherwise specified in this Bylaw, no required parking spaces shall be provided as Tandem Parking.
 - g. The Development Officer may use his variance power to relax the vehicular parking requirements in Schedule 1, the Bicycle Parking requirements in Schedule 2 and the loading requirements in Schedule 3, however such a variance shall only be considered in cases where the nature of the Use, the size of the Site, or other physical constraints result in a situation where the requirements cannot be met on-site without unnecessary hardship or practical difficulties.
 - h. In the case of the multiple Use of a Site, the Development Officer shall calculate the vehicular parking, Bicycle Parking and total off-street loading requirement for each individual Use and the total shall be deemed to be the required vehicular parking, Bicycle Parking or off-street loading for the Site, unless the applicant can demonstrate that there is complementary use of the parking or loading facilities which would warrant a reduction in the requirements. Where such reduction is made, this shall be considered a variance and the Development Officer shall state the reduction and the reasons for it on the Development Permit.
3. Parking for People with Disabilities
- a. Parking spaces for the disabled shall:
 - i. be provided in accordance with the Alberta Building Code in effect at the time of the Development Permit application, for which no discretion exists;

- ii. be included, by the Development Officer, in the calculation of the applicable minimum parking requirement; and
- iii. be identified as parking spaces for the disabled through the use of appropriate signage, in accordance with Provincial standards.

54.2 Required Off-street Vehicular Accessory Parking

1. Number of Vehicular Spaces
 - a. The minimum number of off-street parking spaces required for each Use is specified in [Schedule 1](#).
 - b. Where the applicant for a Development Permit can demonstrate through a vehicular parking demand study prepared and submitted with respect to the proposed development, that by virtue of the use, character, or location of the proposed development, and its relationship to public transit facilities and other available parking facilities, the parking requirement for the proposed development is less than any minimum or more than any maximum set out in the Parking Schedule, the Development Officer may allow a reduction from the minimum or an increase from the maximum in the number of parking spaces. The Development Officer shall submit the demand study to the Transportation and Streets Department for analysis, and the proposed reduction or increase may be approved by the Development Officer with the advice of the Transportation and Streets Department. In no case shall the resulting number of parking spaces be less than one per Dwelling in the case of Residential Uses.
 - c. For mixed use developments of greater than [28 000 m²](#) of Floor Area, which accommodate restaurant, entertainment and or cinema uses exceeding 20% of the Floor Area, a shared use parking impact assessment shall be submitted to the Development Officer in order to assist in the determination of the required off-street vehicular parking supply. The Development Officer shall submit the parking study to the Transportation and Streets Department for analysis, and the proposed reduction or increase may be approved by the Development Officer with the advice of the Transportation and Streets Department.
2. Location of Vehicular Parking Facilities
 - a. For all residential developments, the required parking spaces shall be wholly provided on the same Site as the building.
 - b. For all other Uses, parking spaces may be provided on a Site located remotely, but no further than [120.0 m](#) from the Site. Such distance shall be measured along the shortest public pedestrian route from the nearest point of the parking area to the nearest point of the Site where the building or Use is located.

Where off-site parking is provided pursuant to this provision, the development shall be considered as Class B Development.

- c. Where required parking spaces are not on the same Site of the development or Use, these parking spaces shall be identified as parking spaces for that development or Use through the use of appropriate signage.
- d. Notwithstanding the definition of [Accessory](#) in this Bylaw, Accessory parking spaces for non-residential Uses may be located on another Site where:
 - i. the principal Use Class to which the parking is an Accessory Use is a Permitted or a Discretionary Use on the Site to be used for additional parking; or
 - ii. Non-accessory Parking is a Permitted or a Discretionary Use on the Site to be used for parking.
- e. Except as otherwise provided for in this Bylaw, parking spaces required in accordance with the minimum standards of this Bylaw shall be located in accordance with the following:
 - i. parking spaces shall not be located within a required Front Yard, except [Single Detached](#) , [Duplex](#) and [Semi-detached Housing](#) ; and
 - ii. on a Corner Lot in a Residential Zone, parking spaces, in addition to complying with the other provisions of this Bylaw, shall not be located within the required Side Yard abutting the flanking public roadway, other than a Lane. Where the amount of parking provided on a Corner Lot is in excess of the minimum requirements of this Bylaw, the Development Officer shall have the discretion to allow such additional spaces within a required Side Yard flanking a public roadway, other than a Lane.

3. Landscaped Islands Within Parking Areas

- a. Every off-street parking or loading area required by this Bylaw to accommodate 30 or more vehicles at grade, shall incorporate landscaped open space within the parking area, calculated on the basis of [2.0 m²](#) of landscaped island area per required parking and loading space. This shall be Landscaped in accordance with this Bylaw.
- b. For parking areas containing required parking for 40 or more vehicles, a minimum of two landscaped islands shall be required. These islands shall be placed to provide visual relief, to assist vehicular circulation and to organize large areas of parking into smaller cells. The number of islands provided shall be to the satisfaction of the Development Officer.

4. Vehicular Parking Dimensions and Configuration

- a. All required parking spaces shall be clear of any access driveways, aisles, ramps, columns, Signs or other similar obstructions, and shall conform to the following minimum dimensions:
 - i. except as provided below, each required off-street parking space shall be a minimum of [2.6 m](#) width with a minimum clear length of [5.5 m](#) exclusive of access drives or aisles, ramps, columns. Parking spaces shall have a vertical clearance of at least [2.0 m](#) . For parallel parking, the length of the parking spaces shall be increased to [7.0 m](#) , except that an end space with an open end shall be a minimum length of [5.5 m](#) .
 - ii. for parking spaces other than parallel parking spaces, up to 30% of the required parking spaces may be of a length shorter than that required above, to a minimum of [4.6 m](#) . Such spaces shall be clearly signed as small car spaces, easily located and convenient to use;
 - iii. where the use of a parking space is limited on both sides by a wall or a column, the unobstructed width from face to face of the obstructions shall be [3.0 m](#) , and if in this case, a building door opens into the parking space on its long side, the unobstructed width shall be [3.3 m](#) .
 - iv. where the use of a parking space is limited to one side by a wall or a column, the unobstructed width of the parking space shall be [2.7 m](#) , and if in this case, a building door opens into the parking space on its long side, the unobstructed width shall be [3.0 m](#) .
 - v. aisles shall be a minimum of [7.0 m](#) wide for 90° parking, [5.5 m](#) wide for 60° parking, and [3.6 m](#) wide for 45° parking and parallel parking;
 - vi. disabled parking spaces shall be a minimum of [3.7 m](#) in width and [5.5 m](#) in length; and
 - vii. where parking spaces are located with access directly off a Lane, the required width of the aisle may be reduced by the width of the Lane, but the entire parking space must be provided on the site.

54.2 Schedule 1

Schedule 1 - Vehicular Parking Requirement

| Use of Building or Site | Minimum Number of Parking Spaces or Garage Spaces Required |
|---|--|
| Residential and Residential-Related (Except for Residential-Related Under Downtown Area Redevelopment Plan) | |
| 1. Apartment Housing Row Housing Stacked Row Housing | <p>1 parking space per Bachelor Suite and Bed Sitting Room, plus 1 parking space per 1 bedroom Dwelling, plus 1.5 parking spaces per 2 bedroom Dwelling, plus 1.75 parking spaces per 3 or more bedroom Dwelling, plus 1 parking space per 7 Dwellings for visitor parking.</p> <p>The visitor parking must be readily available to an entrance of the building and be clearly identified as visitor parking.</p> <p>The Development Officer may accept Tandem Parking spaces of a number that is equivalent to the total required parking minus the total number of Dwellings and minus visitor parking. Visitor parking spaces shall not be in tandem.</p> |
| <i>Bylaw 15036 February 2, 2009</i> 2. Boarding and Lodging Houses Fraternity and Sorority Housing Garage Suite Garden Suite Secondary Suite | <p><i>Bylaw 14750 December 12, 2007</i> <i>Bylaw 15036 February 2, 2009</i></p> <p>1 parking space per 2 Sleeping Units in addition to the parking requirements for primary Dwelling.</p> <p>Tandem Parking is allowed for Secondary Suites, Garage Suites and Garden Suites.</p> |
| 3. Duplex Housing Mobile Homes (excluding Mobile Home Parks) Semi-detached Housing Single Detached Housing | <p>2 parking spaces per Dwelling, may be in tandem and may include 1 Garage space.</p> <p>Where a Front Yard driveway provides access to a parking space that is not within the Front Yard, the Development Officer may consider this driveway as the provision of a second car parking space that is in tandem.</p> |
| 4. Group Home | 1 parking space per 3 Sleeping Units and 1 parking space per resident staff member. |
| 5. Major Home Based Business Except: | 1 parking space in addition to parking required for primary Dwelling. |
| a) Bed and Breakfast | 1 parking space per guest room is required in addition to the parking required for the primary Dwelling. |

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| 6. Mobile Home Parks | 1 parking space per Mobile Home Lot plus 1 parking space per 7 Mobile Home Lots as visitor parking. The visitor parking shall be dispersed, to be conveniently located for all lots. |
| 7. Residential Sales Centres | 5 parking spaces per 100 m² of Floor Area |
| Residential and Residential-Related (Within the Boundaries of the Downtown Area Redevelopment Plan) | |
| 8. Apartment Housing Row Housing Stacked Row Housing | <p>0.5 parking spaces per Bachelor Suite and Bed Sitting Room, plus 0.75 parking spaces per 1 bedroom Dwelling, plus 1 parking space per 2 or-more bedroom Dwelling, plus 1 parking space per 7 Dwellings for visitor parking</p> <p>The visitor parking must be readily available to an entrance of the building and be clearly identified as visitor parking.</p> <p>The Development Officer may accept Tandem Parking spaces of a number that is equivalent to the total required parking minus the total number of Dwellings and minus visitor parking. Visitor parking spaces shall not be in tandem.</p> |
| 9. Duplex Housing Mobile Home (excluding Mobile Home Parks) Semi-detached Housing Single Detached Housing | <p>2 parking spaces per Dwelling, may be in tandem and can include 1 Garage space</p> <p>Where a Front Yard driveway provides access to a parking space that is not within the Front Yard, the Development Officer may consider this driveway as the provision of a second car parking space that is in tandem.</p> |
| Non-residential Use Classes (Outside the Boundaries of the Downtown Area Redevelopment Plan) | |
| Commercial Use Classes | |
| 10. Any development within a Commercial Use Class not listed separately in this table, with a Floor Area of: | |
| a. less than 4 500 m² b. 4 500m² - 9 000m² c. 9 000 m² 28 000 m² d. greater than 28 000 m² | <p>2.5 parking spaces per 100 m² of Floor Area</p> <p>3.0 parking spaces per 100 m² of Floor Area</p> <p>3.5 parking spaces per 100 m² of Floor Area</p> <p>4.0 parking spaces per 100 m² of Floor Area</p> |
| 11. Apartment Hotels Hotels and Motels | 1 parking space per Sleeping Unit |
| 12. Bars and Neighbourhood Pubs | 1 parking space per 3.0 m² of Public Space |

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| 13. Casinos and Other Gaming Establishments | 1 parking space per 2.4 m² of Public Space |
| 14. Commercial Schools | 1 parking space per 10 seats, plus auditorium requirements where applicable. |
| 15. Flea Markets | 6.5 parking space per 100 m² of Floor Area in the building used for this Use Class. |
| 16. Funeral, Cremation and Interment Services | 1 parking space per 4 seats plus 1 parking space per funeral home vehicle |
| 17. Health Services | 4.5 parking space per 100 m² of Floor Area |
| 18. Major Alcohol Sales | 4.3 parking space per 100 m² of Floor Area |
| 19. Minor Alcohol Sales | 3.2 parking space per 100 m² of Floor Area |
| 20. Nightclubs | 1 parking space per 3.0 m² of Public Space |
| 21. Professional, Financial and Office Support Services | 3.4 parking space per 100 m² of Floor Area |
| 22. Restaurants | 1 parking space per 3.6 m² of Public Space |
| 23. Speciality Food Services | 1 parking space per 3.6 m² of Public Space |
| 24. Warehouse Sales | 1 parking space per 100 m² of Floor Area |
| Industrial | |
| 25. Any development within the Industrial Use Classes and Industrial Performance Use Classes except for Adult Mini-Theatres | 1 parking space per 100 m² of Floor Area provided this is not less than 3 parking spaces per tenant or establishment |
| 26. Adult Mini-Theatre | 1 parking space per 3 seats, provided that a minimum of 1 parking space per each individual viewing area or booth with 3 seats or less, is provided. |
| Basic Service Use Classes | |
| 27. Extended Medical Treatment Services Except: a. Auxiliary Hospitals b. Nursing Homes | 1.1 parking spaces per 100 m² of Floor Area 1 parking space per 3 beds 1 parking space per 3 beds |
| Community, Educational, Recreational and Cultural Service Use Classes | |
| 28. Any development within the Community, Educational, Recreational and Cultural Service Use Class not listed separately. | 1 parking space per 3.5 seats or 3.1 parking spaces per 10 m² of Floor Area used by patrons |

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| 29. Child Care Services | 1 parking space per employee |
| 30. Community Recreation Services | <p>16 parking spaces, plus where multipurpose room greater than <u>93 m²</u> is present and is used for general assembly purposes, an additional 2.2 parking spaces per <u>10 m²</u> over <u>93 m²</u> of Floor Area in a multipurpose room is required. The multipurpose area shall not include dressing rooms, change rooms, washrooms, storage areas, and cooking or kitchen areas, which are normally incidental to the primary function of the Community Recreation Services.</p> <p>Where the Community Recreation Service facility parking area immediately abuts a parking area for a school, a maximum of 50% of the additional parking spaces required pursuant to the above clause may be provided by including the parking facilities on the abutting school parking area.</p> |
| 31. Conversions of existing Public or Private Elementary, Junior High and High Schools to any other Public or Private Education Service | 1.4 parking spaces for each classroom, plus 1 parking space for every 12 students. |
| 32. Colleges, Business or Technical Schools | 1 parking space per 10 seats, plus auditorium requirements where applicable. |
| 33. Exhibition and Convention Facilities | 1 parking space per 3.5 seats or 3.1 parking spaces per <u>10 m²</u> of Floor Area used by patrons |
| 34. Indoor Participant Recreation Services Except: a. Bowling Alleys b. Curling Rinks c. Health and Fitness Clubs d. Hockey Rink and Swimming Pools e. Racket Sport Facilities | 1 parking space per 3.5 seats or 3.1 parking spaces per <u>10 m²</u> of Floor Area used by patrons 4 parking spaces per Lane plus parking requirements for Accessory Uses 8 parking spaces per sheet plus parking requirements for Accessory Uses 1 parking space per <u>10 m²</u> of Floor Area 1 parking space per 3.5 seats or 1 parking space per <u>5 m²</u> playing/water surface or assembly area 2 parking spaces per court plus parking requirements for Accessory Uses |
| 35. Natural Science Exhibits | 1 parking space per 3.5 seats or 3.1 parking spaces per <u>10 m²</u> of Floor Area used by patrons |
| 36. Outdoor Participant Recreation Services Except: | 1 parking space per 3.5 seats or 3.1 parking spaces per <u>10 m²</u> of Floor Area used by patrons |
| a. Golf Course or Driving Range b. Sports Fields in association with school /park sites | 5 parking spaces per hole (Golf Course) or 1 parking space per T-box (Driving Range) plus parking requirements for Accessory Uses A maximum of 10 parking spaces per field to be developed provided that the sports and playing fields are developed prior to the development of other Uses on the Site, such as Community Recreation Service facilities or other school Uses. The number and design of the parking spaces and the surface treatment of the parking area shall be approved by the Development Officer in consultation with |

| | |
|--|--|
| | Transportation and Streets Department, Community Services Department and the School Boards. |
| 37. Private Clubs | 1 parking space per 3.6 m² of Public Space |
| 38. Public Libraries and Cultural Exhibits | 1 parking space per 10 m² of Floor Area used by patrons |
| 39. Public or Private Elementary and Junior High Schools | <p>1.4 parking spaces per classroom</p> <p>This calculation shall include the ultimate parking requirements for all potential future school development on-site, whether contained in a core facility or in attached portable pods. Actual development of parking spaces may, however, be phased in accordance with each phase of school development.</p> <p>Where the school parking area immediately abuts a parking area for a Community Recreation Service facility, a maximum of 50% of the smaller parking requirement between the school and the Community Recreation Service facility may be provided by including the parking facilities on the abutting Community Recreation Service parking area.</p> |
| 40. Public or Private High Schools | <p>1.4 parking spaces for each classroom, plus 1 parking space for every 12 students.</p> <p>This calculation shall include the ultimate parking requirements for all potential future school development on-site, whether contained in a core facility or in attached portable pods. Actual development of parking spaces may, however, be phased in accordance with each phase of school development.</p> <p>Where the school parking area immediately abuts a parking area for a Community Recreation Service facility, a maximum of 50% of the smaller parking requirement between the school and the Community Recreation Service facility may be provided by including the parking facilities on the abutting Community Recreation Service parking area.</p> |
| 41. Religious Assembly | 1 parking space per 4 seats |
| 42. Spectator Entertainment Establishments | 1 parking space per 3.5 seats or 3.1 parking spaces per 10 m² of Floor Area used by patrons |
| 43. Spectator Sports Establishments | 1 parking space per 5 seats |
| Non-residential Use Classes (Within the Boundaries of the Downtown Area Redevelopment Plan) | |
| 44. Non-residential Use Classes | 1 parking space per 300 m² of Floor Area; notwithstanding this minimum, the maximum shall be 1 parking space per 100 m² of Floor Area. |

54.3 *Bicycle Parking Facilities*

1. Number of Bicycle Spaces
 - a. In addition to the required vehicular parking, Bicycle Parking shall be provided in accordance with [Schedule 2](#).
2. Size and Location of Bicycle Parking Facilities
 - a. Each Bicycle Parking space shall be a minimum of [0.6 m](#) in width with a minimum clear length of [1.8 m](#) . Bicycle Parking spaces shall have a vertical clearance of at least [2.0 m](#) .
 - b. Required Bicycle Parking spaces shall be wholly provided on the same Site as the building.
 - c. Adequate access to and exit from individual Bicycle Parking spaces shall be provided with an aisle of not less than [1.5 m](#) in width, to be provided and maintained beside or between each row of Bicycle Parking.
 - d. Required Bicycle Parking spaces and accesses shall be located on hard paved surfaces.
 - e. Bicycle parking shall be separated from vehicular parking by a physical barrier or a minimum [1.5 m](#) of open space.
 - f. Bicycle Parking spaces shall be visibly located where possible and provided in one or more of the following ways:
 - i. secure bicycle storage rooms, lockers, racks, railings or other such device inside the building, preferably at the ground level;
 - ii. secure bicycle storage rooms, lockers, racks, railings or other such device in any Accessory parking area; or
 - iii. within a required or non-required Yard or building Setback of a Site but not more than [15.0 m](#) from a principal entrance of the building, except: in the case of educational services developments where the students are restricted from using the principal entrance of the building, Bicycle Parking spaces may be provided in the required or non-required Yards of a Site, no more than [15.0 m](#) from the principal entrance of the building designated for student use.
 - g. Where Bicycle Parking is not visibly located on site, directional signage shall be displayed indicating its location.
 - h. All Bicycle Parking spaces shall be situated to maximize visibility so as to discourage theft and vandalism, and shall be illuminated.
3. Design of Bicycle Parking Facilities

- a. Bicycle Parking shall be designed so that bicycles may be securely locked to the rack, railing or other such device without undue inconvenience and shall be reasonably safeguarded from intentional or accidental damage, in accordance with the following standards:
 - i. Bicycle Parking shall hold the bicycle securely by means of the frame. The frame shall be supported so that the bicycle cannot fall or be pushed over causing damage to the bicycle.
 - ii. Bicycle parking shall accommodate:
 - a. locking both the frame and the wheels to the rack, railing or other such device with a high security U-shaped shackle lock, if the cyclist removes the front wheel;
 - b. locking the frame and one wheel to the rack, railing or other such device with a high security U-shaped shackle lock, if the cyclist leaves both wheels on the bicycle; and
 - c. locking the frame and wheels both to the rack, railing or other such device with a chain or cable not longer than [2.0 m](#) without the removal of any wheels.
- b. Bicycle parking racks, railings or other such devices shall be anchored securely to a hardsurface or fixed structure.

54.3 Schedule 2

Schedule 2 - Bicycle Parking Requirement

| Use of Building or Site | Minimum Number of Bicycle Parking Spaces |
|---|--|
| 1. All Residential and Residential-Related Use Classes of 20 Dwellings or more, and all Non-residential Use Classes outside the boundaries of the Downtown Area Redevelopment Plan. | 5% of the number of vehicular parking spaces required under Schedule 1 to a maximum of 50 Bicycle Parking spaces with 5 Bicycle Parking spaces being the minimum to be provided. |
| 2. Administration Use and Educational Facilities | 10% of the number of vehicular parking spaces required under Schedule 1, with 5 Bicycle Parking spaces being the minimum number of spaces to be provided. |
| 3. All Residential and Residential-Related Use Classes of 20 Dwellings or more, and all Non-residential Use Classes within the boundaries of the Downtown Area Redevelopment Plan | 20% of the number of vehicular parking spaces required under Schedule 1 to a maximum of 50 Bicycle Parking spaces, with 5 Bicycle Parking spaces being the minimum to be provided. |

54.4 Off-street Vehicular Loading Facilities

1. Number of Spaces

- a. The number of off-street loading spaces, required for each Use is specified in [Schedule 3](#).
2. Location of Loading Spaces
 - a. Off-street loading spaces shall be provided entirely within the property of the development being served, and shall be subject to all Setbacks and Yard requirements specified elsewhere in this Bylaw.
 - b. Off-street loading shall be oriented away from residential developments.
 - c. All required loading spaces shall be clear of any access driveways, aisles, ramps, columns, Signs or other similar obstructions.
3. Size and Access
 - a. Each off-street loading space shall be of adequate size and accessibility to accommodate the vehicles expected to load and unload. Each required loading space shall be a minimum of [3.0 m](#) in width, a minimum of [9.0 m](#) in length and maintain a minimum overhead clearance of [4.0 m](#) , unless larger dimensions are required, having regard to the type of vehicle loading and unloading without projecting into a public roadway.
 - b. Access to any loading area shall be provided, wherever possible, internally to the development or from a Lane abutting the development.
 - c. Access to any loading area shall be arranged such that no backing or turning movement of vehicles going to or from the Site causes interference with traffic on the abutting streets or Lanes.

54.4 Schedule 3

Schedule 3 - Loading Spaces Requirement

| Use of Building or Site | Total Floor Area of Building | Minimum Number of loading Spaces Required |
|--|---|--|
| 1. Any development within the Commercial or Industrial Use Classes, excluding Professional, Financial and Office Support Services | Less than 465 m² | 1 |
| | 465 m² to 2 300 m² | 2 |
| | Each additional 2 300 m² , or fraction thereof | 1 additional |
| 2. Any development within the Residential-Related, Basic Services or Community, Educational, Recreational and Cultural Service Use Classes and Professional, Financial and Office Support Services | Up to 2 800 m² | 1 |
| | Each additional 2 800 m² | 1 additional |

APPENDIX B

Survey Data

Locational Information

| Location Name | Location Description | Transit Centre within 400 m | Bus Routes Regularly Running Adjacent to the Site | Number of Bus Routes | Adjacent Development |
|----------------------|-------------------------------------|------------------------------------|--|-----------------------------|---|
| Stadium | Inner City | Stadium Transit Centre | 2, LRT | 2 | Multi-family, Commercial, Urban Service |
| Whyte Avenue | Inner City | N/A | 4,7,9,17,51,57,106,313 | 8 | Multi-family, Single-family, Commercial |
| Heritage | Established Suburban | N/A | 17,39,41,44,45,48,49 | 7 | Multi-family, Commercial, Park, Single-family |
| Riverbend | Established Suburban | N/A | 36,38,338 | 3 | Single-family, Multi-family |
| Beaumaris | Established Suburban | Castle Downs Transit Centre | 13,16,128,151,164,166 | 6 | Multi-family, Commercial, Park, Single-family |
| Belmont | Established Suburban | N/A | 302 | 1 | Multi-family, Single-family |
| Meadowbrook | New Suburban | N/A | 72 | 1 | Single-family, Multi-family |
| Mill Woods | Established Suburban | Mill Woods Transit Centre | 8,59,60,74 | 4 | Commercial, Professional, Multi-family, Park |
| Stony Plain Road | Established Suburban/ Inner City | N/A | 1,2,111,116,120,150,305 | 7 | Multi-family, Commercial, Single-family |
| Callingwood | Established Suburban | N/A | 2,106,107,110 | 4 | Multi-family, Commercial, Urban Service |
| The Grange | New Suburban | N/A | 119,139 | 2 | Multi-family, Single-family |

Note: Parking surveys completed at the Grange and Meadowbrook sites were on a discount shopping day

Development Information

| Location Name | Approximate Floor Area (m ²) | % Occupancy | Occupied Area | Number of On-site Parking Spaces | Parking Supply Ratio (stalls/100 m ²) |
|------------------|--|-------------|---------------|----------------------------------|---|
| Stadium | 4,335 | 100% | 4,335 | 184 | 4.2 |
| Whyte Avenue | 3,129 | 100% | 3,129 | 130 | 4.2 |
| Heritage | 8,138 | 100% | 8,138 | 452 | 5.6 |
| Riverbend | 13,960 | 100% | 13,960 | 588 | 4.2 |
| Beaumaris | 9,529 | 100% | 9,529 | 492 | 5.2 |
| Belmont | 8,129 | 85% | 6,910 | 540 | 6.6 |
| Meadowbrook | 7,155 | 100% | 7,155 | 315 | 4.4 |
| Mill Woods | 12,074 | 85% | 10,263 | 625 | 5.2 |
| Stony Plain Road | 14,327 | 100% | 14,327 | 670 | 4.7 |
| Callingwood | 20,188 | 100% | 20,188 | 1006 | 5.0 |
| The Grange | 11,005 | 100% | 11,005 | 502 | 4.6 |

| | | | |
|---------|-------|------|-----|
| Average | 9903 | 500 | 4.9 |
| min | 3129 | 130 | 4.2 |
| max | 20188 | 1006 | 6.6 |
| median | 9529 | 502 | 4.7 |

Saturday Survey

| Location Name | Date of Survey | Time of Peak Parking Demand | Number of Parked Vehicles | Parking Utilization | Parking Demand Ratio (stalls/100 m²) |
|----------------------|-----------------------|------------------------------------|----------------------------------|----------------------------|--|
| Stadium | 28-Mar-09 | 3:15 PM | 84 | 46% | 1.9 |
| Whyte Avenue | 4-Apr-09 | 2:00 PM | 81 | 62% | 2.6 |
| Heritage | 18-Apr-09 | 2:00 PM | 248 | 55% | 3.0 |
| Riverbend | 18-Apr-09 | 11:15 AM | 403 | 69% | 2.9 |
| Beaumaris | 28-Mar-09 | 2:30 PM | 241 | 49% | 2.5 |
| Belmont | 4-Apr-09 | 1:45 PM | 226 | 42% | 3.3 |
| Meadowbrook | 4-Apr-09 | 1:00 PM | 118 | 37% | 1.6 |
| Mill Woods | 18-Apr-09 | 1:00 PM | 289 | 46% | 2.8 |
| Stony Plain Road | 18-Apr-09 | 1:30 PM | 313 | 47% | 2.2 |
| Callingwood | 18-Apr-09 | 11:30 AM | 512 | 51% | 2.5 |
| The Grange | 4-Apr-09 | 1:15 PM | 195 | 39% | 1.8 |

| | | | |
|---------|-----|-----|-----|
| Average | 246 | 49% | 2.5 |
| min | 81 | 37% | 1.6 |
| max | 512 | 69% | 3.3 |
| median | 241 | 47% | 2.5 |

Weekday Afternoon Survey

| Location Name | Date of Survey | Time of Peak Parking Demand | Number of Parked Vehicles | Parking Utilization | Parking Demand Ratio (stalls/100 m²) |
|----------------------|-----------------------|------------------------------------|----------------------------------|----------------------------|--|
| Stadium | 9-Apr-09 | 12:30 PM | 77 | 42% | 1.8 |
| Whyte Avenue | 15-Apr-09 | 1:15 PM | 83 | 64% | 2.7 |
| Heritage | 26-Mar-09 | 1:00 PM | 256 | 57% | 3.1 |
| Riverbend | 1-Apr-09 | 1:45 PM | 442 | 75% | 3.2 |
| Beaumaris | 2-Apr-09 | 1:00 PM | 242 | 49% | 2.5 |
| Belmont | 8-Apr-09 | 12:00 PM | 201 | 37% | 2.9 |
| Meadowbrook | 7-Apr-09 | 12:15 AM | 152 | 48% | 2.1 |
| Mill Woods | 22-Apr-09 | 12:00 PM | 319 | 51% | 3.1 |
| Stony Plain Road | 21-Apr-09 | 1:15 PM | 328 | 49% | 2.3 |
| Callingwood | 16-Apr-09 | 1:30 PM | 515 | 51% | 2.6 |
| The Grange | 7-Apr-09 | 12:15 PM | 184 | 37% | 1.7 |

| | | | |
|---------|-----|-----|-----|
| Average | 254 | 51% | 2.5 |
| min | 77 | 37% | 1.7 |
| max | 515 | 75% | 3.2 |
| median | 242 | 49% | 2.6 |

Weekday Evening Survey

| Location Name | Date of Survey | Time of Peak Parking Demand | Number of Parked Vehicles | Parking Utilization | Parking Demand Ratio (stalls/100 m ²) |
|------------------|----------------|-----------------------------|---------------------------|---------------------|---|
| Stadium | 9-Apr-09 | 6:15 PM | 75 | 41% | 1.7 |
| Whyte Avenue | 15-Apr-09 | 4:15 PM | 71 | 55% | 2.3 |
| Heritage | 26-Mar-09 | 5:30 PM | 230 | 51% | 2.8 |
| Riverbend | 15-Apr-09 | 4:30 PM | 450 | 77% | 3.2 |
| Beaumaris | 2-Apr-09 | 5:45 PM | 218 | 44% | 2.3 |
| Belmont | 8-Apr-09 | 4:15 PM | 222 | 41% | 3.2 |
| Meadowbrook | 7-Apr-09 | 5:45 PM | 205 | 65% | 2.9 |
| Mill Woods | 22-Apr-09 | 5:45 PM | 285 | 46% | 2.8 |
| Stony Plain Road | 21-Apr-09 | 4:00 PM | 254 | 38% | 1.8 |
| Callingwood | 23-Apr-09 | 5:00 PM | 479 | 48% | 2.4 |
| The Grange | 7-Apr-09 | 5:15 PM | 199 | 40% | 1.8 |

| | | | |
|---------|-----|-----|-----|
| Average | 244 | 49% | 2.5 |
| min | 71 | 38% | 1.7 |
| max | 479 | 77% | 3.2 |
| median | 222 | 46% | 2.4 |

| Peak Summary | | | | Seasonal Adjustment Analysis | | | |
|------------------|----------------------------|-----------------------------|--------------------------|--|-------------------|---------------------------|---|
| Location Name | Day of Peak Parking Demand | Time of Peak Parking Demand | Peak Parking Utilization | Peak Parking Demand Ratio (stalls/100 m ²) | Adjustment Factor | Adjusted Peak Utilization | Adjusted Peak Parking Demand Ratio (stalls/100 m ²) |
| Stadium | Saturday | 3:15 PM | 46% | 1.9 | 0.65 | 70% | 3.0 |
| Whyte Avenue | Weekday Afternoon | 1:15 PM | 64% | 2.7 | 0.65 | 98% | 4.1 |
| Heritage | Weekday Afternoon | 1:00 PM | 57% | 3.1 | 0.65 | 87% | 4.8 |
| Riverbend | Weekday Evening | 4:30 PM | 77% | 3.2 | 0.65 | 118% | 5.0 |
| Beaumaris | Saturday | 2:30 PM | 49% | 2.5 | 0.65 | 76% | 3.9 |
| Belmont | Saturday | 1:45 PM | 42% | 3.3 | 0.65 | 64% | 5.0 |
| Meadowbrook | Weekday Evening | 5:45 PM | 65% | 2.9 | 0.65 | 100% | 4.4 |
| Mill Woods | Weekday Afternoon | 12:00 PM | 51% | 3.1 | 0.65 | 79% | 4.8 |
| Stony Plain Road | Weekday Afternoon | 1:15 PM | 49% | 2.3 | 0.65 | 75% | 3.5 |
| Callingwood | Weekday Afternoon | 1:30 PM | 51% | 2.6 | 0.65 | 79% | 3.9 |
| The Grange | Weekday Evening | 5:15 PM | 40% | 1.8 | 0.65 | 61% | 2.8 |

| | | | | |
|---------|-----|-----|------|-----|
| Average | 54% | 2.7 | 82% | 4.1 |
| min | 40% | 1.8 | 61% | 2.8 |
| max | 77% | 3.3 | 118% | 5.0 |
| median | 51% | 2.7 | 79% | 4.1 |

APPENDIX C

Benchmarking Summary

Benchmarking Comparison City Parking Requirements Internet Addresses

Calgary

http://www.calgary.ca/docgallery/bu/dba/land_use_bylaw_review/bylaw_1p2007.pdf

Ottawa

http://ottawa.ca/residents/bylaw/a_z/zoning/parts/pt_04/index_en.html

Winnipeg

http://winnipeg.ca/ppd/bylaws/ByLaw200_2006/!SSL!/WebHelp/By-Law_200.2006.htm
Parking and Loading under Part 5: Development and Design Standards

Vancouver

<http://vancouver.ca/commsvcs/bylaws/PARKING/Parking.htm>

Burnaby

<http://burnaby.fileprosite.com/contentengine/launch.asp?ID=303>
SCHEDULE NO. VIII OFF-STREET PARKING

Minneapolis

<http://www.municode.com/resources/gateway.asp?pid=11490&sid=23>
Title 20 ZONING CODE, CHAPTER 541. OFF-STREET PARKING AND LOADING

Denver

<http://www.municode.com/resources/gateway.asp?pid=10257&sid=6>
Chapter 59 ZONING, ARTICLE VI. OFF-STREET PARKING REQUIREMENTS

Salt Lake City

http://www.sterlingcodifiers.com/codebook/index.php?book_id=672
Title 21A ZONING, Chapter 21A.44 OFF STREET PARKING AND LOADING

Seattle

<http://clerk.ci.seattle.wa.us/~public/code1.htm>
Title 23 - LAND USE CODE, Chapter 23.54 - Quantity and Design Standards for Access and Off-Street Parking

Portland

<http://www.portlandonline.com/auditor/index.cfm?c=28197&a=53320>

Apartment Housing/Row Housing/Stacked Row Housing

| City | Use Description | Parking Index | Visitor Parking |
|------------------------------|---|--|--|
| Edmonton | Apartment Housing, Row Housing, Stacked Row Housing | Combined Total of 1 per Bachelor Suite & Bed Sitting Room, 1 per 1 Bedroom Dwelling, 1.5 per 2 Bedroom Dwelling, 1.75 per 3+ Bedroom Dwellings | 1 per 7 dwellings |
| | | | |
| Calgary - excluding downtown | Multi-Residential Districts building with 3 or more units with shared entrance facilities | | |
| | Area 1 | 1.25 stalls per dwelling unit with GFA > 60 m ² 1 stall per dwelling unit with GFA ≤ 60 m ² | 0.15 stalls per unit |
| | Area 2 | 1 stall per dwelling unit | |
| | Area 3 | 0.9 stalls per dwelling unit | 0.1 stalls per unit |
| | | Transit Supportive Development Reductions | |
| | | Required number of resident parking stalls can be reduced by 10% where | |
| | | The parcel on which the building is located is within Area 1 or 2 and | |
| | | Where any of the parcel is within 600 m of an existing or approved Capital funded LRT platform and | |
| | | Where there are pedestrian connections between the parcel and the LRT station | |
| | | Required number of resident parking stalls can be reduced by 10% where | |
| | | The parcel on which the building is located is with Area 1 or | |
| | | The parcel is within 150 m of and existing street where a frequent bus service operates | |
| | | Parking Maximums Close to LRT Stations | |
| | | Where a building on a parcel within 600 m of an existing or approved Capital funded LRT Platform | |
| | | Area 1 - 1.5 stalls per dwelling unit | |
| | | Area 2 - 1.25 stalls per dwelling unit | |
| | Multi-Residential Districts building with 3 or more units with no shared entrance facilities | | |
| | Area 1 | 1.25 stalls per dwelling unit | 0.15 stalls per unit |
| | Area 2 | 1 stall per dwelling unit | 0.15 stalls per unit |
| | Area 3 | 1 stall per dwelling unit | 0.15 stalls per unit |
| Ottawa | Single Detached Dwelling, Semi-detached Dwelling or Duplex Dwelling in a Multi-Residential Developments | | |
| | Area 1 | 1.25 stalls per dwelling unit | 0.15 stalls per unit |
| | Area 2 | 1 stall per dwelling unit | 0.15 stalls per unit |
| | Area 3 | 1 stall per dwelling unit | 0.15 stalls per unit |
| | | | |
| | Apartment Mid, High Rise and Low Rise | | |
| | i) within 600 metres of a rapid transit station | | (i) For first 12 dwelling units |
| | Central Area West of the Rideau Canal | none | Central Area, Inner City - None |
| | Central Area East of the Rideau Canal | 0.25 per dwelling unit | |
| | Other Areas | 0.5 per dwelling unit | Suburbs and Rural - 0.2 per dwelling unit |
| | (ii) other cases | | |
| | Central Area West of the Rideau Canal | none | (ii) For the balance of the dwelling units. |
| | Central Area East of the Rideau Canal | 0.25 per dwelling unit | Central Area West of the Rideau Canal- none |
| | Inner City | 0.5 per dwelling unit | Central Area East of the Rideau Canal- 0.1 per dwelling unit |
| | Suburban | 1.2 per dwelling unit | Inner City 0.2 per dwelling unit |
| | Rural | 1 per dwelling unit | Suburbs and Rural - 0.2 per dwelling unit |

Apartment Housing/Row Housing/Stacked Row Housing

| City | Use Description | Parking Index | Visitor Parking |
|--|---|---|--|
| Ottawa continued | Multiple Attached Dwelling | | (i) Lot containing less than 12 dwelling units |
| | i) within 600 metres of a rapid transit station | | Central Area, Inner City - None |
| | Central Area and Inner City | 0.75 per dwelling unit | Suburbs and Rural - 0.2 per dwelling unit |
| | Other Areas | 0.75 per dwelling unit | (ii) Lot containing 12 dwelling units or more |
| | (ii) other cases | | Central Area and Inner City - 0.1 per dwelling unit |
| | Central Area and Inner City | 0.75 per dwelling unit | Suburbs and Rural - 0.2 per dwelling unit |
| | Other Areas | 1 per dwelling unit | |
| | Stacked Dwelling/Three Unit Dwelling | | |
| | (i) within 600 metres of a rapid transit station | | |
| | Central Area West of the Rideau Canal | none | (i) For first 12 dwelling units |
| | Central Area East of the Rideau Canal | 0.25 per dwelling unit | Central Area, Inner City - None |
| | Other Areas | 0.5 per dwelling unit | Suburbs and Rural - 0.2 per dwelling unit |
| | (ii) other cases | | (ii) For the balance of the dwelling units. |
| | Central Area West of the Rideau Canal | none | Central West of the Rideau Canal- none |
| | Central Area East of the Rideau Canal | 0.25 per dwelling unit | Central East of the Rideau Canal- 0.1 per dwelling unit |
| | Inner City | 0.5 per dwelling unit | Inner City 0.2 per dwelling unit |
| | Suburban | 1.2 per dwelling unit | Suburbs and Rural - 0.2 per dwelling unit |
| | Rural | 1 per dwelling unit | |
| Winnipeg | multi-family dwellings managed as communal living facilities | 1 per 5 dwelling units or beds | |
| | Other multi-family | 1.5 per dwelling unit | 10% of required space must be designated as unassigned guest parking |
| | | | |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Multiple Conversion Dwelling in: | | |
| | RS-7 | min. 1 per dwelling unit; max. capped by width at rear property line (up to 5) | |
| | RT-3, RT-4, RT-4N, RT-4A, RT-4AN, RT-6, RT-7, FM-1 & sites < 500 m ² in RM-4 and RM-4N | 1 per residential unit | |
| | RT-5, RT-5N, RT-5A, RT-5AN, RT-8, RT-9, RT-DEOD Three or more residential units | 1 per every newly created unit | |
| | | min of one space for each 70m ² of GFA with no more that 2.2 spaces for ever residential unit | |
| | RS-2, RS-4, RT-1, RT-2, RM-2, RM-3, RM-3A, C,(except C-5 and C-6), M, I, DEOD & sites > 500 m ² in RM-4 and RM-4N | | |
| | with three or more residential units | 0.5 space for every dwelling unit < 50 m ² GFA | |
| | | 0.6 spaces for every dwelling unit >50m ² GFA plus one space for each 200 m ² of GFA with max of 1.5 spaces per dwelling unit | |
| | | for sites smaller than 500m ² or with a maximum of 1.0 floor space ratio, the lesser of the requirement or one space per dwelling unit | |
| | RM-5, RM-5A, RM-5B, RM-5C, RM-6, C-5, C-6 | min 1 per 80 m ² of GFA with a maximum of 2.2 spaces per | |
| | Multiple Dwelling or Infill Multiple Dwelling in: | | |
| | DEOD | min of 1 space for each 70 m ² of GFA expect no more than 2.2 spaces for every dwelling unit | |
| | RS-7, RT-3, RT-4, RT-4N, RT-4A, RT-4AN, RT-5, RT-5N, RT-5A, RT-5AN, RT-6, RT-7, RT-8 & sites < 500 m ² in RM-4, RM-4N and FM-1 | 0.5 space for every dwelling unit < 50 m ² GFA | |

Apartment Housing/Row Housing/Stacked Row Housing

| City | Use Description | Parking Index | Visitor Parking |
|--|--|--|-----------------|
| Vancouver continued | | 0.6 spaces for every dwelling unit > 50 m ² GFA plus one space for each 200 m ² of GFA with max of 1.5 spaces per dwelling unit | |
| | Sites <500 m ² in RM-4 & RM-4N | lesser of previous requirement or 1 space per dwelling unit | |
| | Sites >500 m ² in FM-1 RM-1 and RM-1N | min. of 1 space per dwelling unit | |
| | RM-5, RM-5A, RM-5B, RM-5C, RM-6, C-5, C-6 | min. of 1 per 80 m ² of GFA with a max of 2.2 per unit | |
| | Co-op Housing with three or more dwelling units | min. of 0.5 spaces for every unit < 50 m ² GFA | |
| | | at least 0.6 spaces for every unit > 50 m ² of GFA plus one space for each 200 m ² of GFA with max of 1.5 spaces per dwelling unit | |
| | | sites < 500 m ² lesser of previous requirement or 1 space per dwelling unit | |
| | Three or more residential units | min. of 0.5 spaces for every unit < 50 m ² GFA | |
| | | at least 0.6 spaces for every unit > 50 m ² of GFA plus one space for each 200 m ² of GFA with max of 1.5 spaces per dwelling unit | |
| | | sites < 500 m ² lesser of previous requirement or 1 space per dwelling unit | |
| | Three or more dwelling units designated solely for senior citizens' housing under the National Housing Act | 1 per 6 dwelling units | |
| | Three or more dwelling units designated solely for families of low income under the National Housing Act | 1 per 2 dwelling units | |
| | Seniors Supportive or Assisted Housing: | | |
| | Residential units < 50 m ² | 1 per 100 m ² of FA of residential unit | |
| | Residential Units 50 m ² - 70 m ² | 1 per 70 m ² of FA of residential unit | |
| | Residential Units > 70 m ² | 1 per 70 m ² of FA of residential unit with max of 2.2 stalls per unit | |
| | | | |
| Burnaby | Townhouses | 1.75 for dwelling unit | 0.25 per unit |
| | Townhouses in RM6 Districts | 1 per dwelling unit | |
| | Apartments in C8 and C8a | 1 per dwelling unit | |
| | Apartments | 1.6 per dwelling unit | 0.25 per unit |
| | Non profit Housing, townhouse or apartment that receives rent supplement assistance | 1.5 per dwelling unit | 0.2 per unit |
| | Townhouses and apartments in P11e Districts | 1 for each dwelling unit that is not a multi-family flex unit plus | 0.2 per unit |
| | | 1.25 for each dwelling unit that is a multi-family flex unit plus | |
| | | 0.1 for each bedroom in excess of 1 bedroom within a dwelling unit | |
| | Senior Citizens housing | 1 for each 5 selling units located within 0.4 km of established bus route and commercial facilities | |
| | | 1 for each 4 dwelling units located elsewhere | |
| | | | |
| Minneapolis - excluding downtown districts | Residential Uses | 1 per dwelling | |
| | | | |
| Denver | Multiple Dwelling Unit | 1.5 per dwelling unit | |
| | Multiple Dwelling Unit in B-4, R-4-X or B-8-G district | 1 per dwelling unit | |

Apartment Housing/Row Housing/Stacked Row Housing

| City | Use Description | Parking Index | Visitor Parking |
|-------------------|--|--|-----------------|
| Denver Continued | | upon compliance with the provisions of article IV (affordable housing, chapter 27, of the Denver Revised Municipal Code, a 20% reduction in the total number of required parking spaces shall be granted | |
| | Residence for older adults | 1 per 3 dwelling units or rental rooms | |
| Salt Lake City | Multiple Family Dwellings 2 + bedrooms | 2 per dwelling unit | |
| | Multiple Family Dwellings 1 bedroom or efficiency dwellings | 1 per dwelling unit | |
| | Multiple Family Dwellings single room occupancy dwellings < 55.7 m ² | 1/2 per dwelling unit | |
| | Multiple Family Dwellings in R-MU, D-1, D-2 and D-3 Zones | 1/2 per dwelling unit | |
| | Row Housing/Townhouses SR3 zone | 1 per dwelling unit | |
| | Row Housing/Townhouses in D-1, D-2 and D-3 zones | 1 per dwelling unit | |
| | Row Housing/Town houses in all other zones | 2 per dwelling unit | |
| | | | |
| Seattle | Multifamily structures 2-10 dwelling units | 1.1 per unit | |
| | Multifamily structures 11-30 dwelling units | 1.15 per unit | |
| | Multifamily structures 31-60 dwelling units | 1.2 per unit | |
| | Multifamily structures 60+ dwelling units | 1.25 per unit | |
| | Multifamily structures whose average GFA per dwelling unit > 46.5 m ² | an additional 0.0002 spaces per square > 46.5 m ² to a maximum of an additional 0.15 spaces per dwelling unit | |
| | Multifamily structures having 50% of units with 3 bedrooms | an additional 0.25 spaces per bedroom | |
| | Multifamily structures containing dwelling unit with 4 bedrooms or more | an additional 0.25 spaces per bedroom | |
| | Residential uses in commercial zones within urban centres and Station Area Overlay District | No minimum requirement | |
| | Residential uses in commercial zones (1) | 1 space for each dwelling unit | |
| | Multifamily Structures within the University of Washington parking impact are | | |
| | units less than two bedrooms | as per multifamily structures | |
| | units with 2 or more bedrooms | 1.5 spaces per unit | |
| | 3 or more bedrooms | an additional 0.25 spaces per bedroom | |
| | Multifamily structures within multifamily zones in the University District Northwest Urban Centre Village | | |
| | 2 or fewer bedrooms | 1 space for each dwelling unit | |
| | 3 or more bedrooms | 1.5 spaces per unit | |
| | 3 or more bedrooms | an additional 0.25 spaces per bedroom | |
| | Multi family structures with the Alki area | 1.5 spaces per unit | |
| | Multifamily structures on lots that contain a total of 10 or fewer dwelling units in ground related structures | 1 space for each dwelling unit | |
| | Multi family structures with the Capitol Hill Urban Center Village | 1 space for each dwelling unit | |
| | Multifamily structures in the First Hill or Pike/Pine Urban Center Villages | 0.5 space for each dwelling unit | |
| Seattle Continued | Multifamily structures located in multifamily zones in the Capitol Hill, First Hill, pike/Pine, south Lake Union, 12th Avenue and Uptown Urban Centre Villages: for each dwelling unit rented to and occupied by a household at or below 30 % of the median income | 0.33 per dwelling unit with 2 or fewer bedrooms, 0.5 space for each dwelling unit with 3 or more bedrooms | |

Apartment Housing/Row Housing/Stacked Row Housing

| City | Use Description | Parking Index | Visitor Parking |
|-------------------|---|--|-----------------|
| Seattle Continued | Multifamily structures located in multifamily zones in the Capitol Hill, South Lake Union, 12 th Avenue and Uptown Urban Center Villages: for each dwelling unit rented to and occupied by a household with an income at time of its initial occupancy of between 30 and 50 percent of the median income | 0.5 space for each dwelling unit with 2 or fewer bedrooms, and 1 space for each dwelling unit with 3 or more bedrooms | |
| | Multifamily structures located outside of commercial zones in urban centers: for each dwelling unit rented to and occupied by a household with an income at time of its initial occupancy at or below 30 percent of the median income | 0.33 space for each dwelling unit with 2 or fewer bedrooms, and 1 space for each dwelling unit with 3 or more bedrooms | |
| | Multifamily structures located outside of commercial zones in urban centers: for each dwelling unit with 2 or fewer bedrooms rented to and occupied by a household with an income at time of its initial occupancy of between 30 and 50 percent of the median income | 0.75 spaces for each dwelling unit | |
| | Low-income elderly multifamily structures | 1 per 6 dwelling units | |
| | Low-income disabled multifamily structures | 1 per 4 dwelling units | |
| | Low-income elderly/low-income disabled multifamily structures | 1 per 5 dwelling units | |
| | | | |
| Portland | Household living | 1 per unit | |
| | In SROs exempt and in RH | | |
| | 1 to 3 units | none | |
| | 4 plus units | 1 per 2 units | |

Boarding, Lodging, Fraternity and Sorority Houses; Garage Suite; Secondary Suite

| City | Use Description | Parking Index |
|--|--|--|
| Edmonton | Boarding, Lodging, Fraternity and Sorority Houses | 1 per 2 Sleeping Units (in addition to the parking requirements for primary Dwelling) |
| | Garage Suites | 1 per 2 Sleeping Units (in addition to the parking requirements for primary Dwelling) |
| | Secondary Suite | 1 per 2 Sleeping Units (in addition to the parking requirements for primary Dwelling) |
| | | |
| Calgary - excluding downtown | Emergency Shelter | based on parking study |
| | Secondary Suite | 1 stall per dwelling unit |
| Ottawa | Garden Suite | none |
| | Rooming House/Converted Rooming House | |
| | Central Area West of the Rideau Canal | none |
| | Central Area East of the Rideau Canal | 0.05 per rooming unit |
| | Inner City | 0.25 per rooming unit |
| | Suburban & Rural | 0.5 per rooming unit |
| | Secondary Dwelling Unit | none for unit within a detached, linked-detached or semidetached dwelling, 1 for unit within a duplex dwelling unit |
| | Shelter | 1 per 100 m ² of GFA minimum of 1 |
| Winnipeg | Multi-family dwelling - single room occupancy | 1 per 5 dwelling units or beds |
| | Dormitory, Sorority or Fraternity associated with a college or university | 1 per 3 bedrooms |
| | | |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Single Family with Secondary Suite | 1 per dwelling unit |
| | Rooming House | min. 1 per 37 m ² used for sleeping units |
| | Secondary Dwelling Unit | Houses built prior to March 23, 2004 one on-site space is acceptable Houses Built after March 23, 2004 require two spaces - one for primary dwelling unit and one for the secondary dwelling unit |
| | | |
| Burnaby | Boarding, lodging or rooming houses, fraternity or sorority houses or other similar uses | 1 for each 2 sleeping units |
| | | |
| Minneapolis - excluding downtown districts | Dormitory, Faculty House, Fraternity or Sorority | min 1 space per 2 beds, max 1 space per bed |
| | | |
| Denver | Rooming and Boarding House | 1 per 28 m ² of GFA |
| | | |
| Salt Lake City | Fraternity, sorority or dormitory | 1 per 2 residents, + 1 per 3 full time employees |
| | rooming house | 1 parking space for each 2 persons for whom rooming accommodations are provided |
| | Transition treatment home/halfway house | 1 parking space for each 4 residents + 1 per every 2 support staff present during busiest shift |
| | | |
| Seattle | Congregate residences | 1 per 4 residents |
| | Accessory Dwelling Units | 1 per unit |
| | | |
| Portland | Group living | 1 per 4 residents |
| | Accessory Dwelling Units | no additional stalls required |

Duplex Housing, Mobile Homes (excluding Mobile Home Parks), Semi-detached & Single Detached Housing

| City | Use Description | Parking Index |
|--|---|--|
| Edmonton | Duplex Housing, Mobile Homes (excluding Mobile Home Parks), Semi-detached & Single Detached Housing | 2 per Dwelling |
| Calgary - excluding downtown | Single Detached Dwelling | 1 per unit |
| | Duplex dwelling | 1 per unit |
| | Manufactured Home | 1 per dwelling unit |
| | Semi-detached Dwelling | 1 per dwelling unit |
| Ottawa | Detached Dwelling, Linked-detached dwelling: | |
| | Central Area | 0.5 per dwelling unit |
| | Other Areas | 1 per dwelling unit |
| | Converted Dwelling/Dwelling in same building as other uses | |
| | i) within 600 metres of a rapid transit station | |
| | Central Area West of the Rideau Canal | none |
| | Central Area East of the Rideau Canal | 0.5 per dwelling unit |
| | Other Areas | 0.5 per dwelling unit/none |
| | (ii) other cases | |
| | Central Area West of the Rideau Canal | none |
| | Central Area East of the Rideau Canal | 0.5 per dwelling unit |
| | Inner City | 0.5 per dwelling unit |
| | Other Areas | 1 per dwelling unit |
| Winnipeg | Dwellings, single family, detached | 1 per dwelling unit (max. 6 per unit) |
| | dwelling, two-family, | |
| | Mobile Home | |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | One-Family Dwelling, Two-Family Dwelling, Infill One-Family Dwelling, or Infill Two-Family in R, C and DEOD | Min. 1 per dwelling unit; max. capped by width at rear property line (up to 5) |
| | FSD Area | Min. of 2 per dwelling unit |
| | Multiple Conversion Dwelling in RS-1A | min. 1 space |
| | DEOD two residential units | minimum of two spaces |
| | RS-2, RS-4, RT-1, RT-2, RM-2, RM-3, RM-3A, C,(except C-5 and C-6), M, I, DEOD & sites > 500 m2 in RM-4 and RM-4N with two residential units | minimum of two spaces |
| | RM-5, RM-5A, RM-5B, RM-5C, RM-6, C-5, C-6 with two residential units | minimum of two spaces |
| | Co-op Housing | min. of 1.2 spaces for every dwelling unit |
| Burnaby | Single family, two family and row house dwellings | 1 per dwelling unit |
| Minneapolis - excluding downtown districts | Dwellings | 1 per dwelling unit |
| Denver | | |
| Salt Lake City | Two family dwelling and twin home dwellings | 2 per dwelling unit |
| | Single family detached dwellings SR3 zone | 1 per dwelling unit |
| | Single family detached dwellings in D-1, D-2 and D-3 zones | 1 per dwelling unit |
| | Single family detached dwellings houses in all other zones | 2 per dwelling unit, maximum of 4 per dwelling unit |
| Seattle | Single-family dwelling units | 1 per dwelling unit |
| Portland | Household living | 1 per unit |

Group Home

| City | Use Description | Parking Index |
|--|--|--|
| Edmonton | Group Home | 1 per 3 Sleeping Units and 1 per resident staff member |
| Calgary - excluding downtown | | |
| Ottawa | Group Home | 1 per 100 m ² of GFA minimum of 1 |
| Winnipeg | Neighbourhood Rehabilitation Home | 1 guest parking space per 10 residents or resident care beds (min. 1) + 1 per 3 employees on the maximum shift |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Group Residence | 1 per 4 beds |
| Burnaby | Children's' institutions, dormitories and rest homes | 1 for each 3 employees plus 1 for each 6 beds |
| Minneapolis - excluding downtown districts | Community residential facility Supportive Housing | min 1 per 4 beds, max 1 per bed min 1 per 4 beds, max 1 per bed |
| Denver | | |
| Salt Lake City | Group Home | 1 per unit + 1 per 2 support staff during busiest shift |
| Seattle | Adult Care centers | 1 per 10 adults (clients) or 1 per staff member (whichever is greater) |
| Portland | Group living | 1 per 4 residents |

Major Home Based Business
Major Home Based Business - Bed and Breakfast

| City | Use Description | Parking Index |
|--|---|--|
| Edmonton | Major Home Based Business Major Home Based Business- Bed and Breakfast | 1 in addition to parking required for primary Dwelling 1 per guest room in addition to the parking required for the primary Dwelling |
| Calgary - excluding downtown | Home occupation class 1 Home occupation class 2 Bed and Breakfast | no additional stalls 1 parking stall in addition to those required for the dwelling unit 1 parking stall per guest bedroom in addition to the required stalls for the existing dwelling |
| Ottawa | Home-based Business Central Area & Inner City Suburban & Rural Bed and Breakfast Central Area & Inner City Suburban & Rural Areas | None 1 per home-based business 1 per dwelling unit + 1 per guest room for the first 4 guest rooms + 0.45 for each additional guest room over 4 1 per dwelling unit + 1 per guest room |
| Winnipeg | Live Work Dwelling | 1 per dwelling unit (max 6 spaces per unit) |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Dwelling Units in conjunction with another use Up to 2 Dwelling Units in conjunction with a neighbourhood store Bed and Breakfast Accommodation | min of 1 space for each 70 m ² of GFA (max 2.2 spaces per dwelling unit) 1 space per dwelling unit min. of 1 space |
| Burnaby | Dwellings related to commercial or other premises | 1 per dwelling unit |
| Minneapolis - excluding downtown districts | Hospitality Residence Bed and breakfast home | min 1 per 3 guest rooms, max 1 per guest room min 1 per 3 guest rooms + 1 for the primary dwelling unit, max 1 per guest room + 1 for the primary dwelling unit |
| Denver | Bed and Breakfast | 1 per 55.7 m ² of GFA |
| Salt Lake City | Live work units Bed and Breakfast Establishment | 1 space per unit + if unit > 232.5 m ² the parking requirement for the most similar nonresidential space 1 space per room |
| Seattle | bed and breakfast facilities in bed and breakfast facilities | 1 per dwelling unit plus 1 space for each 2 guest rooms |
| Portland | | |

Mobile Home Parks

| City | Use Description | Parking Index | Visitor Parking |
|--|------------------------|---|---|
| Edmonton | Mobile Home Parks | 1 per Mobile Home Lot + 1 per 7 Mobile Home Lots (visitor parking) | |
| Calgary - excluding downtown | Manufactured Home Park | 1 stall per manufactured Home | 0.1 visitor parking stalls per manufacture Home |
| Ottawa | Mobile Home Park | 1 per mobile home site + 5 for each accessory commercial or recreational use building | |
| Winnipeg | | | |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | | | |
| Burnaby | Mobile Home Parks | 2 per mobile home located on a mobile home lot | 1 per 4 mobile home site for communal parking |
| Minneapolis - excluding downtown districts | | | |
| Denver | | | |
| Salt Lake City | | | |
| Seattle | Mobile home parks | 1 per mobile home lot | |
| Portland | | | |

Residential Sales Centres

| City | Use Description | Parking Index |
|--|------------------------------------|--|
| Edmonton | Residential Sales Centres | 5 per 100 m ² of Floor Area |
| Calgary - excluding downtown | Temporary Residential Sales Centre | none |
| Ottawa | | |
| Winnipeg | | |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | | |
| Burnaby | | |
| Minneapolis - excluding downtown districts | | |
| Denver | | |
| Salt Lake City | | |
| Seattle | | |
| Portland | | |

Development of Commercial Use Class not listed separately, with a Floor Area of < 4 500 m²
 Development of Commercial Use Class not listed separately, with a Floor Area of 4 500 m² - 9 000 m²
 Development of Commercial Use Class not listed separately, with a Floor Area of 9 000 m² - 28 000 m²
 Development of Commercial Use Class not listed separately, with a Floor Area of > 28 000 m²

| City | Use Description | Parking Index |
|------------------------------|--|---|
| Edmonton | Floor Area of < 4 500 m ² | 2.5 per 100 m ² of Floor Area |
| | Floor Area of 4 500 m ² - 9 000 m ² | 3.0 per 100 m ² of Floor Area |
| | Floor Area of 9 000 m ² - 28 000 m ² | 3.5 per 100 m ² of Floor Area |
| | Floor Area of > 28 000 m ² | 4.0 per 100 m ² of Floor Area |
| Calgary - excluding downtown | Amusement Arcade | 11 stalls per 100 m ² of gross usable floor area |
| | Auction Market - Other Goods/Vehicles and Equipment | 4 stalls per 100 m ² of gross usable floor area |
| | Auto Body and Paint Shop | 2 stalls per 100 m ² of gross usable floor area |
| | Auto Service - Major/Minor | 2 stalls per 100 m ² of gross usable floor area |
| | Beauty and Body Service | 4 stalls per 100 m ² of gross usable floor area |
| | Car Wash - Multi Vehicle/Single Vehicle | 2 stalls per 100 m ² of gross usable floor area |
| | Catering Service - Major/Minor | 2 stalls per 100 m ² of gross usable floor area |
| | Computer Games Facility | 2 stalls per 100 m ² of gross usable floor area |
| | Contractors Shop - Class1/Class 2 | 2 stalls per 100 m ² of gross usable floor area |
| | Convenience Food Store | 4 stalls per 100 m ² of gross usable floor area |
| | Beverage Container Drop-off Depot | 2.5 stalls per 100 m ² of gross usable floor area |
| | Gas Bar | 2 stalls per 100 m ² of gross usable floor area |
| | Motion Picture Filming Location | none |
| | Motion Picture Production Facility | 1 stalls per 100 m ² of gross usable floor area for the first 200 m ² and then 1 stall for each subsequent 500 m ² |
| | Personal Apparel Service | 4 stalls per 100 m ² of gross usable floor area |
| | Pet Care Service | 4 stalls per 100 m ² of gross usable floor area |
| | Retail Garden Centre | 4 stalls per 100 m ² of gross usable floor area |
| | Retail Store | 4 stalls per 100 m ² of gross usable floor area |
| | Specialty Food Store | 4 stalls per 100 m ² of gross usable floor area |
| | Supermarket | 4 stalls per 100 m ² of gross usable floor area |
| | Veterinary Clinic | 3 stalls per 100 m ² of gross usable floor area |

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Development of Commercial Use Class not listed separately, with a Floor Area of > 28 000 m²

| City | Use Description | Parking Index |
|--------|---|---|
| Ottawa | Animal Care Establishment/Animal Hospital | |
| | Central Area | 0.5 per 100 m ² of GFA |
| | Other Areas | 4 per 100 m ² of GFA |
| | Automobile Body Shop | 3 per service bay |
| | Automobile dealership/Automobile Rental Establishment | sales/showroom area 2 over 100 m ² of GFA service area 2 per service bay other areas 1 per 100 m ² of GFA |
| | Automobile Service Station | greater of 1 per 100 m ² of GFA or 2 per service bay |
| | Amusement Park | game surface plus 10 per 100 m ² of GFA area used for dinning and assembly |
| | Broadcasting and Production Studio | |
| | Central Area | 0.75 per 100 m ² of GFA |
| | Other Areas | 1 per 100 m ² of GFA |
| | Car Wash | none |
| | Catering Establishment | |
| | Central Area | 0.75 per 100 m ² of GFA |
| | Other Areas | 0.8 per 100 m ² of GFA |
| | Convenience Store | |
| | Central Area | none |
| | Inner City | 2.5 per 100 m ² of GFA |
| | Suburban & Rural Areas | 3.4 per 100 m ² of GFA |
| | Gas Bar | none |
| | Parking Garage/Parking Lot | none |
| | Personal Service Business | |
| | Central Area | none |
| | Inner City | 2.5 per 100 m ² of GFA |
| | Suburban & Rural Areas | 3.4 per 100 m ² of GFA |
| | Retail Food Store/Retail Store | |
| | Central Area | none |
| | Inner City | 2.5 per 100 m ² of GFA |
| | Suburban & Rural Areas | 3.4 per 100 m ² of GFA |
| | Service Repair Shop | |
| | Central Area | none |
| | Inner City | 2.5 per 100 m ² of GFA |
| | Suburban & Rural Areas | 3.4 per 100 m ² of GFA |
| | Shopping Centre | |
| | i) within 600 metres of a rapid transit station | |

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Development of Commercial Use Class not listed separately, with a Floor Area of > 28 000 m²

| City | Use Description | Parking Index |
|--|---|---|
| Ottawa Continued | Central Area | 0.75 per 100 m ² of GLFA |
| | Inner City | 3 per 100 m ² of GLFA |
| | Suburban & Rural Areas | 3.4 per 100 m ² of GLFA |
| | (ii) other cases | |
| | Central Area | 0.75 per 100 m ² of GLFA |
| | Inner City | 3.4 per 100 m ² of GLFA |
| Winnipeg | Suburban & Rural Areas | 3.6 per 100 m ² of GLFA |
| | Animal Hospital or veterinary clinic | 1 for each 23.2 m ² of floor area over 23.2 m ² (1 space minimum) |
| | Auction Room | 1 for each 23.2 m ² of FA (4 space minimum) |
| | Auto parts supplies and sale | 1 for each 23.2 m ² of floor area over 18.6 m ² (1 space minimum) |
| | Auto/light truck/motorcycle repair and service, sales and service | 1 for each 23.2 m ² of floor area over 18.6 m ² (1 space minimum) |
| | Car Wash without drive through | 1 each 30.6 m ² of FA over 186 m ² (1 space minimum) |
| | Car Wash with drive through | 1 for each 46.5 m ² of FA over 186 m ² (1 space minimum) plus 1 for every three employees at maximum shift |
| | Fuel Sales | 1 for each 46.5 m ² of FA over 186 m ² (1 space minimum) plus 1 for every three employees at maximum shift |
| | Landscape or Garden Supplies | 1 for each 23.2 m ² of floor area over 18.6 m ² (1 space minimum) |
| | Outdoor Amusement Enterprise | 1 per 6 persons maximum occupancy load |
| | Personal Service | 1 for each 23.2 m ² of floor area over 18.6 m ² (1 space minimum) |
| | Retail Sales | 1 for each 23.2 m ² of floor area over 18.6 m ² (1 space minimum) |
| | Shopping Centre | 1 per 23.2 m ² of floor area, Urban Infill Areas and Combination of Uses policies are applicable |
| | Studio, Radio/TV/motion picture broadcast production | 1 for each 70 m ² of FA (2 space minimum) |
| | Supermarket | 1 for each 23.2 m ² of floor area over 18.6 m ² (1 space minimum) |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Grocery Store, Drug Store, Pharmacy | 1 per 100 m ² of GFA < 300 m ² , + 1 per additional 20 m ² < 2 300 m ² , + 1 per each additional 30 m ² > 2 300 m ² |
| | Motor Vehicle Repair Shop, Production or Rehearsal Studio, Repair Shop - Class A, Repair Shop Class B, workshop | greater of 1 space per 100 m ² of GFA in the building or 1 space for every 5 employees on a maximum shift |
| | Neighbourhood Grocery Store | no requirements |

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Development of Commercial Use Class not listed separately, with a Floor Area of > 28 000 m²

| City | Use Description | Parking Index |
|--|---|---|
| Vancouver Continued | Animal Clinic | min of 1 space per 28 m ² of GFA |
| | Retail Uses | 1 per 100 m ² of GFA < 300 m ² + 1 per additional 50 m ² of GFA |
| Burnaby | Retail Stores and personal service establishments | 1 per 28 m ² of retail FA |
| | Shopping Centres, department stores and super markets | 1 for each 14 m ² of FA |
| | Gasoline service stations or industrial fueling installations | 1 for each 2 employees plus 1 for each service bay |
| | Non-residential uses in C8, C8a and C4a districts | Where use is located within 1 km of an off-street parking facility owned and operated by the City, the owner may elect to pay \$8,000 for each required parking space not provided. Where a walkway is provided under Section 308.3(5) the number of parking spaces required is reduced by one. |
| | Cyber Centres | 1 per 5 terminals |
| | Body rub salons | 1 for each 46 m ² of GFA |
| Minneapolis - excluding downtown districts | General retail sales and service | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Antiques and collectibles store | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Bookstore new or used | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² plus 1 space per 93 m ² of outdoor sales/display, max 1 space per 18.6 m ² of GFA plus 1 space per 93 m ² of outdoor sales/display |
| | Building material sales | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Consignment clothing store | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Contractor's office | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Exterminating shop | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Greenhouse, lawn and garden supply store | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² plus 1 space per 93 m ² of outdoor sales/display, max 1 space per 18.6 m ² of GFA plus 1 space per 93 m ² of outdoor sales/display |
| | Grocery Store | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Laundry self service | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Office supply sales and service | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Pawnshop | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Pet Store | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | photocopying | min 1 space per 46.5 m ² of GFA < 186 m ² + 1 space per 28 m ² of GFA > 186 m ² , max 1 space per 18.6 m ² of GFA |

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Development of Commercial Use Class not listed separately, with a Floor Area of 4 500 m² - 9 000 m²
Development of Commercial Use Class not listed separately, with a Floor Area of 9 000 m² - 28 000 m²
Development of Commercial Use Class not listed separately, with a Floor Area of > 28 000 m²

| City | Use Description | Parking Index |
|-----------------------|---|---|
| Minneapolis Continued | Rental of house hold goods and equipment | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Secondhand good store | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Shopping Centre | min as determined by zoning administrator based on the principal uses in the shopping centre, max 1 space per 18.6 m ² of GFA |
| | Small Engine Repair | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Tobacco shop | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Tattoo and body piercing parlor | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Veterinary clinic | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Video Store | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Automobile convenience facility | min 1 space per 46.5 m ² of GFA, max 1 space per 18.6 m ² of GFA |
| | Automobile rental | min 1 space per 46.5 m ² of GFA, max 1 space per 18.6 m ² of GFA |
| | Automobile repair minor or major | min 1 per 46.5 m ² of GFA excluding service bays + 2 spaces per service bay, max a space per 18.6 m ² of GFA + 2 spaces per service bay |
| | Automobile sales | min 1 per 46.5 m ² of GFA in excess of 371.6 m ² (Min of 4 spaces) + 1 space per 186 m ² of outdoor sales area + 2 spaces per service bay, max 1 per 28 m ² of GFA + 1 space per 93 m ² of outdoor sales area + 2 spaces per service bay |
| | Car wash | min 1 space per 10 ft of washing line or bay, max 2 spaces per 20 ft of washing line or bay |
| | Catering | min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| | Radio or television station | min 1 per 46.5 m ² of GFA in excess of 371.6 m ² (min of 4 spaces) + parking equal to 20 % of the capacity of persons of the studio audience |
| Denver | Film, video and audio production | min 1 per 93 m ² of GFA < 1858 m ² + 1 space per 186 m ² of GFA > 1858 m ² , max 1 per 18.6 m ² of GFA < 1858 m ² + 1 per 93 m ² > 1858 m ² |
| | Greenhouse wholesale | min 1 per 46.5 m ² of GFA of office/sales/display area > 371.6 m ² (min of 4 spaces) + 1 space per 186 m ² of growing/storage area, max 1 per 18.6 m ² of office/sales/display area + 1 space per 232.5 m ² of growing/storage area |
| | Automobile wash, laundry and or polishing shop | 1 per 18.6 m ² of GFA |
| | Body are establishment | 1 per 18.6 m ² of GFA |
| | Book Store | 1 per 18.6 m ² of GFA |
| | Food Sales or Market Large/Small | 1 per 18.6 m ² of GFA |
| | Garden Supply Store | 1 per 18.6 m ² of GFA |
| | Home building material and supplies, sales or rental | 1 per 18.6 m ² of GFA |
| | Pawn Shop | 1 per 18.6 m ² of GFA |
| | Retail service repair consumer large scale/medium scale/small scale/special | 1 per 18.6 m ² of GFA |

Development of Commercial Use Class not listed separately, with a Floor Area of < 4 500 m²
Development of Commercial Use Class not listed separately, with a Floor Area of 4 500 m² - 9 000 m²
Development of Commercial Use Class not listed separately, with a Floor Area of 9 000 m² - 28 000 m²
Development of Commercial Use Class not listed separately, with a Floor Area of > 28 000 m²

| City | Use Description | Parking Index |
|------------------|--|--|
| Denver Continued | Communications service Contractors special trade, general Recycling collection station Service, repair, commercial Food preparation and sales, commercial Manufacturing, fabrication and assembly, custom Printing service, publishing and business support Animal sales, service, care, household pets only Auto gasoline filling station, emissions inspection Automobile, motorcycle, light truck sales, leasing, rental Automobile repair garage Nursery, plant Vehicle, equipment sales, leasing service, rental Furniture furnishings, retail scale/large scale | parking area equal to 1/4 the GFA of the structure containing the use parking area equal to 1/4 the GFA of the structure containing the use parking area equal to 1/4 the GFA of the structure containing the use parking area equal to 1/4 the GFA of the structure containing the use Parking area equal to 1/10 of the GFA in all structures containing the use Parking area equal to 1/10 of the GFA in all structures containing the use Parking area equal to 1/10 of the GFA in all structures containing the use 1 per 28 m ² of GFA 1 per 28 m ² of GFA 1 per 28 m ² of GFA 1 per 28 m ² of GFA 1 per 28 m ² of GFA 1 per 28 m ² of GFA 1 per 28 m ² of GFA 1 per 46.5 m ² of GFA |
| Salt Lake City | Durable goods, furniture appliances etc Radio/TV station Auto repair car wash Outdoor display of live plant materials Outdoor display of merchandise for sale other than live plant materials Retail goods establishment Retail service establishment Retail shopping center over 5500 SF GFA | 1 per 46.5 m ² of GFA 3 per 93 m ² of GFA 1 per service bay + 3 per 93 m ² for office and retail areas 3 stacked spaces per bay or stall + 5 stacking spaces for automated facility 1 per 93 m ² of display area 2 per 93 m ² of display area 2 per 93 m ² of GFA 2 per 93 m ² of GFA 2 per 93 m ² of GFA |
| Seattle | Sales and services, general Sales and services, automotive | 1 per 46.5 m ² For Pedestrian-designated zones - NC1 parking waived for first 371.6 m ² , NC2 and NC3 parking waived for first 464.5 m ² 1 per 186 m ² |
| Portland | Retail, personal service, repair oriented Quick vehicle servicing Quick vehicle repair | min - 1 per 46.5 m ² of FA, max - 1 per 18.2 m ² of FA min - 1 per 46.5 m ² of FA, max - 1 per 18.2 m ² of FA min - 1 per 46.5 m ² of FA, max - 1 per 18.2 m ² of FA |

Apartment Hotels, Hotels and Motels

| City | Use Description | Parking Index |
|--|---|---|
| Edmonton | Apartment Hotels, Hotels and Motels | 1 per Sleeping Unit |
| Calgary - excluding downtown | Hotel | 1 stalls per 2.5 guest rooms 1 stall per guest room when the parcel on which the building is located is adjacent to a low density residential district |
| Ottawa | Hotel (excluding restaurant) Central Area Inner City Area Suburban & Rural Areas | 0.5 per 100 m ² of GFA 1 per guest unit (up to 40 units) + 1 per 6 guest units over 40 guest units 1 per guest unit |
| Winnipeg | Hostel, Hotel or Motel | 2 per 3 guest rooms + 1 per 8 seats in all auxiliary rooms (restaurant and drinking establishments, banquet halls and meeting rooms) |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Hotel | min. 1 per dwelling unit & 1 per 2 sleeping or housekeeping units |
| Burnaby | Hotel Motel | 1 per 2 sleeping units 1 per dwelling or sleeping unit. |
| Minneapolis - excluding downtown districts | Hotel | min 1 per 3 guest rooms + Parking = 30% of capacity of persons for affiliated uses such as dining or meeting rooms, max 1 per guest room + Parking = 30% of capacity of persons for affiliated uses such as dining or meeting rooms |
| Denver | Hotel/Motel | 1 per 55.7 m ² of GFA |
| Salt Lake City | Hotel or Motel | 1 per 2 separate rooms + 1 per dwelling unit |
| Seattle | Lodging uses | 1 per 4 rooms For Pedestrian-designated zones - NC1 parking waived for first 371.6 m ² , NC2 and NC3 parking waived for first 464.5 m ² |
| Portland | Temporary lodging | min - 1 per rentable room plus requirement for associated uses such a restaurants, max - 1.5 per rentable room plus requirement for associated uses such a restaurants |

Bars and Neighbourhood Pubs

| City | Use Description | Parking Index |
|--|---|--|
| Edmonton | Bars and Neighbourhood Pubs | 1 per 3.0 m ² of Public Space |
| Calgary - excluding downtown | Drinking Establishment - Large Drinking Establishment - Medium Drinking Establishment - Small | 2.85 stalls per 10 m ² of public area 2.85 stalls per 10 m ² of public area 2.85 stalls per 10 m ² of public area |
| Ottawa | Bar Central Area Other Areas | none 6 per 100 m ² of GFA |
| Winnipeg | Drinking Establishment | 1 per 9.3 m ² of FA |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Neighbourhood Public House, licensed for the sale of liquor | 1 per 18.6 m ² of floor area open to the public |
| Burnaby | Liquor license establishments | 1 per 5 seats |
| Minneapolis - excluding downtown districts | | |
| Denver | Brewpub | 1 per 18.6 m ² of GFA |
| Salt Lake City | Tavern | 2 per 93 m ² of GFA |
| Seattle | drinking establishments | 1 per 23.2 m ² of FA For Pedestrian-designated zones - parking waived for first 232.5 m ² |
| Portland | Bars | min - 1 per 23.2 m ² FA, max - 1 per 5.9 m ² of FA |

Casinos and Other Gaming Establishments

| City | Use Description | Parking Index |
|--|---|--|
| Edmonton | Casinos and Other Gaming Establishments | 1 per 2.4 m ² of Public Space |
| Calgary - excluding downtown | Gaming Establishment - Casino Gaming Establishment - Bingo | based on parking study 1 stall per 3.5 seats |
| Ottawa | Casino Central Area Other Areas | none 10 per 100 m ² of GFA |
| Winnipeg | Indoor Amusement Enterprise | 1 per each 9.3 m ² of FA |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Casino Class-1, hall, club or bingo hall | 1 per 9.3 m ² of FA used for assembly purposes |
| Burnaby | Gaming Facilities and gaming houses | 1 per 10 seats or 1 per 9 m ² of FA without fixed seats or FA for public assembly plus 1 per 3 slot machines in gaming houses |
| Minneapolis - excluding downtown districts | | |
| Denver | | |
| Salt Lake City | | |
| Seattle | | |
| Portland | | |

Commercial Schools

| City | Use Description | Parking Index |
|--|---|---|
| Edmonton | Commercial Schools | 1 per 10 seats (plus auditorium requirements where applicable) |
| Calgary - excluding downtown | Instructional Facility - Inside | 1 stall per 5 students with 30 students or less 1 stall per 3 students with more than 30 students |
| | Instructional Facility - Outside | 1 stall per 5 students with 30 students or less 1 stall per 3 students with more than 30 students |
| Ottawa | Training Centre | |
| | i) within 600 metres of a rapid transit station | |
| | Central Area | 0.75 per 100 m ² of GFA |
| | Inner City | 1.6 per 100 m ² of GFA |
| | Suburban & Rural Areas | 2.3 per 100 m ² of GFA |
| | (ii) other cases | |
| | Central Area | 0.75 per 100 m ² of GFA |
| | Inner City | 1.8 per 100 m ² of GFA |
| | Suburban & Rural Areas | 2.4 per 100 m ² of GFA |
| | Instructional Facility | |
| | Central Area | none |
| | Inner City | 2.5 per 100 m ² of GFA |
| | Suburban & Rural Areas | 3.4 per 100 m ² of GFA |
| | | |
| Winnipeg | Commercial School | 1 for each 5 classroom seats |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | | |
| Burnaby | Commercial schools | 1 per staff member; + 1 per 10 seats |
| | Self-improvements schools | 1 per staff member; + 1 per 10 seats |
| Minneapolis - excluding downtown districts | Performing, visual or martial arts school | min 1 space per 500 SF of GFA in excess of 4000 SF max 1 space per 200 SF of GFA |
| | School, vocational or business | min 1 space per class room + 1 space per 5 students based on the max number of students attending classes at any one time max 1 space per classroom and 1 space per 3 students based on the maximum number of students attending classes at any one time |
| | Development achievement center | min 1 per 500 SF of GFA + 2 drop off spaces, max 1 per 200 SF of GFA + up to 4 drop off spaces |
| | Educational arts center | min 1 space per class room + 1 space per 5 students based on the max number of students attending classes at any one time, max 1 space per classroom and 1 space per 3 students based on the maximum number of students attending classes at any one time |

Commercial Schools

| City | Use Description | Parking Index |
|----------------|------------------------------------|---|
| Denver | School, vocational or professional | parking area equal to 1/2 the GFA of area occupied in the structure |
| Salt Lake City | Vocational/trade school | 1 per employee + 1 per 3 students (based on max. number of students attending at one time) |
| Seattle | Vocation or fine arts schools | 1 for each 2 faculty + 1 for each 2 full-time employees + 1 for each 5 students based on the maximum number of students the school is designed to accommodate |
| Portland | | |

Flea Markets

| City | Use Description | Parking Index |
|--|--|--|
| Edmonton | Flea Markets | 6.5 per 100 m ² of Floor Area in the building used for this Use Class |
| Calgary - excluding downtown | Market Auction Market - Other Goods | 4.5 stalls per 100 m ² of gross usable floor area 4 stalls per 100 m ² of gross usable floor area |
| Ottawa | | |
| Winnipeg | Retail Sales | 1 per 23.2 m ² of FA over 2186 m ² (1 space minimum) |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Farmer's Market | determined by the Director of Planning in consultation with the City Engineer |
| Burnaby | | |
| Minneapolis - excluding downtown districts | Farmer's Market | min 1 per 186 m ² of sales area except for temporary uses, max 1 space per 18.6 m ² of GFA plus 1 space per 46.5 m ² of outdoor sales or display area |
| Denver | | |
| Salt Lake City | | |
| Seattle | | |
| Portland | | |

Funeral, Cremation and Interment Services

| City | Use Description | Parking Index |
|--|--|--|
| Edmonton | Funeral, Cremation and Interment Services | 1 per 4 seats plus 1 per funeral home vehicle |
| Calgary - excluding downtown | Columbarium Funeral Home Crematorium | 2 stalls per 100 m ² of non-assembly area and 1 stalls per 4 person capacity of largest assembly area 2 stalls per 100 m ² of non-assembly area and 1 stalls per 4 person capacity of largest assembly area 1.5 stalls per 100 m ² non-assembly area and 1 stall per 4 person capacity of largest assembly area |
| Ottawa | Funeral Home Central Area Other Areas Cemetery | 0.75 per 100 m ² of GFA 7 per 100 m ² of GFA none |
| Winnipeg | Funeral Chapel or Mortuary Cemetery, Mausoleum, Columbarium | 1 per 5 seats in the principal assembly area (min 10 spaces) None |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Funeral Home | 1 per 9.3 m ² of FA used for assembly purposes |
| Burnaby | Funeral Parlours and undertaking establishments | 1 per 10 seats or 1 per 9 m ² of FA without fixed seats or FA for public assembly |
| Minneapolis - excluding downtown districts | Funeral Home Cemetery | min 8 spaces per chapel or parlor, 20 spaces per chapel none |
| Denver | Mortuary | 1 per 18.6 m ² of GFA |
| Salt Lake City | Funeral Services | 1 per 4 seats in parlor + 1 per 2 employees + 1 per vehicle used in connection with the business |
| Seattle | | |
| Portland | | |

Health Services

| City | Use Description | Parking Index |
|--|---|--|
| Edmonton | Health Services | 4.5 per 100 m ² of Floor Area |
| Calgary - excluding downtown | Medical Clinic Health Services Laboratory - With Clients Health Services Laboratory - Without Clients Counseling Service | 6 stalls per 100 m ² of gross usable floor area 4 stalls per 100 m ² of gross usable floor area 2 stalls per 100 m ² of gross usable floor area 4 stalls per 100 m ² of gross usable floor area |
| Ottawa | Medical Facility Central Area Other Areas Community Health and Resource Centre Central Area Inner City Suburban & Rural | 0.75 per 100 m ² of GFA 4 per 100 m ² of GFA none 1.5 per 100 m ² of GFA 3.4 per 100 m ² of GFA |
| Winnipeg | Personal Services - Medical/dental/optical/counseling clinic | 1 per 23.2 m ² of FA over 186 m ² (1 space minimum) |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Health Care Office, Health Enhancement Centre | 1 per 28 m ² of GFA |
| Burnaby | Medical or dental offices and clinics | 1 per 46 m ² of GFA |
| Minneapolis - excluding downtown districts | Blood plasma collection facility Clinic, medical or dental Laboratory, medical or dental | min 1 per 28 m ² of GFA > 371.6 m ² , max 1 per 18.6 m ² of GFA min 1 per 28 m ² of GFA > 371.6 m ² , max 1 per 18.6 m ² of GFA min 1 per 46.5 m ² of GFA > 371.6 m ² , max 1 per 18.6 m ² of GFA |
| Denver | Clinic, dental or medical | 1 per 46.5 m ² of GFA |
| Salt Lake City | Medical/Dental Offices | 5 per 93 m ² of GFA |
| Seattle | Medical Services | 1 per 46.5 m ² of FA For Pedestrian-designated zones - NC1 parking waived for first 371.6 m ² , NC2 and NC3 parking waived for first 464.5 m ² |
| Portland | Medical/Dental Office | min - 1 per 46.5 m ² of FA, max - 1 per 19 m ² of FA |

Major Alcohol Sales

| City | Use Description | Parking Index |
|--|---|--|
| Edmonton | Major Alcohol Sales | 4.3 per 100 m ² of Floor Area |
| Calgary - excluding downtown | Liquor Store | 5 stalls per 100 m ² of gross usable floor area |
| Ottawa | | |
| Winnipeg | | |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Premises for the regular sale of liquor as per Provincial legislation | 1 space per 5.6 m ² of floor area open to the public |
| Burnaby | | |
| Minneapolis - excluding downtown districts | Liquor store, off-sale | min 1 per 46.5 m ² of GFA, max 1 per 18.6 m ² of GFA |
| Denver | Liquor Store | 1 per 18.6 m ² of GFA |
| Salt Lake City | | |
| Seattle | | |
| Portland | | |

Minor Alcohol Sales

| City | Use Description | Parking Index |
|--|--------------------------|--|
| Edmonton | Minor Alcohol Sales | 3.2 per 100 m ² of Floor Area |
| Calgary - excluding downtown | Accessory Liquor Service | none |
| Ottawa | | |
| Winnipeg | | |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | | |
| Burnaby | | |
| Minneapolis - excluding downtown districts | | |
| Denver | | |
| Salt Lake City | | |
| Seattle | | |
| Portland | | |

Nightclubs

| City | Use Description | Parking Index |
|--|--|---|
| Edmonton | Nightclubs | 1 per 3.0 m ² of Public Space |
| Calgary - excluding downtown | Night Club | 2.85 stalls per 10 m ² of public area |
| Ottawa | Nightclub Central Area Other Areas | none 6 per 100 m ² of GFA |
| Winnipeg | | |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Cabaret, licensed for the sale of liquor | 1 per 9.3 m ² of FA open to the public. |
| Burnaby | Discotheques | 1 per 10 seats, +1 per 9 m ² of GFA excluding areas used for storage |
| Minneapolis - excluding downtown districts | Nightclub | Parking = 30% of the capacity of persons |
| Denver | | |
| Salt Lake City | Private Club | 2 per 93 m ² of GFA |
| Seattle | | |
| Portland | | |

Professional, Financial and Office Support Services

| City | Use Description | Parking Index |
|--|---|---|
| Edmonton | Professional, Financial and Office Support Services | 3.4 per 100 m ² of Floor Area |
| Calgary - excluding downtown | Office Financial Institutions Information and Service Provider | 2 stalls per 100 m ² of gross usable floor area 3 stalls per 100 m ² of gross usable floor area 2 stalls per 100 m ² of gross usable floor area |
| Ottawa | Office i) within 600 metres of a rapid transit station Central Area Inner City Suburban & Rural Areas (ii) other cases Central Area Inner City Suburban & Rural Areas Bank Central Area Inner City Suburban & Rural Areas Bank Machine | 0.75 per 100 m ² of GFA 1.8 100 m ² of GFA 2.3 per 100 m ² of GFA 0.75 per 100 m ² of GFA 2 per 100 m ² of GFA 2.4 per 100 m ² of GFA none 2.5 per 100 m ² of GFA 3.4 per 100 m ² of GFA none |
| Winnipeg | Office Cheque-cashing facility without drive through Cheque-cashing facility with drive through Call Centre | 1 per 70 m ² of FA (min 2 per tenant) 1 for each 30.6 m ² of FA over 186 m ² (1 space minimum) 1 for each 46.5 m ² of FA over 186 m ² (1 space minimum) plus 1 for every three employees at maximum shift 1 for each 37.2 m ² |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Office Uses except in I-3 district | 1 per 100 m ² of GFA < 300 m ² + 1 per additional 50 m ² of GFA |
| Burnaby | Banks, Business administrative and professional offices | 1 per 46 m ² of GFA |
| Minneapolis - excluding downtown districts | Bank or Financial Institution Day Labour Agency Offices | min 1 per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 per 18.6 m ² of GFA min 1 per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 per 18.6 m ² of GFA min 1 per 18.6 m ² of GFA in excess of 371.6 m ² , max 1 per 18.6 m ² of GFA |
| Denver | Bank and financial services Office, non-dental, non-medical Studio, professional | 1 per 28 m ² of GFA 1 per 46.5 m ² of GFA 1 per 55.7 m ² of GFA |
| Salt Lake City | Financial establishments General Office | 2 per 93 m ² of GFA 3 per 93 m ² of GFA for main floor + 1.25 spaces per 93 m ² of GFA per additional level, including the basement |

Professional, Financial and Office Support Services

| City | Use Description | Parking Index |
|----------|-----------------|--|
| Seattle | Offices | 1 per 93 m ² of FA |
| Portland | General Office | min - 1 per 46.5 m ² of FA, max - 1 per 27.3 m ² of FA |

Restaurants

| City | Use Description | Parking Index |
|--|--|---|
| Edmonton | Restaurants | 1 per 3.6 m ² of Public Space |
| Calgary - excluding downtown | Restaurant: Food Service Only - Large Restaurant: Food Service Only - Medium Restaurant: Food Service Only - Small Restaurant: Licensed - Large Restaurant: Licensed - Medium Restaurant: Licensed - Small | 2.85 stalls per 10 m ² of public area 2.85 stalls per 10 m ² of public area 2.85 stalls per 10 m ² of public area 2.85 stalls per 10 m ² of public area 2.85 stalls per 10 m ² of public area 2.85 stalls per 10 m ² of public area |
| Ottawa | Restaurant Central Area Inner City Suburban & Rural Areas Restaurant - Fast food (drive-in) Central Area Inner City Suburban & Rural Areas Restaurant - Full Service Central Area Inner City Suburban & Rural Areas | none 3 for first 50 m ² of GFA + 10 per 100 m ² of GFA over 50 m ² of GFA 10 per 100 m ² of GFA none 3 for first 50 m ² of GFA + 10 per 100 m ² of GFA over 50 m ² of GFA 10 per 100 m ² of GFA none 3 for first 50 m ² of GFA + 10 per 100 m ² of GFA over 50 m ² of GFA 10 per 100 m ² of GFA |
| Winnipeg | Restaurant without drive through Restaurant with drive through | 1 per 9.3 m ² of FA 1 per 14 m ² of FA |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Restaurant or Drive-in Restaurant in C-3A, C-5 & C-6: Other Restaurant or Drive-in Restaurant | 1 per 100 m ² of GFA < 300 m ² ; + 1 additional space per additional 50 m ² of GFA 1 per 50 m ² of GFA < 100 m ² , + 1 additional space per additional 10 m ² of GFA < 500 m ² + 1 additional space per additional 20 m ² of GRA > 500 m ² |
| Burnaby | Restaurants or eating establishments having more than 50 seats Drive in restaurants Restaurants or eating establishments having < 50 seats not located in a shopping centre Restaurants or eating establishments having < 50 seats located in a shopping centre | 1 for each 5 seats 1 for each 5 seats 1 for each 46 m ² of GFA equal to the number required for a retail store occupying equal space in a shopping centre |
| Minneapolis - excluding downtown districts | Restaurant, delicatessen Restaurant, fast food Restaurant, sit down | min 1 per 46.5 m ² of GFA < 186 m ² + 1 per 28 m ² of GFA > 186 m ² , max 1 per 7 m ² of GFA min 1 per 46.5 m ² of GFA < 186 m ² + 1 per 28 m ² of GFA > 186 m ² , max 1 per 7 m ² of GFA min 1 per 46.5 m ² of GFA < 186 m ² + 1 per 28 m ² of GFA > 186 m ² , max 1 per 7 m ² of GFA |

| Restaurants | | |
|-----------------------|---|---|
| City | Use Description | Parking Index |
| Minneapolis Continued | Restaurant with general entertainment | min parking = 30% of capacity of persons, max parking = 40% capacity of persons |
| Denver | Eating Place Eating Place, drive through | 1 per 18.6 m ² of GFA 1 per 18.6 m ² of GFA of enclosed floor area set aside as an eating area + 1 space for each remaining 28 m ² of enclosed floor are in the structure. Drive through vehicle spaces shall count to towards the parking requirement up to 50% of the total requirement |
| Salt Lake City | Restaurants | 2 per 93 m ² of GFA |
| Seattle | Eating establishments | 1 per 23.2 m ² of FA For Pedestrian-designated zones - parking waived for first 232.5 m ² |
| Portland | Restaurants | min - 1 per 23.2 m ² FA, max - 1 per 5.9 m ² of FA |

Specialty Food Services

| City | Use Description | Parking Index |
|--|---|---|
| Edmonton | Specialty Food Services | 1 per 3.6 m ² of Public Space |
| Calgary - excluding downtown | Take Out Food Service | 4 stalls per 100 m ² of public area |
| Ottawa | Restaurant - Take-out Central Area Inner City Suburban & Rural Areas | none 1.5 for first 50 m ² of GFA + 5 per 100 m ² of GFA over 50 m ² of GFA 5 per 100 m ² of GFA |
| Winnipeg | | |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Restaurant or Drive-in Restaurant with GFA < 250 m2 on site < 325 m2 | 1 per 50 m ² of GFA max 2 spaces |
| Burnaby | | |
| Minneapolis - excluding downtown districts | Coffee Shop | min 1 per 46.5 m ² of GFA < 186 m ² + 1 per 28 m ² of GFA > 186 m ² , max 1 per 7 m ² of GFA |
| Denver | | |
| Salt Lake City | | |
| Seattle | | |
| Portland | | |

Warehouse Sales

| City | Use Description | Parking Index |
|--|---|---|
| Edmonton | Warehouse Sales | 1 per 100 m ² of Floor Area |
| Calgary - excluding downtown | Household Appliance and Furniture Repair Service | 4 stalls per 100 m ² of gross usable floor area |
| Ottawa | Warehouse Central Area Other Areas | 0.5 per 100 m ² of GFA 0.8 per 100 m ² of GFA |
| Winnipeg | | |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Whole Sale Uses | Greater of 1 per 93 m ² of GFA in the building, or 1 per 5 employees on a maximum work shift |
| Burnaby | Warehousing, storage buildings wholesale establishments or other similar uses | greater of 1 per 3 employees or 1 per 186 m ² of GFA plus 1 per 46 m ² of FA used for internal display or internal retail sales purposes |
| Minneapolis - excluding downtown districts | Wholesaling | min 1 per 28 m ² of GFA of office, sales, or display area > 371.6 m ² (min. 4 spaces) + 1 per 2787 m ² of GFA of warehousing < 2787 m ² + 1 per 464.5 m ² GFA of warehousing > 2787 m ² or for any outdoor storage/sales/display, max 1 per 18.6 m ² of office/sales/display area + 1 per 139.5 m ² of GFA < 2787 m ² + 1 per 232.5 m ² of gfa of warehousing over 2787 m ² or for any outdoor storage/sales/display |
| Denver | | |
| Salt Lake City | | |
| Seattle | | |
| Portland | Wholesale Sales | min - 1 per 70 m ² of FA, max - 1 per 46.5 m ² of FA |

| Industrial Development [Industrial Use & Industrial Performance Use Classes; except for Adult Mini-Theatres] | | |
|--|--|---|
| City | Use Description | Parking Index |
| Edmonton | Industrial Development [Industrial Use & Industrial Performance Use Classes; except for Adult Mini-Theatres] | 1 per 100 m ² of Floor Area (minimum 3 parking spaces per tenant or establishment) |
| Calgary - excluding downtown | Industrial Design and Testing - Inside | greater of 1 stall per 100 m ² of gross usable floor area for the first 2000 m ² and 1 stall for each subsequent 500 m ² 1 stall per 3 employees based on the maximum number of employees at the use at any given time |
| | Industrial Design and Testing - Outside for building | greater of 1 stall per 100 m ² of gross usable floor area for the first 2000 m ² and 1 stall for each subsequent 500 m ² 1 stall per 3 employees based on the maximum number of employees at the use at any given time |
| | for outside | 0.25 stalls per 100 m ² of outdoor storage areas up to 4000 m ² and 0.1 |
| | Industrial Design and Service - Inside | greater of 1 stall per 100 m ² of gross usable floor area for the first 2000 m ² and 1 stall for each subsequent 500 m ² 1 stall per 3 employees based on the maximum number of employees at the use at any given time |
| | Industrial Design and Service - Outside for building | greater of 1 stall per 100 m ² of gross usable floor area for the first 2000 m ² and 1 stall for each subsequent 500 m ² 1 stall per 3 employees based on the maximum number of employees at the use at any given time |
| | for outside | 0.25 stalls per 100 m ² of outdoor storage areas up to 4000 m ² and 0.1 stalls per 100 m ² thereafter |
| | Storage Yard | greater of 1 stall per 100 m ² of gross usable floor area for the first 2000 m ² and 1 stall for each subsequent 500 m ² 1 stall per 3 employees based on the maximum number of employees at the use at any given time |
| | Warehouse - Storage Only | greater of 1 stall per 100 m ² of gross usable floor area for the first 2000 m ² and 1 stall for each subsequent 500 m ² 1 stall per 3 employees based on the maximum number of employees at the use at any given time |
| | Vehicle Rental Major Minor | 2 stalls per 100 m ² of gross usable floor area 2 stalls per 100 m ² of gross usable floor area |
| | Vehicle Sales Major Minor | 3.5 stalls per 100 m ² of gross usable floor area 3.5 stalls per 100 m ² of gross usable floor area |

| Industrial Development [Industrial Use & Industrial Performance Use Classes; except for Adult Mini-Theatres] | | |
|--|--|---|
| City | Use Description | Parking Index |
| Calgary Continued | Vehicle Storage | |
| | Large | 1 stall per 100 m ² of gross usable floor area |
| | Passenger | 1 stall per 100 m ² of gross usable floor area |
| | Recreational | 1 stall per 100 m ² of gross usable floor area |
| | Municipal Works Department | greater of 1 stall per 100 m ² of gross usable floor area for the first 2000 m ² and 1 stall for each subsequent 500 m ² 1 stall per 3 employees based on the maximum number of employees at the use at any given time |
| | Metal Fabricator | greater of 1 stall per 100 m ² of gross usable floor area for the first 2000 m ² and 1 stall for each subsequent 500 m ² 1 stall per 3 employees based on the maximum number of employees at the use at any given time |
| | Manufacturer, Class 1, Class 2, Class 3 | greater of 1 stall per 100 m ² of gross usable floor area for the first 2000 m ² and 1 stall for each subsequent 500 m ² 1 stall per 3 employees based on the maximum number of employees at the use at any given time |
| | Equipment Yard for building | greater of 1 stall per 100 m ² of gross usable floor area for the first 2000 m ² and 1 stall for each subsequent 500 m ² 1 stall per 3 employees based on the maximum number of employees at the use at any given time |
| | for outside | 0.25 stalls per 100 m ² of outdoor storage areas up to 4000 m ² and 0.1 stalls per 100 m ² thereafter |
| | Recreational Vehicle Sales Service | 3.5 stalls per 100 m ² of gross usable floor area 2 stalls per 100 m ² of gross usable floor area |
| | Distribution Centre | greater of 1 stall per 100 m ² of gross usable floor area for the first 2000 m ² and 1 stall for each subsequent 500 m ² 1 stall per 3 employees based on the maximum number of employees at the use at any given time |
| | Brewery and Distillery - Class 1/Class 2 | greater of 1 stall per 100 m ² of gross usable area for the first 185.6 m ² and then 1 stall for each subsequent 500 m ² or 1 stalls per 3 employees based on the maximum number of employees at the use at any given time |

| Industrial Development [Industrial Use & Industrial Performance Use Classes; except for Adult Mini-Theatres] | | |
|--|--|--|
| City | Use Description | Parking Index |
| Ottawa | Heavy Equipment and Vehicle Sales, Rental and Servicing | 0.75 per 100 m ² of GFA |
| | Heavy Industrial Use | |
| | Central Area | 0.5 per 100 m ² of GFA |
| | Other Areas | 0.8 per 100 m ² of GFA |
| | Light Industrial Use | |
| | Central Area | 0.5 per 100 m ² of GFA |
| | Other Areas | 0.8 per 100m ² of GFA |
| | Research and Development Centre | |
| | Central Area | 0.75 per 100 m ² of GFA |
| | Other Areas | 0.8 100 m2 of GFA |
| | Technology Industry | |
| | Central Area | 0.75 per 100 m ² of GFA |
| | Other Areas | 0.8 100 m ² of GFA |
| | Storage Yard | |
| | Central Area & Inner City | 0.5 per 100 m ² of GFA |
| | Suburban and Rural Areas | 0.8 per 100m ² of GFA |
| | Small Batch Brewery | |
| | Central Area | none |
| | Inner City | 1 per 100 m ² of GFA |
| | Suburban & Rural Areas | 2.5 per 100 m ² of GFA |
| Winnipeg | All Industrial Uses | 1 per 93 m ² of GFA (min. 2 spaces) |
| | Research Institution | 1 per 70 m ² of floor area (2 space minimum) |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Manufacturing Uses | Greater of 1 per 93 m ² of GFA in the building, or 1 per 5 employees on a maximum work shift |
| | Transportation, Storage Uses, Utility and Communication Uses | determined by the Director of Planning in consultation with the City Engineer |
| | Storage Warehouse | 1 per 185 m ² GFA of the Building |
| | Manufacturing Uses; Office Uses; Laboratory; Production or Rehearsal Studio; Utility and Communication Uses; Transportation and Storage Uses; Wholesale Uses; Work Shop In I-3 | 1 per 57.5 m ² of GFA with maximum of 1 per 42 m ² of GFA |
| | Mini-storage Warehouse visitors office use | minimum of 2 1 per 100 m ² of GFA < 300 m ² , + 1 per 50 m ² of GFA + 1 for resident caretaker |

| Industrial Development [Industrial Use & Industrial Performance Use Classes; except for Adult Mini-Theatres] | | |
|--|--|---|
| City | Use Description | Parking Index |
| Burnaby | Manufacturing and Industrial buildings and uses, display yards and storage yards, research laboratories, servicing and repair establishments or other similar uses | greater of 1 per 3 employees or 1 per 93 m ² of GFA plus 1 per 93 m ² of FA and/or of lot area used for display, rental or retail sales purposes |
| | Mini-warehouses | Greater of 1 per 10 storage units or one for each 186 m ² of GFA |
| Minneapolis - excluding downtown districts | Light Industrial | min 1 per 93 m ² of GFA < 1858 m ² + 1 per 185.6 m ² of GFA > 1858 m ² , max 1 per 18.6 m ² of GFA < 1858 m ² + 1 per 93 m ² of GFA > 1858 m ² |
| | Medium/ General Industrial | min 1 per 93 m ² of GFA < 1858 m ² + 1 per 185.6 m ² of GFA > 1858 m ² + 1 per 464.5 m ² of outdoor sales/display/or storage area, max 1 per 18.6 m ² of GFA < 1858 + 1 per 93 m ² of GFA > 1858 m ² + per 232.3 m ² of outdoor sales/display/storage |
| | Limited production and processing | min 1 per 27.9 m ² of GFA < 371.6 m ² (max. 4 spaces) + 1 per 93 m ² of GFA from 371.6 m ² to 1858 m ² + 1 space per 185.6 m ² of GFA > 1858 m ² , max 1 per 18.6 m ² of GFA < 371.6 m ² + 1 per 46.5 m ² of GFA form 371.6 m ² to 1858 m ² + 1 per 93 m ² > 1858 m ² |
| | Contractor Yard | min 1 per 46.5 m ² of office/sales/display area > 371.6 m ² (min 4 stalls) + 1 per 464.5 m ² of storage area, max 1 per 18.6 m ² of GFA of office/sales/displav area + 1 space per 232.3 m ² of storage area |
| | Food and Beverage Products | min 1 per 93 m ² of GFA < 1858 m ² + 1 per 185.8 m ² of GFA > 1858 m ² , max 1 per 18.6 m ² of GFA < 1858 + 1 per 93 m ² of GFA > 1858 |
| | Furniture moving & storage | min 1 per 46.5 m ² of office/sales/display area > 371.6 m ² (min 4 stalls) + 1 per 278.7 m ² of GFA of warehousing < 2787 m ² + 1 per 464.5 m ² of GFA of warehousing > 2787 m ² , max 1 per 18.6 m ² of GFA of office/sales/display area + 1 space per 139.3 m ² of GFA of warehousing < 2787 m ² + 1 per 232.3 m ² of GFA of warehousing > 2787 m ² |
| | Industrial machinery and equipment sales service and rental | min 1 per 46.5 m ² of GFA of office/sales/display area > 371.6 m ² + 1 per 185.8 m ² of outdoor sales/display/storage area, max 1 per 18.6 m ² of GFA + 1 per 93 m ² of outdoor sales/displav/storage area |
| | Packaging of finished goods | min 1 per 93 m ² of GFA < 1858 m ² + 1 per 185.8 m ² of GFA > 1858 m ² , max 1 per 18.6 m ² of GFA < 1858 + 1 per 93 m ² of GFA > 1858 |
| | Research, development and testing laboratory | min 1 per 46.5 m ² of GFA > 371.6 m ² , max 1 per 18.6 m ² of GFA as approved by CUP |
| | Scrap/salvage yard, metal milling facility | min 1 per 18.6 m ² of office/sales/display area > 371.6 m ² (min 4 stalls) + 1 per 278.7m ² of GFA of warehousing < 2787 m ² + 1 per 464.5 m ² of GFA of warehousing > 2787 m ² , max 1 per 18.6 m ² of GFA of office/sales/display area + 1 space per 139.5 m ² of GFA of warehousing < 2787 m ² + 1 per 232.5 m ² of GFA of warehousing > 2787 m ² |
| | Self service storage | |
| | Warehousing and distribution | min 1 per 46.5 m ² of office/sales/display area > 371.6 m ² (min 4 stalls) + 1 per 278.7 m ² of GFA of warehousing < 2787 m ² + 1 per 464.5 m ² of GFA of warehousing > 2787 m ² or for any outdoor storage/sales/display, max 1 per 18.6 m ² of GFA of office/sales/display area + 1 space per 139.5 m ² of GFA of warehousing < 2787 m ² + 1 per 232.5 m ² of GFA of warehousing > 2787 m ² or for any outdoor storage/sales/display |

| Industrial Development [Industrial Use & Industrial Performance Use Classes; except for Adult Mini-Theatres] | | |
|--|--|---|
| City | Use Description | Parking Index |
| Denver | Junkyard | parking area equal to 1/4 the GFA of the structure containing the use |
| | Laboratory, research, development, technological service | parking area equal to 1/4 the GFA of the structure containing the use |
| | Vehicle Storage, commercial | parking area equal to 1/4 the GFA of the structure containing the use |
| | Assembly without fabrication | Parking area equal to 1/10 of the GFA in all structures containing the use |
| | Contractors, special trade, heavy, contractor yard | Parking area equal to 1/10 of the GFA in all structures containing the use |
| | Manufacturing, fabrication and assembly, general/heavy/light | Parking area equal to 1/10 of the GFA in all structures containing the use |
| Salt Lake City | Wholesale trade light, storage of nontoxic, nonhazardous materials | Parking area equal to 1/10 of the GFA in all structures containing the use |
| | Wholesale trade general, storage of toxic and/or hazardous materials | Parking area equal to 1/10 of the GFA in all structures containing the use |
| | General Manufacturing | 1 per 3 employees + 1 per company vehicle |
| | Warehouse | 2 per 93 m ² of GFA < 929 m ² + 0.5 per 185.8 m ² of remaining space. Office area parking requirements calculated based on office parking rates |
| Seattle | Wholesale distributing | 2 per 93 m ² of GFA < 929 m ² + 0.5 per 185.8 m ² of remaining space. Office area parking requirements calculated based on office parking rates |
| | Laboratory | 2 per 93 m ² of GFA < 929 m ² + 0.5 per 185.8 m ² of remaining space. Office area parking requirements calculated based on office parking rates |
| | Food processing and craft work | 1 per 185.8 m ² |
| Portland | Laboratories, research and development | 1 per 139.5 m ² |
| | Sales and services, heavy | 1 per 185.8 m ² |
| | Manufacturing uses | 1 per 185.8 m ² |
| | Storage uses | 1 per 185.8 m ² |
| | Self-Service Storage | min - 1 per resident manager facility + 3 per leasing office plus 1 per 100 leasable storage spaces, max - 2 per resident manager facility + 5 per leasing office plus 1 per 67 leasable storage spaces |
| | Manufacturing and Production | min - 1 per 70 m ² of FA, max - 1 per 46.5 m ² of FA |
| | Warehouse and Freight Movement | min - 1 per 70 m ² < 278.7 m ² + 1 per 232.5 m ² > 278.7 m ² , max - 1 per 46.5 m ² < 278.7 m ² + 1 per 232.5 m ² > 278.7 m ² |
| | Industrial Service | min - 1 per 70 m ² of FA, max - 1 per 46.5 m ² of FA |

Adult Mini-Theatre

| City | Use Description | Parking Index |
|--|---|--|
| Edmonton | Adult Mini-Theatre | 1 per 3 seats (minimum of 1 per each individual viewing area/booth with 3 seats or less) |
| Calgary - excluding downtown | Adult Mini-Theatre | requires a parking study |
| Ottawa | Adult Entertainment Parlour Central Area Other Areas | 0.75 per 100 m ² of GFA 6 per 100 m ² of GFA |
| Winnipeg | Restricted Use - adult service or entertainment establishment | 1 per 23.2 m ² of FA over 185.6 m ² (1 space minimum) |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | | |
| Burnaby | | |
| Minneapolis - excluding downtown districts | | |
| Denver | Adult establishment | 1 per 18.6 m ² of GFA |
| Salt Lake City | | |
| Seattle | Adult cabarets | 1 per 23.2 m ² |
| Portland | | |

Extended Medical Treatment Services
Extended Medical Treatment Services: Auxiliary Hospitals
Extended Medical Treatment Services: Nursing Homes

| City | Use Description | Parking Index |
|--|--|--|
| Edmonton | Extended Medical Treatment Services Extended Medical Treatment Services: Auxiliary Hospitals Extended Medical Treatment Services: Nursing Homes | 1.1 parking spaces per 100 m ² of Floor Area 1 per 3 beds 1 stall per 3 residents |
| Calgary - excluding downtown | Assisted Living Residential Care Addiction Treatment | 1 per 3 residents 1 per 3 residents 1 per 3 residents |
| Ottawa | Residential Care Facility/Retirement Home, converted and Retirement home Hospital i) within 600 metres of a rapid transit station ii) other cases | 0.25 per dwelling unit or rooming unit plus 1 per 100 m ² of GFA area used for medical health or personal services 1.2 per 100 m ² of GFA 1.4 per 100 m ² of GFA |
| Winnipeg | Hospital, Assisted Living Facility, Care Home | 1 guest parking space per 10 residents or resident care beds (min. 1) + 1 per 3 employees on the maximum shift |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Hospital or other similar use Detoxification Centre Community Care Facility - Class A and Class B | 1 space per 93 m ² of GFA 1 per 28 m ² of GFA 1 per 4 beds |
| Burnaby | Hospital, sanitarium and private hospitals Category A and B supportive Housing facilities | 1 for each 2 staff doctors plus 1 for each 4 employees plus 1 for each 5 beds 1 for each 2.5 living units |
| Minneapolis - excluding downtown districts | Hospital Board and care home/nursing home/assisted living Inebriate housing Residence hospice | as approved by CUP based on a parking study but not less than 1 space per 3 beds and not more than 1 space per 2 beds min 1 per three beds, max 1 space per bed min 1 per 4 beds, max 1 per bed min 1 per 3 beds, max 1 per bed |
| Denver | Hospital Nursing Home, hospice Assisted living facility | 1 per 55.7 m ² of GFA 1 per 55.7 m ² of GFA, 50% reduction subject to zoning administrators review 0.75 per unit, 50% reduction subject to zoning administrators review |
| Salt Lake City | Congregate care facility Assisted living facility Hospital Sanitarium, nursing care facility | 1 per each 2 + bedroom unit, 0.75 per each 1 bedroom unit 1 per 4 employees + 1 per 6 beds + 1 per 4 rooming units + 1 per 3 dwelling units 1.8 per hospital bed 1 per 6 beds + 1 per 4 employees other than doctors + 1 per 3 dwelling units |

Extended Medical Treatment Services
Extended Medical Treatment Services: Auxiliary Hospitals
Extended Medical Treatment Services: Nursing Homes

| City | Use Description | Parking Index |
|----------|----------------------------|--|
| Seattle | Assisted living facilities | 1 for each 4 assisted living units + 1 per 2 staff members on-site during peak staffing time |
| | Nursing homes | 1 for each 2 staff doctors + 1 per 3 employees + 1 per 6 beds |
| | Hospitals | 1 for each 2 staff doctors + 1 per 5 employees + 1 per 6 beds |
| Portland | Medical Center | min - 1 per 46.5 m ² of FA, max - 1 per 19 m ² of FA or per CU review or Impact Mitigation Plan approval |

Development within the Community, Educational, Recreational and Cultural Service Use Class not listed separately

| City | Use Description | Parking Index |
|--|---|--|
| Edmonton | Development within the Community, Educational, Recreational and Cultural Service Use Class not listed separately | 1 per 3.5 seats or 3.1 per 10 m ² of Floor Area used by patrons |
| Calgary - excluding downtown | | |
| Ottawa | | |
| Winnipeg | Cultural Centre, Hall Rental | 1 for each 9.3 m ² of floor area |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | | |
| Burnaby | Places of public assembly | 1 per 10 seats or 1 per 9 m ² of FA without fixed seats for public assembly |
| Minneapolis - excluding downtown districts | | |
| Denver | | Parking Area= 10% of Zone Lot Area |
| Salt Lake City | | |
| Seattle | Community centers owned and operated by the Seattle Department of Parks and Recreation family support centres Community clubs and community centers not owned and operated by DOPAR | 1 per 51.6 m ² 1 per 9.3 m ² 1 per 7.4 m ² of floor area of all auditoria and public assembly room not containing fixed seats or 1 for each 32.5 m ² excluding ball courts |
| Portland | | 1 per 46.5 m ² of FA (min.); 1 per 18.2 m ² of FA (max.) |

Child Care Services

| City | Use Description | Parking Index |
|--|--|--|
| Edmonton | Child Care Services | 1 parking space per employee |
| Calgary - excluding downtown | Child Care Service | 1 parking stall per 2 employees or 1 per 10 children (whichever greater) |
| Ottawa | Daycare Central Area Other Areas | none 2 per 100 m ² of GFA |
| Winnipeg | Day Care Centre | 1 guest parking space per 10 residents or resident care beds (min. 1) + 1 per 3 employees on the maximum shift |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | | |
| Burnaby | Child care facility | 1 per 2 employees + 1 per 10 children |
| Minneapolis - excluding downtown districts | Child Care Center | min 1 per 46.5 m ² of GFA + 2 drop off spaces, max 1 per 18.6 m ² of GFA + up to 4 drop off spaces |
| Denver | Child Care Center | 1 per 55.7 m ² of GFA |
| Salt Lake City | Daycare, child and adult | 2 per 93 m ² of GFA |
| Seattle | Child Care Centers | greater of 1 per 10 children or 1 per staff member |
| Portland | Day Care | min - 1 per 46.5 m ² of FA, max - 1 per 30.6 m ² of FA |

Community Recreation Services

| City | Use Description | Parking Index |
|--|--|--|
| Edmonton | Community Recreation Services | 16 + 2.2 per every 10 m ² of multipurpose room exceeding 93 m ² * |
| Calgary - excluding downtown | Community Recreation Facility | 1.5 per 100 m ² of GFA + 1 per 4 person capacity of the largest assembly area in building |
| Ottawa | Community Centre Central Area Other Areas | none 4 per 100 m ² of GFA |
| Winnipeg | Community/Recreation Centre | 1 per 9.3 m ² of FA |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Community Centre, Activity Centre or similar place of assembly | min. 1 per 18.6 m ² of FA used for assembly purposes |
| Burnaby | Places of public assembly including community centres | 1 per 10 seats or 1 per 9m ² of FA without fixed seats for public assembly |
| Minneapolis - excluding downtown districts | Community Center | As determined by the zoning administrate based on the principal uses of the community center |
| Denver | Community or senior center or recreational facility | parking area equal to 1/4 the area of the zone lot |
| Salt Lake City | | |
| Seattle | | |
| Portland | | 1 per 46.5 m ² of FA (min), 1 per 18.2 m ² of FA (max) |

Conversions Primary Schools to any other Public/Private Education Service

| City | Use Description | Parking Index |
|--|---|---------------------------------------|
| Edmonton | Conversions Primary Schools to any other Public/Private Education Service | 1.4 per classroom + 1 per 12 students |
| Calgary - excluding downtown | | |
| Ottawa | | |
| Winnipeg | | |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | | |
| Burnaby | | |
| Minneapolis - excluding downtown districts | | |
| Denver | | |
| Salt Lake City | | |
| Seattle | Reuse of Schools for non-school uses | determined by use |
| Portland | | |

Colleges, Business or Technical Schools

| City | Use Description | Parking Index |
|--|---|---|
| Edmonton | Colleges, Business or Technical Schools | 1 per 10 seats + auditorium requirements where applicable |
| Calgary - excluding downtown | Post-secondary learning institution | based on parking study |
| Ottawa | Post Secondary Educational Institution Central Area & Inner City Suburban & Rural Areas | 0.75 per 100 m ² GFA 1 per 100 m ² of GFA |
| Winnipeg | College or University | 1 for each 5 classroom seats |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Business, Trade & Vocational Schools School University or College | 1 per 100 m ² of GFA < 300 m ² ; +1 per additional 50 m ² of GFA determined by the Director of Planning in consultation with the City Engineer |
| Burnaby | Trade or Technical Schools | 1 per staff member + 1 per 10 seats |
| Minneapolis - excluding downtown districts | College or University | min 1 per classroom + 1 per 5 students based on the max. number of students attending classes at any one time, max 1 per classroom and other rooms used by students and faculty + 1 space per 3 students based on max number students attending classes at any one time |
| Denver | University or College | 1 per 55.7 m ² of GFA |
| Salt Lake City | College/university general | 1 per 3 faculty members, + 1 per 3 full time employees, + 1 per 10 students |
| Seattle | Colleges | number of spaces equal to 15 % of design student capacity, + 30 % of design number of employees, + 1 per 9.3 m ² of spectator assembly area in outdoor spectator sports facilities |
| Portland | Colleges | min - 1 per 55.6 m ² of FA exclusive of dormitories, plus 1 per 4 dorm rooms, max - 1 per 37.2 m ² of FA exclusive of dormitories, plus 1 per 2.6 dorm rooms, or per CU review or Impact Mitigation Plan approval |

Exhibition and Convention Facilities

| City | Use Description | Parking Index |
|--|---|---|
| Edmonton | Exhibition and Convention Facilities | 1 per 3.5 seats or 3.1 per 10 m ² of Floor Area used by patrons |
| Calgary - excluding downtown | | |
| Ottawa | Place of Assembly | 10 per 100 m ² of GFA of assembly area |
| | Fairground | none |
| Winnipeg | Indoor Entertainment Arena/Stadium | 1 per 6 persons maximum occupancy load |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Exhibition Hall | Greater of 1 per 5 seats or 1 space per 9.3 m ² of FA used for assembly purposes |
| Burnaby | Places of public assembly including assembly halls, auditoriums, convention halls, exhibition halls, meeting halls and similar uses | 1 per 10 seats or 1 per 9 m ² of FA without fixed seats for public assembly |
| Minneapolis - excluding downtown districts | Convention Center Reception or meeting hall | none if downtown, otherwise determined by zoning administrator min parking = 30 % of the capacity of persons, max parking = 40% of the capacity of persons |
| Denver | Conference center, meeting hall | 1 per 18.6 m ² of GFA |
| Salt Lake City | | |
| Seattle | Exhibition Halls | 1 per 10 fixed seats of certified projected attendance |
| Portland | Meeting Rooms | min - 1 per 30.6 m ² of FA, max - 1 per 17.3 m ² of FA |

Indoor Participant Recreation Services**Indoor Participant Recreation Services: Bowling Alleys****Indoor Participant Recreation Services: Curling Rinks****Indoor Participant Recreation Services: Health and Fitness Clubs****Indoor Participant Recreation Services: Hockey Rink and Swimming Pools****Indoor Participant Recreation Services: Racket Sport Facilities**

| City | Use Description | Parking Index |
|--|--|---|
| Edmonton | Indoor Participant Recreation Services Indoor Participant Recreation Services: Bowling Alleys Indoor Participant Recreation Services: Curling Rinks Indoor Participant Recreation Services: Health and Fitness Clubs Indoor Participant Recreation Services: Hockey Rink and Swimming Pools Indoor Participant Recreation Services: Racket Sport Facilities | 1 per 3.5 seats or 3.1 per 10 m ² of Floor Area used by patrons 4 per Lane + parking requirements for Accessory Uses 8 parking spaces per sheet plus parking requirements for Accessory Uses 1 per 10 m ² of Floor Area 1 per 3.5 seats or 1 per 5 m ² playing/water surface or assembly area 2 per court + parking requirements for Accessory Uses |
| Calgary - excluding downtown | Indoor Recreation Facility Billiard Parlour Fitness Centre | 5 stalls per 100 m ² of gross floor area 11 stalls per 100 m ² of gross usable floor area 5 stalls per 100 m ² of gross usable floor area |
| Ottawa | Recreation and Athletic Facility Central Area Other Areas Amusement Centre Central Area Other Areas | none 4 per alley, court, ice sheet, game table or other game surface plus 10 per 100 m ² of GFA used for dining assembly area or common area none 4 per alley, court, ice sheet, game table or other game surface plus 10 per 100 m ² of gross floor area used for dining and assembly |
| Winnipeg | Indoor Sports Arena/Stadium | 1 per 6 persons maximum occupancy load |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Stadium, Arena, Rink, Ring, Pool Fitness Centre | Greater of 1 per 5 seats or 1 space per 9.3 m ² of pool or surface area used for assembly purposes 1 space per 18.6 m ² of GFA |
| | Bowling Alley or Curling Rink Racquet or Ball Court | 3 spaces per alley or ice sheet 2 spaces per court |
| Burnaby | Recreational uses including, miniature golf courses, fitness and health facilities, steam baths, roller rinks, curling rinks, skating rinks, swimming pools, trampoline centres and similar uses Billiard and pool halls | 1 per 46 m ² of GFA plus 1 per 10 spectator seats 2 for each table |

Indoor Participant Recreation Services**Indoor Participant Recreation Services: Bowling Alleys****Indoor Participant Recreation Services: Curling Rinks****Indoor Participant Recreation Services: Health and Fitness Clubs****Indoor Participant Recreation Services: Hockey Rink and Swimming Pools****Indoor Participant Recreation Services: Racket Sport Facilities**

| City | Use Description | Parking Index |
|--|---|---|
| Burnaby Continued | Bowling alleys Racquet sports Tennis Squash handball, racquetball and badminton Places of public assembly including dance halls, gymnasiums and similar uses Indoor Pistol and Rifle Ranges | 3 for each alley 5 spaces per court plus 1 space for each 10 spectator seats provided 3 spaces per court plus 1 space for each 10 spectator seats provided 4 spaces per court plus 1 space for each 10 spectator seats provided 1 per 10 seats or 1 per 9 m ² of FA without fixed seats for public assembly 1.5 for each stall or point |
| Minneapolis - excluding downtown districts | Indoor Recreation area Sports and health facility | min 6 spaces per full basketball or volleyball court; 2 spaces per lane for a bowling alley; 2 spaces per tennis, racquet, or handball court; 1 space per 46.5 m ² of skating rink area; as determined by the zoning administrator for other indoor recreation areas, max as determined by the zoning administrator min 1 space per 46.5 m ² of GFA + as required by this chapter for applicable indoor recreation areas, max 1 space per 18.6 m ² of GFA |
| Denver | Recreation Services, indoor Recreation Services, indoor Tennis club | 1 per 18.6 m ² of GFA parking area equal 10% of the area of its zone lot |
| Salt Lake City | Gym/health club/recreation facilities Bowling alley Swimming pool, skating rink or natatorium Tennis court | 3 spaces per 93 m ² 2 per lane 1 per 5 seats + 3 per 93 m ² of GFA 2 per court |
| Seattle | | |
| Portland | Health Clubs, gyms and similar Continuous entertainment such as arcades and bowling alleys | min - 1 per 30.6 m ² of FA , max - 1 per 17.3 m ² of FA min - 1 per 30.6 m ² of FA , max - 1 per 17.3 m ² of FA |

Natural Science Exhibits

| City | Use Description | Parking Index |
|--|--------------------------|--|
| Edmonton | Natural Science Exhibits | 1 per 3.5 seats or 3.1 per 10 m ² of Floor Area used by patrons |
| Calgary - excluding downtown | | |
| Ottawa | | - |
| Winnipeg | | |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Aquarium | 1 per 18.6 m ² of FA used for assembly purposes |
| Burnaby | | |
| Minneapolis - excluding downtown districts | | |
| Denver | | |
| Salt Lake City | | |
| Seattle | | |
| Portland | | |

Outdoor Participant Recreation Services**Outdoor Participant Recreation Services: Golf Course or Driving Range****Outdoor Participant Recreation Services: Sports Fields [school /park sites]**

| City | Use Description | Parking Index |
|--|---|---|
| Edmonton | Outdoor Participant Recreation Services | 1 per 3.5 seats or 3.1 per 10 m ² of Floor Area used by patrons |
| | Golf Course or Driving Range | 5 per hole (Golf Course) or 1 per T-box (Driving Range) + parking requirements for Accessory Uses |
| | Sports Fields [school /park sites] | Maximum of 10 parking spaces per field |
| Calgary - excluding downtown | Outdoor Recreation Area | based on parking study |
| Ottawa | Park Sports Field Other Cases | the greater of 1 per 4 fixed seats, or 4 per sports field none |
| | Golf Course | 1 per 100 m ² of GFA plus 4 per hole |
| Winnipeg | Outdoor Sports Arena/Stadium | 1 per 6 persons maximum occupancy load |
| | Golf Course | greater of 3 per hole or 1 per 9.3 m ² in clubhouse |
| | Park, Plaza, Square, Playground | None |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Golf Driving Range | 1 space for every stall |
| Burnaby | | |
| Minneapolis - excluding downtown districts | Outdoor recreation area Golf course, miniature golf or driving range Park Athletic field, including stadiums and grandstands | as determined by zoning administrator min 5 spaces per hole (golf course); 1 space per hole (miniature golf); 1 space per tee (driving range), max 10 spaces per hole (golf course); 2 spaces per hole (miniature golf); 2 spaces per tee (driving range) None except that parks with facilities such as stadiums, golf courses, or indoor recreational facilities shall provide off-street parking as required as approved by CUP otherwise determined by the zoning administrator |
| Denver | Recreation Services outdoor | parking area equal to 1/4 the area of the zone lot |
| Salt Lake City | | |
| Seattle | | |
| Portland | Commercial Outdoor Recreation Parks and Open Areas | min - 20 per acre of site, max 30 per acre of site per CU review for active areas |

Private Clubs

| City | Use Description | Parking Index |
|--|---|---|
| Edmonton | Private Clubs | 1 per 3.6 m ² of Public Space |
| Calgary - excluding downtown | | 1 per 3.5 m ² of net floor area. |
| Ottawa | | |
| Winnipeg | Private club, not licensed | 1 per 23.2 m ² of FA, (min. 4 spaces) |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | | |
| Burnaby | Places of public assembly including clubs, lodges and fraternal buildings not providing overnight accommodation | 1 per 10 seats or 1 per 9 m ² of FA without fixed seats for public assembly |
| Minneapolis - excluding downtown districts | Club or Lodge | min 1 space per 46.5 m ² of GFA excluding rooming units + 1 space per rooming unit, max 1 space per 9.3 m ² of GFA excluding rooming units + 1 space per rooming unit |
| Denver | Club or Lodge | 1 per 27.9 m ² of GFA |
| Salt Lake City | Club/lodge | 6 per 93 m ² of GFA |
| Seattle | Private Club | 1 per 80 AF of all auditoria and public assembly rooms without fixed seats or 1 per 8 fixed seats for FA containing fixed seats or if no auditoria or assembly room 1 per 32.5 m ² excluding ball courts |
| Portland | Lodges or similar use | min - 1 per 30.6 m ² of FA , max - 1 per 17.3 m ² of FA |

Public Libraries and Cultural Exhibits

| City | Use Description | Parking Index |
|--|---|--|
| Edmonton | Public Libraries and Cultural Exhibits | 1 per 10 m ² of Floor Area used by patrons |
| Calgary - excluding downtown | Library Museum | 1.5 stalls per 100 m ² non-assembly area and 1 stall per 4 person capacity of largest assembly area 1.5 stalls per 100 m ² non-assembly area and 1 stall per 4 person capacity of largest assembly area |
| Ottawa | Library Central Area Other Areas Museum Central Area Other Areas | none 2.5 per 100 m ² of GFA 0.75 per 100 m ² of GFA 2 per 100 m ² of GFA |
| Winnipeg | Gallery/Museum/Library | 1 per 93 m ² of GFA (min. 2 spaces) |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Library, Gallery, Museum | min. 1 per 18.6 m ² of FA used for assembly purposes |
| Burnaby | Places of public assembly including art galleries, museums and public libraries | 1 per 10 seats or 1 per 9m ² of FA without fixed seats for public assembly |
| Minneapolis - excluding downtown districts | Library museum | min 1 space per 500 sq. ft. of GFA in excess of 371.6 m ² , max 1 space per 46.5 m ² of GFA min 1 space per 46.5 m ² of GFA in excess of 371.6 m ² , max 1 space per 18.6 m ² of GFA |
| Denver | Library, Museums, other special purpose cultural institutions | 1 per 55.7 m ² of GFA |
| Salt Lake City | Library | 1 per 93 m ² of GFA |
| | Art gallery/museum/house museum | 1 per 93 m ² of GFA |
| Seattle | Libraries Museums | 1 per 7.4 m ² of FA of all auditoria and public meeting rooms; + 1 per 46.5 m ² of FA (excluding auditoria and public meeting rooms) 1 per 7.4 m ² of FA of all auditoria and public meeting rooms without fixed seats + 1 per 10 fixed seats for FA containing fixed seats; + 1 per 23.2 m ² of GFA open to the public |
| Portland | | |

Public or Private Elementary and Junior High Schools

| City | Use Description | Parking Index |
|--|--|--|
| Edmonton | Public or Private Elementary and Junior High Schools | 1.4 parking spaces per classroom* |
| Calgary - excluding downtown | School Authority School K-6 School Authority School 7-9 School - Private | 1 per 20 students 1 per 18 students 1 stall per 8.5 students |
| Ottawa | School - all other schools Central Area Inner City Suburban and Rural Areas | none 1.5 per class room 1.5 per class room |
| Winnipeg | Elementary or Junior High School | 1 per 2 faculty members + 1 per 4 employees, |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | School - Elementary | 2 per 3 employees |
| Burnaby | Schools, public or private Elementary and Junior High Schools | 1 per staff member |
| Minneapolis - excluding downtown districts | School, grades k-12 | min 1 per classroom 1 per 5 students of legal driving age based on the maximum number of students attending classes at any one time, max 1 per classroom 1 per 3 students of legal driving age based on the maximum number of students attending classes at any one time |
| Denver | School Elementary, Junior High School | 10 spaces, plus 1 per classroom |
| Salt Lake City | School: k-8th grade | 1 per 3 faculty members and other full-time employees |
| Seattle | Private School, Elementary | 1 per 7.4m ² of all auditoria and public assembly rooms or if no auditorium or assembly room 1 per staff member |
| | Public School, Elementary | 1 per 7.4m ² of all auditoria and public assembly rooms or 1 per 8 fixed seats in auditoria or public assembly rooms with fixed seats |
| Portland | Schools - grade, elementary, middle junior high | min - 1 per classroom, max - 1.5 per classroom, or per CU or Impact Mitigation Plan approval |

Public or Private High Schools

| City | Use Description | Parking Index |
|--|--|--|
| Edmonton | Public or Private High Schools | 1.4 per classroom + 1 per 12 students* |
| Calgary - excluding downtown | School Authority School 10-12 School - Private | 1 stall per 8 students 1 stall per 8.5 students |
| Ottawa | School - Secondary Central Area Inner City Suburban & Rural Areas | none 2.5 per classroom 3 per classroom |
| Winnipeg | Senior High School | 1 per 2 faculty members + 1 per 4 employees + one for each 10 students |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | | 1.25 per employee |
| Burnaby | Schools, public or private Senior High Schools | 1 per staff member, + 1 per 10 students |
| Minneapolis - excluding downtown districts | School, grades k-12 | min 1 per classroom 1 per 5 students of legal driving age based on the maximum number of students attending classes at any one time, max 1 per classroom 1 per 3 students of legal driving age based on the maximum number of students attending classes at any one time |
| Denver | School, Senior High | 1 per employee + 1 per 6 students (based on design capacity of the school) |
| Salt Lake City | Senior high school | 1 per 3 faculty members, + 1 per 3 full time employees, + 1 per 10 students |
| Seattle | Private School, Elementary Public School, Elementary | 1 per 7.4m ² of all auditoria and public assembly rooms or if no auditorium or assembly room 1 per staff member 1 per 7.4m ² of all auditoria and public assembly rooms or 1 per 8 fixed seats in auditoria or public assembly rooms with fixed seats |
| | | |
| Portland | Schools - high school | min - 7 per classroom, max - 10.5 per classroom, or per CU or Impact Mitigation Plan approval |

Religious Assembly

| City | Use Description | Parking Index |
|--|---|---|
| Edmonton | Religious Assembly | 1 parking space per 4 seats |
| Calgary - excluding downtown | Place of Worship - Large Place of Worship - Medium Place of Worship - Small | 1 stall per 4 person capacity of the largest assembly area 1 stall per 4 person capacity of the largest assembly area 1 stall per 4 person capacity of the largest assembly area |
| Ottawa | Place of Worship Central Area Other Areas | none 10 per 100 m ² of GFA of assembly area |
| Winnipeg | Place of Worship Parish Hall | 1 per 5 seats in the principal assembly area (min 10 spaces) 1 for each 9.3 m ² of FA |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Church, Chapel, Wedding Chapel, Place of Worship or similar place of assembly | 1 per 9.3 m ² of FA used for assembly purposes |
| Burnaby | Places of public worship | 1 per 9 m ² of GFA (main assembly areas in building) plus 1 per 19 m ² of GFA of other assembly areas in building: including halls, meeting rooms, classrooms and gymnasiums |
| Minneapolis - excluding downtown districts | Convent, monastery or religious retreat center Place of assembly | min 1 space per 3 beds, max 1 per bed min Parking equal to 10% of the capacity of persons in the main auditorium and any rooms which can be added to the main auditorium by opening doors or windows to obtain audio or video unity, max Parking equal to 40% of the capacity of persons in the main auditorium and any rooms which can be added to the main auditorium by opening doors or windows to obtain audio or video unity |
| Denver | Church, religious institution | parking area equal to 1/4 the area of the zone lot |
| Salt Lake City | Places of worship | 1 per 5 seats in the main auditorium or assembly hall |
| Seattle | Religious facilities | 1 per 7.4 m ² of all auditoria and public assembly rooms |
| Portland | Religious Institutions | min - 1 per 9.3 m ² of main assembly area, max - 1 per 6.2 m ² of main assembly area, or per CU review |

Spectator Entertainment Establishments

| City | Use Description | Parking Index |
|--|---|--|
| Edmonton | Spectator Entertainment Establishments | 1 per 3.5 seats or 3.1 per 10 m ² of Floor Area used by patrons |
| Calgary - excluding downtown | Cinema Race Track | 1 per 4 fixed seats Based on parking study |
| Ottawa | Theater Central Area Inner City Suburban & Rural Areas | none 1 per 8 fixed seats 1 per 4 fixed seats |
| Winnipeg | Auditorium/Concert Hall/Theater/Cinema | 1 per 6 persons maximum occupancy load |
| Vancouver - Excluding DD and CWD Districts and South East False Creek Area | Theatre, Auditorium | Greater of 1 per 5 seats, or per 9.3 m ² of surface area used for assembly |
| Burnaby | Places of public assembly including theatres and similar uses | 1 per 10 seats or 1 per 9 m ² of FA without fixed seats for public assembly |
| Minneapolis - excluding downtown districts | Theater, indoor live performances only Theater, indoor | min Parking equal to 20% of the capacity of persons in the auditorium, max Parking equal to 40% of the capacity of persons in the auditorium min Parking equal to 20% of the capacity of persons in the auditorium and any rooms which can be added to the auditorium by opening doors or windows to obtain audio or video unity, max Parking equal to 40% of the capacity of persons in the auditorium and any rooms which can be added to the auditorium by opening doors or windows to obtain audio or video unity |
| Denver | Theatre, indoor | 1 per 18.6 m ² of GFA |
| Salt Lake City | Theatre, movie and live | 1 space per 4 seats |
| Seattle | Entertainment Uses | 1 per 8 fixed seats or 1 per 9.3 m ² of public assembly area not containing fixed seats |
| | | For Pedestrian-designated zones - Motion picture theaters parking waiver for first 150 seats |
| Portland | Major Event Entertainment Theaters | min - 1 per 8 seats, max - 1 per 5 seats, or per CU review min - 1 per 4 seats or 1 per 6 feet of bench area, max 1 per 2.7 seats or 1 per 4 feet of bench area |

APPENDIX D

Shared Parking Calculation Examples

Shared Parking Provisions (Section 104)

- 104.** (1) Where more than one of the uses listed in Table 104 are located on the same lot, parking spaces may be shared between the uses, and the cumulative total of parking spaces required for all the uses on the lot may be reduced from that required in Section 101 to the amount calculated using Table 104.
- (2) The number of parking spaces required for the lot under this section is calculated as follows:
- (a) multiply the number of parking spaces required for the land use in Section 101 by the percentages shown in Table 104 for that use in each of the eight time periods;
 - (b) repeat (a) for each of the uses on the lot;
 - (c) for each time period add the parking space calculations for all the uses to arrive at a cumulative total; and
 - (d) the largest cumulative total for all the uses in any time period is the number of parking spaces required for the lot.
- (3) Despite Subsection (1), this section does not apply to a shopping centre.

Table 104 - Percentage of Required Parking Permitted to be Shared

| I Land Use | Time Period | | | | | | | |
|---|---------------|-------------|-----------------|--------------|-----------------------|-------------|-------------------|---------------|
| | Weekday | | | | Saturday ¹ | | | |
| | II Morning | III Noon | IV Afternoon | V Evening | VI Morning | VII Noon | VIII Afternoon | IX Evening |
| (a) office; medical facility; research and development centre | 100% | 90% | 100% | 15% | 20% | 20% | 10% | 5% |
| (b) bank | 80% | 100% | 100% | 10% | 80% | 100% | 60% | 10% |
| (c) retail store; retail food store; personal service business; convenience store | 75% | 80% | 85% | 75% | 60% | 90% | 100% | 50% |
| (d) restaurant; bar | 30% | 90% | 60% | 100% | 30% | 80% | 50% | 100% |
| (e) cinema; theatre; amusement centre | 40% | 40% | 60% | 85% | 40% | 70% | 80% | 100% |
| (f) visitor parking required for residential uses in Section 102 | 50% | 50% | 75% | 100% | 100% | 100% | 100% | 100% |

E.Shared Parking: Where multiple uses share the same off street parking facilities, reduced total demand for parking spaces may result due to differences in parking demand for each use during the course of the day. The following schedule of shared parking is provided indicating how shared parking for certain uses can be used to reduce the total parking required for shared parking facilities:

TABLE 21A.44.060E

SCHEDULE OF SHARED PARKING

| General Land Use Classification | Weekdays | | | Weekends | | |
|-----------------------------------|--------------------|---------------------|--------------------|--------------------|---------------------|--------------------|
| | Midnight-7:00 A.M. | 7:00 A.M.-6:00 P.M. | 6:00 P.M.-Midnight | Midnight-7:00 A.M. | 7:00 A.M.-6:00 P.M. | 6:00 P.M.-Midnight |
| College and university | 15% | 100% | 85% | 5% | 50% | 75% |
| Community centers | 0% | 30% | 75% | 0% | 100% | 80% |
| Hotel | 100% | 65% | 100% | 100% | 65% | 100% |
| Office and industrial | 5% | 100% | 5% | 0% | 5% | 0% |
| Place of worship | 0% | 30% | 50% | 0% | 100% | 75% |
| Residential | 100% | 50% | 80% | 100% | 75% | 75% |
| Restaurant | 50% | 70% | 100% | 70% | 45% | 100% |
| Retail | 0% | 100% | 80% | 0% | 100% | 60% |
| Schools, elementary and secondary | 5% | 100% | 75% | 0% | 25% | 10% |
| Theater/entertainment | 5% | 20% | 100% | 5% | 50% | 100% |

1. Determining The Total Requirements For Shared Parking Facilities: For each applicable general land use category, calculate the number of spaces required for a use if it were the only use (refer to the schedule of minimum off street parking requirements). Use those figures for each land use to calculate the number of spaces required for each time period for each use (6 time periods per use). For each time period, add the number of spaces required for all applicable land uses to obtain a grand total for each of the six (6) time periods. Select the time period with the highest total parking requirement and use that total as the shared parking requirement.

APPENDIX E

Cash-in-lieu Requirements Example

4.10.2 Landscaping for Large Sites

All parking areas larger than 750 square metres in size and located in an R district shall be provided with additional landscaping to the satisfaction of the Director of Planning.

4.10.3 Lighting

In any parking area located in or adjacent to an R district, luminaries shall be situated in such a way so as not to directly throw light onto streets, lanes, or adjacent properties within an R district.

4.10.4 Vehicle Servicing

Except in a case of emergency, no commercial repair work or service of any kind shall be carried on in any parking area located in an R district.

4.11 Design Standards for Parking Uses Located in CD-1 Districts

4.11.1 Unless otherwise provided in any specific CD-1 by-law, the design standards applicable in CD-1 Districts shall comply with section 4.8 or, if the site is located within or abutting DD, CWD, BCPED, RM-5, RM-5A, RM-5B, RM-5C, RM-6, C-3A, C-5, C-6, FC-1, FM-1, and HA Districts, with section 4.9.

4.12 Waiver of Parking Requirements for Payment-in-Lieu Relief

4.12.1 An application, directed to the Director of Planning, together with the fee as set out in Schedule B hereto, may be made for waiver of the parking standards required by section 4.1.1, 4.1.2, 4.1.3, 4.1.4, or 4.1.5, as the case may be, of this By-law for the construction or change of use of any building, or portion thereof, used for commercial or industrial purposes located in the area outlined by a heavy black line in Map 4.12.1.

4.12.2 The City Engineer, Director of Planning and the Director of Budget Services shall report to Council on every application received pursuant to section 4.12.1 and shall make a recommendation thereon, including an amount of money that may be accepted in lieu of the requirement to provide a certain number of parking spaces.

[NOTE: On March 13, 2007 Council approved an increase in the payment-in-lieu charge per parking space to \$20,200 for any application for payment-in-lieu relief made pursuant to section 4.12.1]

4.12.3 For the purpose of the recommendation referred to in section 4.12.2 the Director of Planning and the City Engineer may request such information from the applicant as deemed necessary, including evidence that as much parking as is physically and economically reasonable has been planned for and will be provided.

4.12.4 Council may in its discretion and after receipt of the report referred to in section 4.12.2 accept a sum of money as payment in lieu of the applicant's requirement to provide a certain number of off-street parking spaces and shall upon receipt of that sum as verified by the Director of Finance, waive the provisions of section 4.1.1, 4.1.2, 4.1.3, 4.1.4, or 4.1.5, as the case may be, to the extent determined by Council.

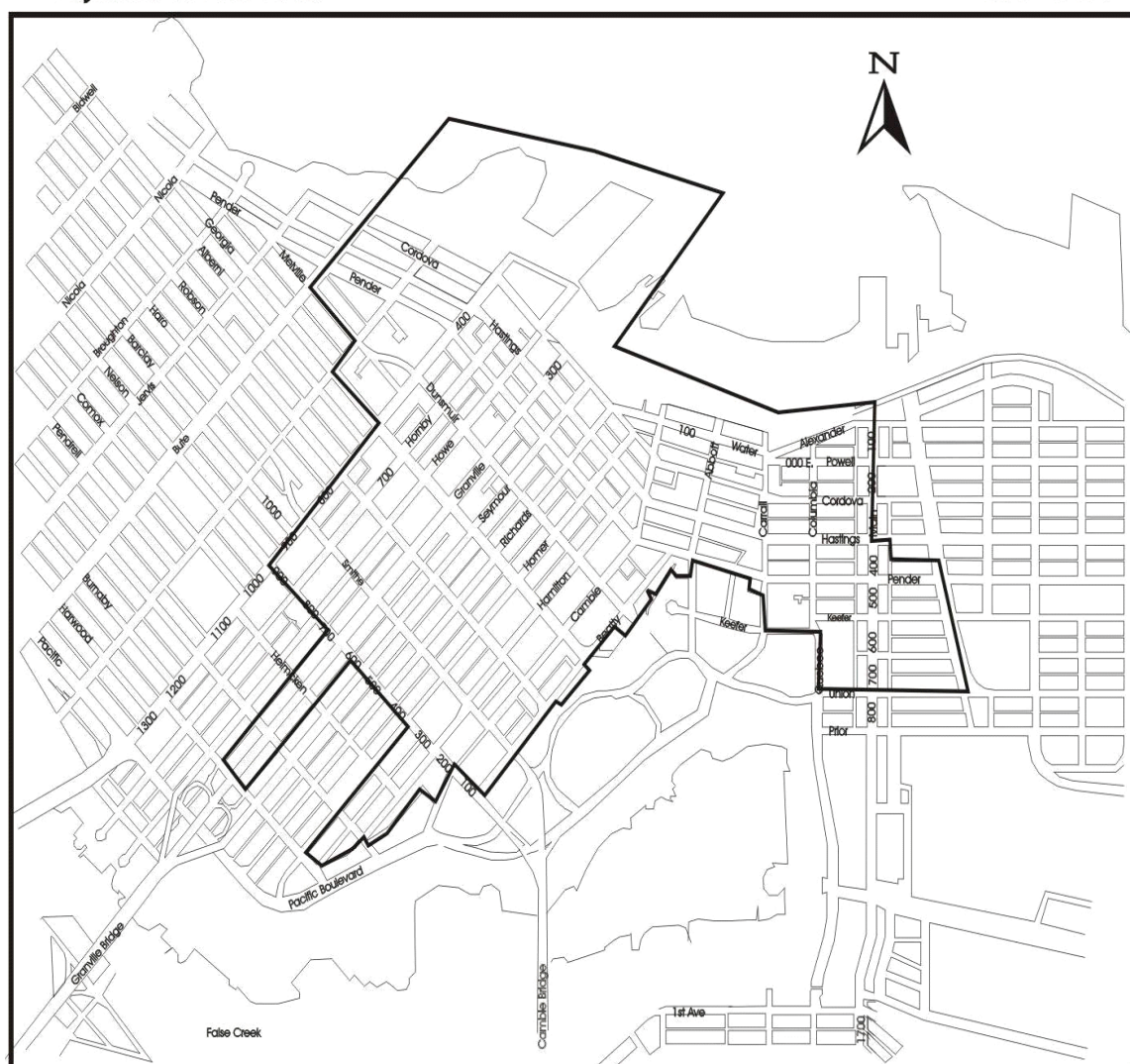
4.12.5 Where Council has agreed to accept a sum or money in lieu of parking requirements, Schedule A hereto shall be amended to list:

- (a) the property affected by the waiver;
- (b) the extent to which the parking requirements are waived; and
- (c) the amount of money accepted by Council as payment-in-lieu.

- 4.12.6 Where a person who has paid a sum of money pursuant to section 4.12 wishes to receive a refund, he may apply to the City Engineer who, together with the Director of Finance, shall report such application to Council who may, in its discretion, refund such money together with interest actually accrued thereon to the date of application for refund provided that:
- (a) Council has rescinded its resolution to waive the parking requirements and Schedule A has been amended to delete reference to the property for which payment was accepted; and
 - (b) the City has not yet committed the money to construct any facility or otherwise provide parking which is intended to serve a development located on the property referred to in Schedule A for which payment was accepted and
 - (i) alternative parking has been provided for the development to the satisfaction of the Director of Planning in consultation with the City Engineer, or
 - (ii) the development permit for the property for which payment was accepted is no longer valid.

Payment In-Lieu Area

MAP 4.12.1

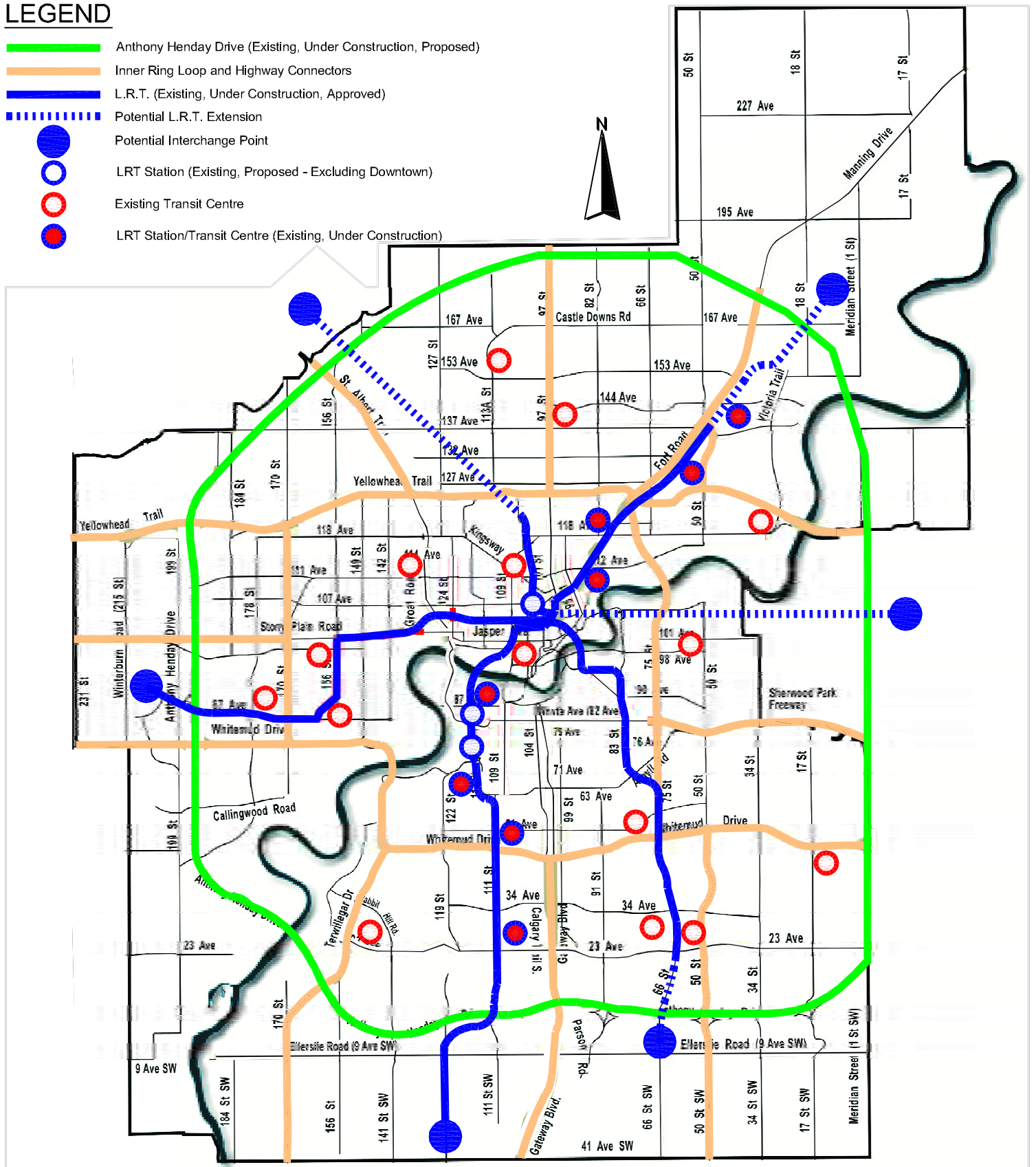


APPENDIX F





EXISTING AND PROPOSED LRT AND TRANSIT AVENUE PLANS

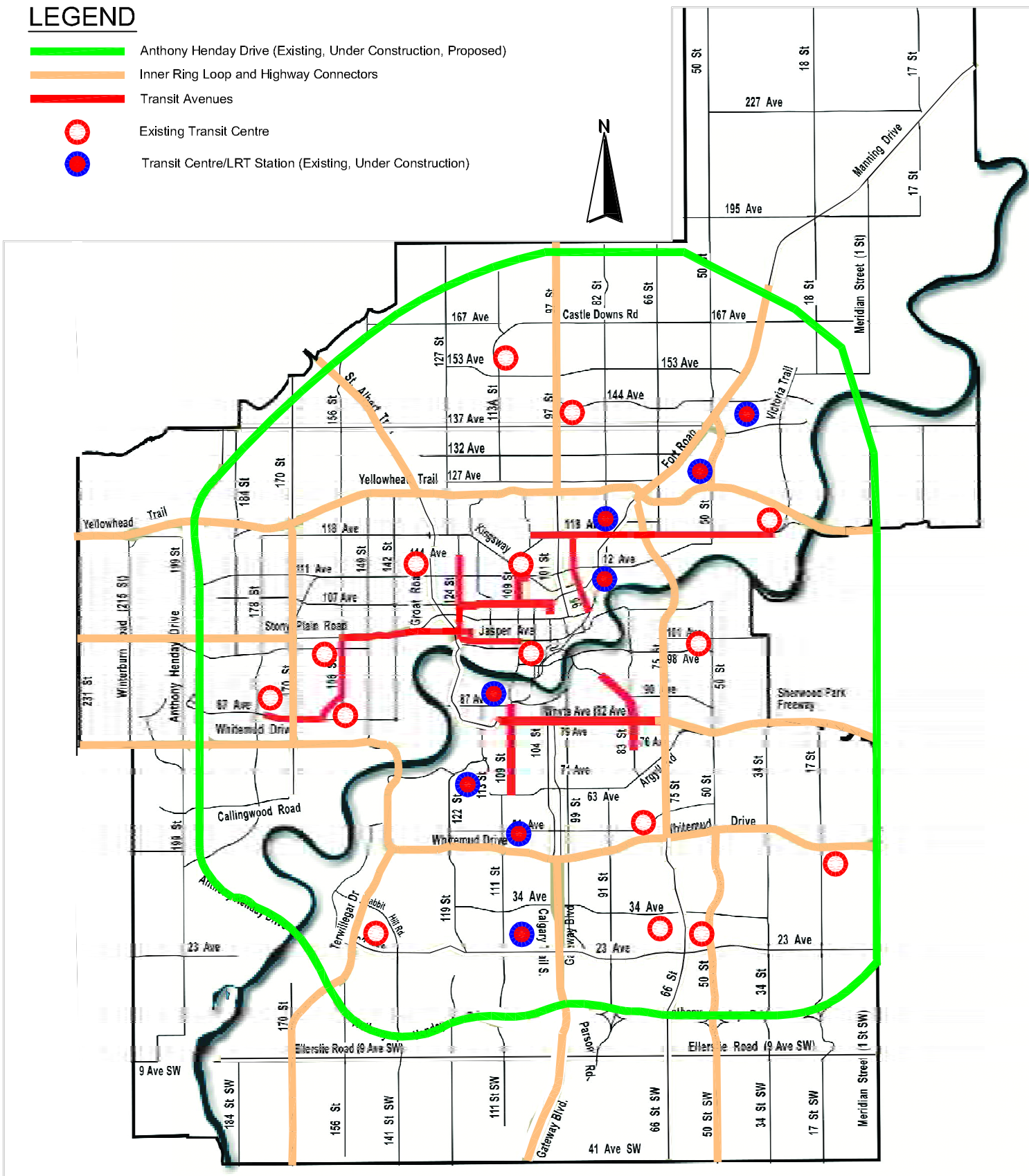
LEGEND

- Anthony Henday Drive (Existing, Under Construction, Proposed)
- Inner Ring Loop and Highway Connectors
- L.R.T. (Existing, Under Construction, Approved)
- - - Potential L.R.T. Extension
- Potential Interchange Point
- LRT Station (Existing, Proposed - Excluding Downtown)
- Existing Transit Centre
- LRT Station/Transit Centre (Existing, Under Construction)



LEGEND

- Anthony Henday Drive (Existing, Under Construction, Proposed)
 Inner Ring Loop and Highway Connectors
 Transit Avenues
 Existing Transit Centre
 Transit Centre/LRT Station (Existing, Under Construction)



Glossary of Terms

GLOSSARY OF TERMS

Activity Center: A major concentration of employment and commercial activity, which may be found in suburban areas as well as in the downtown.

Alternative Work Schedules: The use of work policies such as flex time and staggered work hours and compressed work weeks that allows employees to meet transit, carpool, or vanpool schedules or to avoid commuting during peak hours traffic periods (also called variable work hour policies).

Buspooling: A prearranged bus service, privately contracted by passengers or employers.

Captive Market: A group of people who by virtue of their location can take advantage of services and facilities within a mixed-use or multi-tenant site (without the need to use a vehicle to access facilities within the development site).

Carpooling: An arrangement in which commuters share driving or cost of automobile for commuting. A carpool is formed with a minimum of two people who commute on a regular basis. The members generally share common residential and employment locations as well as common commuting patterns and schedules.

Commuter Assistance Programs: Services, generally provided by employers, developers, or public agencies, to help facilitate commuting arrangements by carpool, vanpool, and transit.

Commuter Information Center: A permanent, on-site physical display of information explaining all commute modes available to the site. The center must incorporate schedule holders for transit route information and brochures pockets of ridesharing and flex-time information. The center is located in an area with high employee and resident pedestrian traffic.

Compressed Work Week: This is a form of alternate work schedules that allows employees to work a 40-hour week in less than the standard five days, typically in four 10-hour days. The intent is to reduce the number of days worked in a given week or other time period and thereby reduce the daily vehicle demand at a site.

Fleetpools: A program allowing employees to use the employer or developer's automobile fleet during non-work periods for employee operated carpools.

Flexible Work Hours: This is a form of alternative work hours. It is a policy that gives employees the option of varying their starting and stopping times each work day. Most policies specify a core period in the middle of the workday (e.g. 10:00 a.m. to 4:00 p.m.) when all employees are required to be present. The intent is to allow employees more flexibility to adjust work hours to meet individual needs and commuting time schedules, e.g. to arrange a carpool or meet a bus.

Fringe Parking (Peripheral Parking): A parking facility located immediately outside the central business district, where personal vehicles may be parked and travelers may continue their trips to downtown via transit, carpool, or vanpool.

Guaranteed Ride Home Program: A program providing an assured trip for commuters not able to use their normal carpool, vanpool, or bus commute mode because of personal emergencies or work obligations. This can be accomplished through the use of company cars, taxis, or rental vehicles.

High Frequency Transit Corridors: A corridor within which several high frequency bus transit routes operate either within or outside LRT corridors. These areas are typically linear in nature and are served by transit bus routes with 10-minute headways or better. Typically, High Frequency Transit Corridors provide increased transit service throughout the course of the day.

High Occupancy Vehicle (HOV): Any passenger vehicle that carries at least a specific number of, two, three, four or more people. Buses, carpools, and vanpools are high occupancy vehicles.

Mode Split: A term that describes how many people use alternative forms of transportation. It is the percentage or breakdown of overall trips made by driving alone, carpool, vanpool, and transit.

Park-and-Ride Lot: A transit, carpool, and/or vanpool facility where people can park their auto and then ride transit or join a carpool or vanpool to work.

Parking Management Program: A program designed to manage a development's need for on-site parking. Program elements could include carpool certification and monitoring, signage that identifies priority HOV parking, and HOV parking subsidies or discounts.

Parking Management: Measures that favor vehicles used by carpools and vanpools, including the establishment of parking charges for commuter parking, preferential parking for pool vehicles, and the elimination of free or low-cost off-street parking at employment areas.

Parking Reduction Indices: Local government regulations that allow the reduction of zoning requirements for off-street parking in return for developer-sponsored TDM efforts or contributions to a TSM/TDM trust fund.

Parking Supply: The total number of parking spaces within a given area or facility.

Preferential Parking: This concept involves assigning the most desirable parking spaces, such as those closest to building entrances, for the exclusive use of carpool and vanpool vehicles. In addition, parking charges may be partially reduced or eliminated for pool vehicles. Pool vehicles may also be exempted from any hourly parking limits that exist.

Premium Transit: High frequency transit service provided throughout the day, consisting of LRT and high frequency bus.

Ridesharing: Sharing of one vehicle by two or more commuters. While the concept of ridesharing applies primarily to carpools and vanpools, it is sometimes applied to transit as well.

Single Occupant Vehicle (SOV): A personal vehicle carrying only the driver.

Staggered Work Hours: A form of an alternative work hour schedule where all employees in an organization are arbitrarily assigned by their employer daily start and stop times. These

times are staggered over a range of 15 minutes to 2 hours. Employees generally have no choice in their work hours. The intent is to spread out commuting peaks.

Subsidy: The employer or owner subsidizes partially or fully, the out-of-pocket cost of their own employee or a tenant's employee's work trip. Subsidy options can include transit passes, carpool parking fees, vanpool fares and guaranteed rides home.

Suburban Activity Center: An activity center located outside the downtown core of a metropolitan area.

Traffic Mitigation: The use of TDM techniques to reduce the traffic impact of new development.

Transit Avenues: Transit Avenues are linear corridors served by one or more bus routes that provide all day service and connect major trip generators, LRT stations, and transit centres. The bus routes serving these areas operate with at least 15 minute frequency during weekday peak, weekday midday periods, Saturday midday periods, and Sunday midday periods. Bus service along Transit Avenues is offered throughout the day, seven days a week. The land uses along these corridors are oriented toward the street, allowing for redevelopment and intensification. These corridors have existing or planned higher density, pedestrian-orientation and design, and may have high existing pedestrian traffic.

Transit Centre / Transit Station: These are connection points where multiple busses (centres) or LRT vehicles (stations) can stop simultaneously to allow cross-route transfers.

Transit Oriented Development (TOD): Intensified development around premium transit nodes with progressively lower density development spreading outwards from the centre. TOD creates attractive, livable and compact neighbourhoods with housing, jobs, shopping, community services and recreational opportunities all within convenient walking distance of a transit node. All TODs are not the same. Each development has a unique context and may serve different purposes. Some intensified and mixed use development will also occur along high frequency transit corridors at a lower level of magnitude.

Transit Overlay Zone: Overlay zoning is a regulatory tool used by the City that creates a special zoning district, placed over an existing base zone(s), which identifies special provisions in addition to those in the underlying zone. A Transit Overlay Zone could be used to apply specific regulations, including parking regulations, to guide development within designated areas of the City.

Transportation Management Association (TMA): An organization of developers, property managers, employers and public officials to cooperatively promote and provide programs that mitigate traffic congestion, assist commuters, and otherwise encourage improved travel in a given area. Such organizations can serve as forums in which the private sector and state and local governments meet to address jointly current and future needs.

Transportation Management: A concept that includes the use of transportation demand management (TDM) and transportation systems management (TSM) techniques in order to lessen the traffic impacts of development, as well as to encourage private sector improvements to accommodate traffic growth. Sometimes referred to as traffic mitigation.

Transportation Systems Management (TSM): The use of low capital improvements to increase the efficiency of road transportation and transit services. Sometimes the term also is applied to techniques used to reduce the demand for travel in a defined area (see transportation demand management).

Travel Demand Management (TDM) Plan: A plan developed for a corridor, a central business district, or a specific employment site for the purpose of discouraging single-occupant vehicle commutes, encouraging work travel by high-occupancy vehicles, and mitigating traffic impacts on road networks. A TDM plan should serve the specific transportation needs of employees and residents, reduce drive-alone vehicle trips, and reduce the parking demand at the work site.

Travel Demand Management (TDM): Policies, programs, and actions implemented to increase the use of High Occupancy Vehicles (public transit, carpooling, and vanpooling) and/or spread the timing of travel to less congested time periods through alternative work hour programs.

Trip Reduction Ordinances (TRO's): Regulations passed by local government requiring developers, property owners, and employers to participate or assist in financing transportation management efforts. In many instances, such ordinances specify a target reduction in the number of vehicles trips expected from a development based on standardized trip reduction rates.

Vanpooling: Commuting in a seven to 15-passenger van, with driving undertaken by commuters. Some portion of the van's ownership and operating costs are usually paid for by the riders on monthly basis. The van may be privately owned, employer-sponsored with the company owning and maintaining the vehicles, or it maybe provided through a private company that leases vehicles (know as a third-party arrangement).

Vehicle Occupancy: The number if people riding in a vehicle at one time.