

Impact of Street Parking on Whyte Avenue Businesses

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As part of its “Way We Move” Master Plan, the City of Edmonton is investigating bicycle corridors, alternative transportation and retail enhancements in identified neighborhoods. *The purpose of this study is to provide an analysis of the effect of removing on-street parking from Whyte Avenue between 99 Street and 109 Street in Edmonton, Canada.* The approach employed secondary and primary research methods to determine the profile of visitors to Old Strathcona with respect to transportation, frequency of visits and spending habits. Based on customer profiling, visitors who walk, cycle or use public transit represent the highest value customers who visit most frequently, whereas drivers represent the lowest value customers. Of the motorist segments, those who park in off-street lots have an annual customer value comparable with non-motorist segments. Motorists who park on Whyte Avenue represent the lowest value customer and contribute less than 2% of the overall value of customers in the area. Therefore, removing street parking from Whyte Avenue would not have a significant negative economic impact on businesses in Old Strathcona. Health and Safety is one of the main pillars of the City of Edmonton’s “Way We Move” Master Plan along with Active Transportation and Economic Vitality, therefore the results of this study provides valuable insights into the viability and suitability of removing on-street parking in order to expand sidewalks and adding dedicated bicycle lanes along Whyte Avenue.

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The purpose of this study is to provide an analysis of the effect of removing street parking from Whyte Avenue between 99 Street and 109 Street in Edmonton, Canada. How would removing street parking affect businesses on Whyte Avenue?

BACKGROUND

History

Old Strathcona is at the residential and retail heart of the original City of Strathcona on the southern banks of the North Saskatchewan River. Strathcona amalgamated with the City of Edmonton to the north in 1912 to form a single city. The Old Strathcona business area is a vibrant retail area with pedestrian malls, a thriving farmers' market and numerous international festivals. In recent years, it has become a hub for artisans and artists. Along with the area's festivals, its proximity to the University of Alberta provides the clientele for a growing number of cafes and nightclubs.

Whyte Avenue is a major east-west corridor that crosses the railway tracks and connects the southeast of the city and neighboring suburbs to Old Strathcona and University of Alberta. The City of Edmonton has been investigating alternatives to its existing infrastructure and traffic flow as part of its "The Way We Move" programs and initiatives.

Problem

Between 2004 and 2009 Whyte Avenue recorded a daily traffic flow in excess of 30,000 vehicles [1], making it one of the Edmonton's busiest roadways. What makes Whyte different from other arterials in this volume category is that it cuts through a thriving residential retail business community with on-street parking on both the north and south sides of the avenue. The heavy traffic flow along the Whyte Avenue corridor through Old Strathcona has been identified as posing a significant risk to motorists, pedestrians and users of alternative modes of transportation, notably cyclists. In addition to the

recognized dangers for cyclists, issues of pedestrian traffic have been raised, particularly during times of heavy pedestrian and vehicular traffic during festivals common in the Old Strathcona area.

Requests (and suggestions) have been made by café and food retailers in this corridor to expand patio space and embrace the outdoor atmosphere during warm summer season. A constraining factor against extending patios is the general lack of sidewalk space to accommodate the volume of pedestrian traffic and the potential risk of overflowing into the roadway. In order to provide information to guide decisions regarding the impact of changes to the infrastructure and traffic flow in this corridor, an investigation into the restraining and driving factors concerning the removal of on-street parking is being undertaken.

Solutions & Considerations

The City of Edmonton is considering options to alleviate the congestion caused by the high volume of vehicular and pedestrian traffic along Whyte Avenue through Old Strathcona. Among the proposals under consideration are i) a bicycle corridor along 83rd Avenue, which runs parallel to Whyte Avenue one block to the north; ii) adding a bicycle lane to Whyte Avenue in its existing configuration and iii) removing parking from Whyte Avenue to add a bicycle lane. Adding a bicycle lane to Whyte Avenue was considered by City planners in September 2012 but the lane would have been constrained by the limits of the road width and already overcrowded pedestrian sidewalks and heavy traffic volumes. It is important to note that none of the solutions considered by the City would have any effect on the volume of vehicular traffic.

Presented for consideration is a proposal in which, in order to provide the necessary roadway for a bicycle lane and maintain, if not improve, the traffic flow that on-street parking be removed from Whyte Avenue between 99 street and 109 street. Reassigning the parking lane for a bicycle lane would also allow for approximately 50-60% of the lane to be developed as an expanded pedestrian walkway. This solution would satisfy the need for improved pedestrian safety, improved bicycle safety and maintain

traffic flow. During winter when bicycle use is minimal, the lane would provide space to facilitate snow removal. The cost of the solution would be the re-allocation of the parking spaces. Simply removing parking spaces is not considered a viable option given the perceived shortage of convenient parking in the area.

Expanding sidewalks would allow safe passage for the heavy pedestrian traffic and the expanded space would provide necessary allowance for the expansion of retail opportunities, such as the inclusion of street vendor kiosks, outdoor patios and cafés, all of which have been proposed as a measure to expand retail opportunities and to take advantage of the long summer evenings during summer festivals and contributing to the festival atmosphere desired in the area.

After consultation with Chris Chan, Executive Director, and Bernadette Blakey, Board Member, of the Edmonton Bicycle Commuters (EBC), Karly Coleman, Vice-President, Recreation & Transportation for the Alberta Bicycle Association (ABA) and Leslie Bush (M.Mgmt student, University of Lethbridge) regarding proposals that have been considered for alleviating traffic-related issues in the corridor, key questions were raised.

It is believed that information regarding transportation and parking habits of visitors to Old Strathcona will be useful to shop owners and retailers by providing insights into the shopping habits of frequent and sporadic visitors to the area. As such, the Old Strathcona Business Association (OSBA) has indicated that this information will assist its members make informed decisions regarding marketing and promotions.

LITERATURE REVIEW

City planning to accommodate increasing population densities in retail centres is an area of intense interest for city planners and consumers. Urban centres in established areas with limited space to expand constantly seek innovative ways to facilitate access to businesses. Where the business area is served by a high volume traffic corridor, there can be added pressure to accommodate traffic flow while providing sufficient parking for motorists.

Issues concerning traffic flow, parking, access and alternative modes of transportation have been studied by academics and urban planners; however, most roadways involve public funds and infrastructure, final decisions to adopt best practices, whatever they may be, often rests with politicians and are therefore subject to corresponding political drivers and restraints. The central question in the current study is how displacing on-street parking in favour of bicycle lanes and widened sidewalks would impact businesses along the Whyte Avenue corridor in the Old Strathcona in the City of Edmonton.

Urban planning, bike lanes and economic impact

Following decades of urban sprawl in cities across North America, main streets have started coming back into prominence. Urban revitalization programs are being developed to attract residents and shoppers to high density retail and residential areas. One of the biggest obstacles in main street revitalization programs has been to accommodate the increased number of vehicles. City planners must balance the increased traffic burden with the economic wellbeing of main street businesses. Parking is a fractured exercise because no one agency controls it [2]. Factors that need to be considered include knowing the actual parking capacity that is available and how it is being used as it is often the case that it is possible to increase efficiency in how current capacity is being used without increasing the number of spots. For example, angle parking is an easy way to increase the number of parking spots.

One of the confounding factors for urban revitalization is accommodating traffic flow and parking in a culture with a high propensity to drive. Consequently, in many revitalization efforts there is a shortage of parking, even though the perceived shortage of parking capacity is not usually as severe as the actual shortage [3]. This indicates that knowledgeable residents and workers can often find parking that is not visible or accessible to non-residents. The implication of this is the same for businesses as if there were an actual shortage in capacity because potential customers will not be able to find necessary parking, resulting in a negative economic impact.

One of the easiest measures to expand parking capacity is to adapt on-street parallel to angle parking. Depending on the roadway configuration, this transition can increase capacity by as much as two-fold; however, shifting from parallel to angle parking has been used as a reflexive approach to increasing parking capacity, particularly in downtown areas trying to increase capacity to compete with suburban areas. In order for this transition to be effective, consideration must be given to safety and visibility. Street width and speed limits influence the potential benefits of angle parking [4]. Edwards (2002) found that angle parking is preferred by some demographic segments that find it easier to enter and exit an angle stall compared to a parallel spot. Traffic volume and speed affects the safety benefits of angle versus parallel parking as the latter can be disruptive to traffic flow and increase anxiety amongst drivers.

Parking is a complex issue because there is rarely a single agency or organization that controls it (2). In urban centres it is not clear who benefits the most and therefore how the related costs should be distributed. There is an increased desire for inner city developments to have expansive yet inexpensive suburban style parking. Consumers in North America do not like to pay for parking and inner city retail centres have a difficult time competing with suburban centres on the basis of parking. It is not clear how much consumers are willing to pay and the respective elasticity of parking supply and demand prior to

the point when customers will stop using a shopping area [5]. In some settings, parking is considered a common good and should be treated as such [6].

Several major centres have initiated moves to remove on-street parking from municipal operations [7]. This started in Chicago and has been adopted in Los Angeles and San Francisco where on-street parking has been displaced to off-street lots. This move has been criticized by some groups as a step toward privatization of a public good [7]. However, parking is not actually free because there are associated expenses for land and upkeep (snow clearance etc). Free parking is considered across North America to be the most beneficial option for businesses, however, consideration must be given by the business as to who will pay for the service. There was a strong perception from the general public that fee-based parking operated by municipalities was merely a cash grab [8].

Suburbs are not governed by the same market constraints as more densely developed areas. The cost of maintaining spaces and the economic benefit of parking should be considered in order to make informed decisions [9]. For example, Van Ommeren, et al. (2009) undertook a study in Amsterdam that looked at the cost of parking from the perspective of the driver [10]. These researchers assessed the comparative costs of paying for parking relative to “cruising” for a free spot. Cruising costs an estimated €1.30 to find a spot and drivers were willing to pay €8.00 for a guaranteed spot. Even though drivers were not aware of the cost of cruising (time plus petrol) in this study, they were willing to pay 6-times more for a guaranteed parking space for the convenience of not having to cruise.

Parking in retail areas generally includes spots close to businesses that provide the greatest convenience for customers but which impose a short time limit to encourage high turnover. Citing six examples of urban revitalization, Nelson & Schrieber (2012) conclude that the evidence has shown that free parking is not necessarily the answer because it will not necessarily generate a positive return for businesses. Time limits in high convenience spots are intended to create turnover, but observations indicate that this is

not the case and if high convenience spots do not turn over, the economic value of the spots are significantly diminished [11].

Following the number of city centre revitalization projects being implemented across the United States and Canada recommendations were developed to outline important characteristics for re-designing main street shopping areas. Recommendations regarding main street revitalization suggests not to split the street in two (such as by running an LRT train down the middle), installing efficient lighting, basic sidewalks and on street parking with speed limits of 22 mph (33 km/h) [12]. The US Access Board has published guidelines regarding sidewalk development in order to incorporate advertising, pedestrian flow and ornamental or retail features. OSBA does not meet these guidelines [13] and these types of traffic calming measures are not feasible for OSBA due to the high traffic volume. Although Brodeur *et al.* (2003) propose that pedestrians like the buffer created by the parked cars, this sentiment is not echoed by the EPS and EMS in Old Strathcona.

Usage and Impact of Bicycle Lanes

Inclusion of bike lanes and expansion of pedestrian walkways is becoming a common feature amongst urban centres in efforts to appeal to environment-conscious consumers and to alleviate pressure on increasingly congested roadways. Increased walking and cycling is a goal of urban planners in the United States. Measures to achieve these goals include traffic calming measures such as wider sidewalks and bike lanes. European cities are being used as examples, where urban development is acknowledged to be one or two decades ahead of the US [14].

Citing reasons that include safety and comfort, people are more inclined to use bike lanes that have no on-street parking. The absence of on-street parking increased bike lane usage preference from 12% of users to 37%; the majority of cyclists (71-85%) preferred to ride on separated lanes or trails [15]. In fact bicycle commuters were found to add time on to their trip in order to use the most desired path options

of separated, off-road trails. Dedicated off road bike lanes are the most desirable, followed by the absence of street parking, with or without a bike lane [16]. In a Texas-based study that assessed the choice of routes for urban cyclists, roadways with on-street parallel parking were found to be the most negative correlate for cyclist lane preferences [17].

In a Minneapolis-based study of 30 discontinuous bike lanes, characteristics that caused the greatest distress amongst cyclists were intersection inconsistencies (e.g. drivers using bike lane as a turning lane), lapsing lanes (lanes that end abruptly) and lanes that run into a parking lane [18]. Even though bicycle lanes have been observed to increase cycling traffic volume, installation of street bicycle lanes did not increase the number of crashes despite increases in cyclist traffic volume. This finding is associated with the safety design for bicycle lanes with features such as continuous on-street bike lanes complemented with “bike boxes” which are recommended as a measure to reduce the number of collisions between vehicles and cyclists attempting to make turns across traffic [19].

City Planners' Views

Although European cities are considered to be 10 to 20 years ahead of North American cities with respect to bicycle-related infrastructure [14] a number of US and Canadian cities have developed and implemented plans to improve bicycle access routes in retail areas.

For example, in the Soho area of New York City it is not common to travel by car: 9% of visitors drove themselves and 9% arrived by taxi. A study of the area found that frequent visitors who tended to walk or cycle spent approximately five times more money than infrequent visitors [20]. The study also noted that on-street parking on Prince Street in Soho was associated with heavy vehicular traffic and that more than 25% of car drivers interviewed at a red light indicated that they were cruising for a parking spot.

In a visitor survey [21] in Bloor West Village in Toronto 21% of visitors reported to drive, which is in contrast with the business owners perception that higher percentages of visitors drive (>50%). The study

also found that drivers were the least frequent visitors to the Village and that customers prone to spending more than \$100 per visit showed a greater inclination to walk or cycle, prefer wide sidewalks and were less inclined to drive.

Consistent findings regarding the value of cyclists and pedestrians as customers have been described for cities in northern Europe, summarized in English with corresponding references on the “Copenhagen” website [22]. In Oslo, Norway 62% of customers in the city centre walked or cycled, 20% took public transit and 17% drove and less than 5% parked on the same street that they shopped. These numbers are in contrast with perceptions of business owners who estimated 42% of customers drove and 39% walked or cycled. The value of customers based on the mode of transportation was calculated in Breda and Utrecht, Netherlands. In each of these cities, motorists displayed the highest per visit spending habits and the lowest frequency of visits. Cyclist and pedestrian groups exhibited lower spending per visit, but coupled with more frequent visits represented customer value more than double that of the motorists, based on calculation of earnings per customer per week.

These results illustrate that bicycles can be a viable mode of transportation and that cyclists are high value customers within the regional context of the projects studied. However, for cycle paths and lanes to be incorporated successfully into urban development consideration must be given to motorists and parking, as demonstrated by the City of Ottawa plans to move parking to encourage more and safer cycling [23]. Parking capacity is to be maintained whenever changes of this sort are implemented. It cannot be done at the expense of reducing parking capacity or convenience. In some areas, the mere perception of reduced parking is sufficient to encumber or inhibit project designs due to political and public pressures.

Plans for the City of Edmonton

The City of Edmonton has been undertaking a comprehensive planning strategy entitled “The Way We Move”. This ambitious plan, first outlined in the 2009 Master Plan [24], contains a forward thinking approach to develop roadways and transit systems and incorporates considerations for alternative modes of transportation. Whyte Avenue has been identified as a corridor of particular interest because of the number and nature of the businesses that it serves and the volume of traffic. Widening of the Avenue to incorporate a bicycle lane or widened sidewalks is not possible due to the established build-up of the area.

The City of Edmonton’s policy [25] to encourage “active” transportation as it strives to become more pedestrian- and cyclist-friendly. ‘Active’ includes any human powered locomotion which is primarily bicycle and foot traffic. Edmonton has a network of 55 km of paved multi-use trails, 6 km of on-street contra-flow lanes, more than 105 km of on-road bike lanes, 6 km of shared bus/bike/taxi lanes and more than 100 km of shared sidewalks and trails. Bicycle parking is an essential element of the bicycle-related infrastructure that has been shown to have a positive impact on increasing the number of cyclists. Education has been identified as an essential part of the roadway and bike lane development plan [26]. Edmonton has published a Bicycle Lanes 2012 report [27] in which it boasts that coordination of several city projects will include extended bicycle lanes and will focus on underserved areas and connectivity with the rest of the bicycle lane and path network.

Within this network, the City is investigating improvements to the Whyte Avenue corridor. At an open house hosted by Tyler Golly of the City of Edmonton and the OSBA, the City presented ideas concerning traffic calming measures including single lane traffic circles, parking restrictions and reduced speed limits. Cyclists at the event recorded a desire for bike lanes, bike corrals to lock bikes, bike boxes at intersections and connecting (continuous) bike lanes [28].

Among the proposals under consideration has been a plan to remove street parking from Whyte Avenue, widen the pedestrian access routes and add a dedicated bicycle lane. In addition to the safety benefits, this proposal is also in part due to the increasing number of requests from OSBA merchants to utilize sidewalks for retail operations, primarily for patio/café seating during peak summer months. Currently, guidelines for street vendors are such that it would be virtually impossible to qualify along Whyte Avenue due to the insufficient sidewalk width [29].

Urban planners in Edmonton are faced with challenges of moving tens of thousands of people in various modes of transportation while maintaining flow and safety of all parties along with the added challenge of appealing to political forces and accommodating election cycles and fluctuating budgets. Issues surrounding urban planning that involves bicycles and other alternative modes of transportation can be emotive and divisive and decisions concerning bicycles are likely to be met with public opposition [30,31].

A Whyte Avenue onsite survey commissioned by the Edmonton Performing Arts Centre Development Corporation and performed by Banister Research & Consulting [32] found that the most common issue of concern from respondents (11%) was that there was “not enough parking/handicap parking/directions to parking/parkade”. A parking inventory conducted by the OSBA (unpublished) found that there is ample parking in the Old Strathcona area to handle the current demand, which suggests that the apparent shortfall may be in the directional signage to lead visitors to parking and a campaign to encourage motorists to use it.

There have been many studies into the factors that encourage cycling in urban centres but few have focused on the economic impact of cycling-friendly infrastructure. There are (at least) two major issues to be addressed in this argument: i) what is the added economic value of accommodating cyclists and

pedestrians as customer groups; and ii) what are the economic costs of displacing parking that could alienate motorists as a customer group.

In order to assess the impact of replacing on-street parking with bicycle lanes and widened sidewalks, data concerning the value of customer segments based on mode of transportation will be informative.

An investigation into the prevalence and value of each customer segment will provide insights to inform decisions regarding investments to accommodate alternative modes of transportation in this corridor.

RESEARCH METHODS

Data for these studies was obtained through a number of means, including secondary research such as searching of business databases, market research reports and archived policy and government documents. Economic impact studies and city plans were accessed via public and proprietary databases or through industry contacts. Primary research included interviews with industry stakeholders and surveys of the general public and business owners.

Secondary research

Secondary research was performed by searching public and proprietary databases via the University of Alberta library system. Literature searches included, but were not limited to, such terms as “street parking”, in conjunction with “pedestrian”, “retail”, “bicycle lane”, “city planning”, “pedestrian+/- volume”, “on-street parking”, “retail + parking”, and each of the preceding with “economic impact”. General searches were performed for information regarding urban development projects and traffic volume issues.

Data regarding traffic volumes and transportation was obtained through municipal databases made available on-line by respective municipalities. The City of Edmonton maintains a searchable web-based archive of many of its revenue generating activities such as metered parking and corresponding traffic flow. Policy documents and urban planning are also available through this service. Data regarding the number of metered stalls was gathered by visual assessment and revenue potential calculated according to hourly and daily rates.

In order to address the financial impact of displacing current on-street parking, the capacity of on-street parking and the proportion of overall capacity represented by Whyte Avenue parking was assessed. The revenue-associated opportunity costs of removing or moving parking was estimated.

Primary research - data gathering approach

Primary research was undertaken using two direct methods:

- i. Semi-structured interviews with stakeholders
- ii. Survey of general public and business owners

Stakeholder interviews were initiated via a targeted and convenience approach to gain access to knowledgeable industry experts and subsequently via a snowball effect, by requesting introduction to others who may be able to provide useful information. Initial connections were based on existing network connections that led to snowballing and introductions being facilitated by interested parties, specifically including representatives in the Old Strathcona Business Association, City of Edmonton, Edmonton Bicycle Commuters, Alberta Bicycle Association and emergency service providers.

In order to gain information regarding patterns of visitors to Old Strathcona, specifically with respect to transportation, primary research was performed to gather rudimentary data regarding the habits of visitors. To do this, a simple questionnaire was constructed for “ambush” interviews of the general public. The survey was designed so as to capture as many respondents as possible with what were identified as the key questions, which were based on how visitors access the area, how frequently they visit and how much money they spend on a typical visit. Questions for the survey were drawn from interviews with stakeholders.

A systematic sampling approach was used. Random approaches were made to persons on the street in the geographic region of interest with care taken to avoid sampling bias resulting from preferentially selecting or avoiding too many people from a given place at one time or if a person could be readily identified as being part of a particular transportation segment, i.e. waiting for a bus or getting out of a car. With these exclusion criteria, sampling criteria was otherwise random.

Further, given the potential differences between business day (M-F, 9:00-5:00) and weekend and evening traffic, samples were taken at various times and days. A minimum of 10 surveys was collected at any given sampling time. A total of 167 surveys was collected over the course of 10 sampling days from 26 Jan 2013 to 17 Feb 2013. Climactic conditions were recorded between -6°C and +4°C. At temperatures below -6°C people on the street were less willing to respond, therefore these limited data were not included in the aggregate.

The questionnaire was designed to be able to be completed while waiting for a typical pedestrian crossing light or a to complete while strolling. This was done to increase the capture rate and to avoid inconveniencing pedestrians during what could be cold weather. No personal data was collected. At the outset of the exercise, respondents were asked to sign an acknowledgement of compliance, until two respondents from the University of Alberta ethics review committee completed surveys. They each commented that collecting a signature, a declaration of identity, for an aggregate dataset shifted the survey from anonymous data to personal data, therefore, without the signature, it did not contravene ethics and only required additional permission after the signature was given. Therefore, from that point forward, respondents were not asked for signatures or any other features that could indicate identity.

A copy of the survey is attached in Appendix 1. In brief, respondents were asked their mode of transportation, where they parked (if they drove), how much time and money they spent on their visit that day and how frequently they visit the Old Strathcona neighborhood. A subjective question was included regarding the *preferred* mode of transportation. Given that the survey was performed in February when it was dark and cold, the question was intended to gain insights into how the data would be reflected if the same questions were asked during the summer.

A similar survey was developed for retailers (Appendix 2). There is a finite number of retail and service operations along Whyte Avenue. An initial scan yielded the following categories: cafes, nightclubs,

restaurants, clothing, books, general retail. The initial intention was to gather responses from a minimum of ten businesses of each type of operation, however, consensus was achieved early in the process and data gathering was terminated and deemed to not be informative for the current study. This conclusion was consolidated following an interview with the Executive Director of the OSBA who confirmed the observed consensus among the businesses and the difficulty obtaining meaningful data regarding how their clientele access their stores without actually interviewing customers while inside the store. Logistics for this type of study would require the cooperation of business owners and extend beyond the scope and time bounds of the current project.

The third component of primary research was a visual assessment of parking availability on Whyte Avenue between 99 street and 109 street. This was performed by counting the number of marked parking stalls, hours of operation, rates and exclusion times.

Data Analysis

Interview data was collected by handwritten notes and transcribed immediately following the interview. Survey data was collected and collated in an Excel database according to the question headings. Pivot tables were used to generate data regarding correlative associations between responses to one of more query subject. The database is maintained in electronic form and is available for review.

Calculation of Customer Value

Correlational analyses were undertaken to investigate the association between the frequency of visits with the mode of transportation and the amount of money spent on a typical visit. From these data, an estimate of customer annual value was calculated. In order to estimate customer value from these data, mid-point values were assigned for each spending range values multiplied by the frequency of visitation. The minimum time period was once year in order to capture visitors who indicated that they visit rarely or once per year (Table 1).

Indicated Spending Range	Assigned value (\$)	Frequency of visitation	Equivalent annual visits
none	0	Frequently	52
Less than \$20	10	Regularly	24
\$20-\$50	35	Occasionally	12
\$50-\$100	75	Rarely	1
More than \$100	150		

Table 1. Values and terms for calculation of annual customer value.

RESULTS

Plans Under Consideration

The Whyte Avenue corridor between 99 street and 109 street has 103 metered on-street parking stalls on the westbound (north) side and 100 stalls on the eastbound (south) side. The avenue is classified as a medium parking zone by the City of Edmonton with rates of \$3.00 per hour from 09:00 to 18:00 on weekdays and \$1.00 per hour on Saturdays to a maximum of two consecutive hours on these days. After 18:00 on weekdays and Saturdays and all day on Sunday and holidays there is no charge for parking. Friday and Saturday evenings are black out times during which the meters are covered by Edmonton Police Services (EPS) to indicate that no parking is allowed between midnight and 06:00 a.m. This section of Whyte Avenue sees a daily traffic count in excess of 30,000 vehicles [1].

Plans regarding development of the area and key issues for commuters, shoppers and businesses were obtained through interviews with representatives of the Edmonton Bicycle Commuters (EBC), the Alberta Bicycle Association (ABA) and the Old Strathcona Business Association (OSBA) and by attendance at a public forum hosted by the City of Edmonton. Appendix 3 shows a list of interviewees. The Old Strathcona Business Association (OSBA) has a mandate of business advocacy for its members in every day, year-round businesses, as well as accommodating the many festivals in the area throughout the year.

There was a consensus from all stakeholders interviewed that there is need to improve the safety and access for all visitors and commuters to and through Old Strathcona regardless of the mode of transportation. The OSBA has been working with City Planners and revealed various options under consideration: moving bicycle traffic off of the Whyte Avenue corridor appears to be the favoured option [28]. A dedicated bi-directional bicycle lane proposed for 83rd Avenue is the preferred plan which would require altering vehicular traffic on this avenue as well as installing traffic diverting devices. According to

bicycle transportation advocates, this appears on the surface to be a reasonable plan but it does not consider that cyclists currently have access to 83rd Avenue and choose to use Whyte Avenue despite the increased risks involved with the heavy vehicular traffic.

In Edmonton, residential bike lanes to improve safety in high volume traffic corridors have been met with public outcry and a reflexive political backlash [33]. This situation appears to exemplify challenges in City wherein there is low public interest during initial planning phases but becomes pronounced when an implementation plans unveil a disruption to entrenched patterns of behavior. At the public forum regarding the Old Strathcona transportation plan at which the 83rd Avenue bicycle lane was proposed as a viable option, there was little if any opposition raised from residents or local businesses; however, dissenters have often waited to register complaints until after plans have passed through the public engagement phase [33].

Considerations regarding removing or displacing parking

OSBA Executive Director Murray Davidson stated that the general perception of shop owners is that they feel strongly about the necessity for on-street parking, even though there is no direct evidence to support this perception. Mr Davidson indicated that removing street parking has been considered with the obligation that the number of stalls not be decreased. He also stated that one of the problems with parking in the area may be due to public awareness of currently available parking. The OSBA is working to improve awareness of available off-street parking.

The common factor echoed by all stakeholder respondents was that removing parking should not be considered unless an equal or greater capacity could be provided with a similar level of convenience. Mr. Davison indicated that the OSBA has presented a plan to replace on-street parking from Whyte Avenue to metered, angle parking stalls one block south of Whyte Avenue. This shift would increase the number of available parking spots as well as maintaining or increasing potential revenues for the City.

Transportation-related drivers and restraints

There is general consensus that traffic flow is a problem in the area related to the volume of cars, bicycles and pedestrians. As indicated in stakeholder interviews, key market drivers concerning change to traffic flow patterns related to access and safety. Access extends to all modes of transportation including motorists, but is most prevalent a concern for cyclists and pedestrians. Concerns regarding access for public transit users were captured in the issues relating to those for pedestrians. In winter access and safety issues for pedestrians involve cleared sidewalks (from slush and snow) and foot traffic volumes in nicer weather. Issues for cyclists involve difficulties navigating amongst heavy vehicular traffic and limited sites to lock a bicycle.

Safety is also an issue for all visitors according to the EPS and OSBA, which has led to the removal of street parking from Whyte Avenue between midnight and 6:00 a.m. Friday and Saturday evenings. This measure is to allow greater visibility of pedestrians by drivers, to allow safer pick-ups by taxis, EPS and Emergency Medical Services (EMS) and to create a buffer zone for potential spillover for pedestrians who have “made bad decisions”.

All persons interviewed indicated that safety and access were of paramount importance. There was also consensus that removing parking was not an imperative for any business or advocacy group, but that any plan to adopt changes in traffic flow and parking must consider that the best option for travel should be the easiest one to use so as to avoid shortcutting or having groups at cross purposes. – i.e. that the good choice is the easy choice. To illustrate this point, Karly Coleman, VP Recreation & Transportation of the ABA, indicated that any bicycle lanes implemented in the area should not have “contra-flow” or two-way cycling traffic that would require cyclists to ride against the flow of vehicular traffic and possibly require that cyclists cross the street at discontinuous junctions. It is too complicated and would require too much training and compliance. People would be unlikely to adopt it therefore the resulting effect

could be contrary to its intended objectives. Ms. Coleman also indicated that the simplest solution is to have a bicycle lane that runs along the inside lane of traffic and does not cross traffic. In order to make left turns a cyclist would be required to cross the intersection in the original direction of travel, then cross in the second direction after joining the flow of traffic in the appropriate bicycle lane or curb lane.

Options have been considered that involve removing metered parking from Whyte Avenue. Removing meters between 99th Street and 109th Street could cost the City up to \$1.99 million per year in lost revenues, however the City would not be required to pay teams of EPS officers to cover the meters on weekend evenings and the City would save the expenses related to maintaining the meters and collecting and sorting coins.

Mr. Davison advised that the OSBA has proposed to the City a plan to install angled parking meters on 81st Avenue with a total capacity that would exceed that which is currently available on Whyte Avenue. Therefore, potential lost revenues from the removed meters on Whyte Avenue would be gained from meters in the new location. Further, there is an opportunity for the City to coordinate the relocation of meters with the installation of new meters that do not require the use of coins and would substantially reduce the expenses associated with meter operations.

As noted above, there is a very strong perception by shop owners that parking on Whyte is essential, but there is little evidence to support this perception. Retailers were surveyed to obtain information regarding how customers access their businesses and the importance of on-street parking. It was immediately evident that unless shops had dedicated customer parking, retailers could not determine with confidence how their customers arrived in the neighbourhood. All respondents indicated that removing street parking would hurt their business despite not knowing if any of their customers used it.

When asked if they could make use of the space in front of their shop if parking were removed and the sidewalk as expanded, all retailers replied that they would take advantage of the opportunity to expand

into the outdoor space. Examples given include advertising, retail (e.g. “summer sidewalk sales”) and café/patios.

Visitor Trends & Transportation Modalities

In order to gain an understanding of customer habits, a survey was conducted to gather information regarding mode of transportation (actual and preferred), spending habits and frequency of visits. As shown in Figure 1A, motorists represent the highest percentage of visitors to Old Strathcona (38%), followed by pedestrians¹ (32%) and public transit (25%). The ‘other’ category includes persons who were dropped off in the area. Of the 38% of visitors who drove, 47% parked on streets other than Whyte Avenue, 37% utilized off-street parking lots and 16% used metered parking on Whyte Avenue. The latter group represents 6% of the overall visitors to Old Strathcona² (Figure 1B)

Given that the survey was performed in February and few cyclists were observed and only one was captured in the survey sample, respondents were asked for their preferred mode of transportation. As shown in Figure 1C, 7% of respondents indicated bicycle as a preferred mode of transportation. This observation is consistent with an observed prevalence of cyclists of 6% in a City of Edmonton traffic survey conducted during summer months [34].

From the data in the current study, it was possible to ascertain which segment in the winter survey contains the cyclists. Pedestrians and public transit users were the most cycling-inclined and 18% of motorists preferred to cycle (Figure 1D). These results suggest that increased cycling accessibility would not significantly alleviate the burden caused by traffic volume or lessen the need for parking capacity.

¹ Note that “pedestrian” refers to a visitor who arrived on foot, not someone who parked and walked.

² With an average party size of 2.1 per vehicle, this number does not reflect the number of cars.

Frequency and Duration of Visits

With respect to frequency of visitation, 79% of pedestrians and 60% of public transit users indicated that they visit more than once per week, whereas 29% motorists indicated frequent visits and were as likely to be regular, occasional or rare visitors to the area (Figure 2A). When considering preferred mode of transportation (Figure 2B), 72% of cyclists are frequent and 28% are regular visitors. From these data, it appears that pedestrians and cyclists represent the most loyal customer segments with the highest visitation frequencies.

Figure 3A shows the duration visits for each transportation modality. Public transit users do not appear to make short visits (under 30 minutes) and no group indicated higher than 10% of visitors in the 3 to 5 hour range. Motorists were less inclined to visit longer than 3 hours, whereas more than 20% of each of the pedestrian and public transit segments indicated visits in excess of 5 hours. When considering the preferred mode of transportation, cyclists showed an even percentage of visits between 1 to 2 hours and more than 5 hours. Respondents in each of the modality groups displayed a pattern approximately normally distributed around 1 to 2 hours, with another segment who stayed for extended periods of time. It is possible that visitors in the 'greater than 5 hour' category could include employees of businesses in the area and/or patrons of pubs and clubs; both of these groups represent visitors less inclined to drive.

With respect to the amount of money spent per visit, pedestrians, public transit users and cyclists were more inclined to spend less money than motorists (Figure 4A & 4B). Although there is not sufficient statistical power in the current study to draw firm conclusions, pedestrian and motorist segments resembled near normal distribution with greater variance amongst the motorist segment which displayed a fatter tail in the higher spending range. The projected spending patterns of cyclists resembles that of pedestrians (Figure 4B).

Customer Value by Transportation Modality

As indicated above, there is a strong *perception* of a need for on-street parking on Whyte Avenue. This perception was echoed by all respondents of the retailer surveys in the current study. Studies in other municipalities suggest that this may not be a valid conclusion. To test this assumption, a survey was conducted to assess how people access the area and associated spending habits. Customer value in each segment was calculated based on the frequency of visits and amount of money spent per visit.

Results from the data obtained in the current study indicate that visitors who used public transit represent the highest value customers at \$1875 per year, followed by pedestrians at \$1595. Motorists were the lowest value customers at \$1354. These results can be explained by the frequency of visitation; although a higher percentage of drivers spend in excess of \$100 per visit than other segments (Figure 5A), this modality segment was less likely to visit frequently and more likely to visit rarely (Figure 2). Contrary to motorists, walkers and public transit users were inclined to visit frequently which translates to higher overall customer value over the year.

Using the parameters indicated above, customer value was calculated according to preferred mode of transportation. As shown in Figure 5A (red bars), the cyclist segment is valued at \$1947 per year which represents the highest value segment. Under the “preferred” modality segmentation, walkers were valued second highest at \$1770, public transit at \$1631. Motorists represent the lowest value customer segment at \$1221 per year. These results indicate that those visitors who prefer cycling as a mode of transportation are the highest value customers whether they ride their bikes or not. This high value segment is absorbed by the other segments during the winter months (Figure 1C).

Modality	Annual value		Preferred Modality	Annual Value		Parking Location	Annual Value
walk	\$1595		walk	\$1770		on street, off Whyte	\$930
drive	\$1354		drive	\$1221		on Whyte	\$536
bus	\$1875		bus	\$1631		off-street lot	\$1986
			bicycle	\$1947			

Table 2. Annual customer value by transportation modality.

When the motorist segment of customers was broken down further according to the parking location, the relative customer value of those who used off-street parking lots were the highest value sub-segment at \$1986 per year. Motorists who parked on street, whether off or on Whyte Avenue were valued significantly lower, at \$930 and \$536 per year, respectively. Therefore, these data indicate that the relative customer value of a visitor to Old Strathcona who parks in the metered stalls on Whyte Avenue represents the lowest value customer of all segments evaluated.

Overall contribution to customer value was calculated according to the prevalence of each transportation modality (Figure 1C) and corresponding customer value (Table 2). Figure 6 shows the contribution of each modality segment to overall customer value. Pedestrians, cyclists and public transit users constitute 67.9% of customer value and 32.1% was contributed by motorists. The segment who parks on Whyte contributes 2.0% to overall customer value. These data suggest that the economic impact of street parking on Whyte Avenue is not as profound as all of the other segments and that it may be dispensable in favour of other segments with a greater positive economic impact.

DISCUSSION

Implications of the Current Study

The perception that parking on Whyte Avenue is essential for businesses in Old Strathcona is not supported by the evidence presented in the current study. Motorists who park on Whyte Avenue represent 6% of overall visitors, 2% of customer value and are the lowest value customers. Therefore, the high convenience segment may not provide sufficient economic benefit to Old Strathcona businesses to warrant the cost of maintaining on-street parking on Whyte Avenue. Removal of parking to an adjacent street could maintain or improve parking revenues for the City and the vacated curb lane would provide opportunity to improve traffic flow for modalities of active transportation such as bike lanes, as well as possible expansion of the sidewalk for street vendors and cafes.

In fact removing street parking would upset the smallest and lowest value customer segment. Further, if parking capacity is maintained or expanded by moving metered street parking one block to the south, there should be little, if any, disruption to Whyte Avenue businesses. If removing street parking enhances the visitor experience, safety and accessibility of the high value customers segment, it may prove to be beneficial for businesses. For example, expanding existing sidewalks would provide wider access and outdoor retail opportunities. These types of improvements are in keeping with the guidelines proposed by the US Access Board with respect to minimum sidewalk widths for pedestrian traffic flow and inclusion of advertising, retail and ornamental features [13]. Removal of street parking would bypass the need for teams of police officers to block off meters every weekend evening prior to the black out times. The EPS would have greater visibility and access for pick-ups and would reduce costs associated with the regular temporary parking bans.

If motorists who park on Whyte Avenue represent 6% of shoppers and 2% of value, it could be argued that more resources should be devoted to the existing high value per visit customers so that they visit

more frequently. Alternatively, the current parking arrangement is possibly influencing customer behavior. Given that the majority of weekday street parking spots in Old Strathcona have time limits and that motorists who use on-street parking (whether on or off Whyte) are low value segments, efforts should be made to draw customers in for longer visits and conversely, less effort should be made to accommodate short term visitors. This is the approach taken in the off-street parking lots that allow longer parking times allowed than at metered stalls. The convenience of parking close to shops leads to a behavior known as 'cruising' for parking spots, which in turn increases traffic flow and carries increase risks. Reducing street parking will also reduce the amount of cruising.

Catering to High Value Customers

Results obtained in the present study are consistent with the notion that pedestrians, public transit users and cyclists represent high value customers due to the frequency of their visits. Even though the amount spent per visit may be lower than less frequent visitors, the annual value is greater because of the cumulative number of visits. High frequency of visits also reflects customer loyalty. It is important to note that customer loyalty and value are associated with the business district as a whole and not to a given store or outlet. Consequently, efforts to attract and maintain these customer segments should be undertaken by all businesses in the area. For example, the OSBA may use this information to address the concerns of pedestrians and facilitate their visits in order to capture as much of their business as possible. Also with the expectation that more pedestrians could be attracted to use the shops and services provided by OSBA member businesses, encouraging more pedestrians and cyclists may increase the number of high value customers.

Visitors who drove have 85% of the annual value as one who walks and 72% of one who uses public transportation. Therefore, the lowest value modality segment carries the highest associated maintenance costs. Walkers cost the least to maintain and public transit users would cost more than

walkers but considerably less than drivers. This argument does not apply argument all segments of motorists: although these data indicate that drivers as a whole represent the lowest value customers further segmentation of that group indicates that drivers who parked in off-street parking lots were the highest value customers amongst motorists and the highest value customers overall. If this phenomenon is due to longer visits or more frequent visits, it would suggest that encouraging more off-street parking could extend visits or increase the number of visits for high value motorists and thereby increase the annual value of these customers.

Overall observations in the current study may be the result of less frequent visitors not knowing the location of off-street parking lots and that on-street parking is merely a matter of convenience. Mr. Davison of the OSBA indicated that signage to promote awareness and improve directionality is needed throughout the business area.

The frequency of visits is the predominant differentiating factor for the higher visitor value: people who travel by bus or walk tend to visit more frequently and therefore spend more money over a given time period. From the current study it appears that other factors also influence the amount of money per spent per visit such as time of day and day of week. Patrons of pubs and clubs tend to visit frequently, spend money and do not drive when they visit.

If a more accurate assessment of customer value is desired, further study to refine the data regarding the amount of money spent would be informative along with a specific breakdown of the time of day studies (e.g. pubs & clubs, festivals etc.) to ascertain trends and economic values of the various visitor and customer segments.

Adopting and Communicating the Benefits of Change

From these studies and with data gathered by the OSBA, there is no conclusive argument that suggests removing street parking from Whyte Avenue would be detrimental to OSBA businesses. In fact, there is a

likelihood that removing street parking from Whyte Avenue to accessible off-street lots and/or metered parking on a less busy street could have a positive benefit for businesses. However, if there is any plan to move parking, it must be communicated in manner that emphasizes the benefit to motorists in order to avoid a public outcry and potential political backlash.

There is general agreement that there is a problem regarding safety and access related to traffic flow and there is also agreement that any changes to traffic flow will require a demonstrable benefit to motorists. In recent examples in the City of Edmonton, traffic calming measures and inclusion of bicycle lanes have been met with approval in early phases of planning but have become the object of vocal opposition at the implementation phase, particularly if motorists are inconvenienced.

Based on published observations and sentiments expressed by cycling advocacy groups in Edmonton, implementing a dedicated bicycle lane on Whyte Avenue would not be widely adopted by cyclists unless street parking was also removed. Studies have shown that a dedicated bike lane alongside parallel parking is not as effective as simply removing parking, although removing parking *and* adding a bike lane leads to the widest adoption across the widest age and gender demographics.

Therefore, if removing parking is sufficient to provide greater safety for cyclists and pedestrians, this may represent a politically safe alternative so as to avoid the appearance that cyclists are gaining something at the expense of motorists. Removing on-street parking would also provide unfettered visibility and access for emergency services. According to EPS personnel, the exclusion times are to facilitate pick-ups by taxis and emergency medical services of clientele exiting the bars and nightclubs and to improve visibility of and for patrons who require assistance and/or who enter the roadway.

The culture of motorists involves a significant restraint to change, therefore there must be political will. It is difficult to endorse a plan that involves change unless there is a clearly demonstrated benefit to motorists. Overcoming inertia is also a restraint, as there is resistance to change from current activities.

This notion is supported by the observation that all business owners surveyed indicated that it would be detrimental to their business if street parking were removed although none had evidence to support that conclusion.

Other municipalities including Toronto, Ottawa, New York, have recently undertaken neighbourhood revitalization initiatives that involve replacing existing parking and/or including bicycle lanes [20,21,23]. In projects where there is a decrease in parking or even a perceived decrease in parking, there have been public backlashes. As shown in New York City where Mayor Michael Bloomberg has advocated for bike lanes but is under threat of having his decisions reversed by his successor [35].

Even though the data presented herein indicate that removing parking from Whyte Avenue would inconvenience the lowest value customer for Old Strathcona businesses and could even provide a net benefit to businesses in the area, any plan to change traffic or parking patterns would have to be done in such a way as to promote the benefits to drivers. For example, more parking within convenient walking distance of shops. This may also encourage motorists to visit the area more frequently and thereby increase the amount of money injected into neighborhood businesses, i.e. increasing the value of this customer segment by shifting the segment from low to high value.

Concluding remarks

In conclusion, providing that overall parking capacity is not reduced, removing on-street metered parking from Whyte Avenue would not have a negative impact on businesses. If removing Whyte Avenue parking enhances the experience of pedestrians and cyclists, it will provide a positive benefit to businesses. The benefit will be further enhanced if motorists increase the frequency of visits with convenient and accessible parking provided by off-street parking lots and metered parking on less busy roads.

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APPENDICES

Appendix 1. Survey for general public

Appendix 2. Questionnaire for retailers

Appendix 3. List of contacts for primary research

Appendix 4.1. Figure 1, Actual and preferred modes of transportation for visitors to Old Strathcona, February 2013.

Appendix 4.2 Figure 2, Frequency of visits to Old Strathcona based on actual (Panel A) and preferred (Panel B) modes of transportation, February 2013.

Appendix 4.3 Figure 3, Duration of visits to Old Strathcona based on actual (Panel A) and preferred (Panel B) modes of transportation, February 2013.

Appendix 4.4 Figure 4, Spending during visits to Old Strathcona based on actual (Panel A) and preferred (Panel B) modes of transportation, February 2013.

Appendix 4.5 Figure 5, Annual customer value according to actual and preferred mode of transportation (Panel A) and parking location (Panel B), February 2013.

Appendix 4.6 Figure 6, Overall contribution to customer value based on prevalence and segment annual value.



Public Survey

My name is **Michael Pinkoski**. I am student in the EMBA program at the University of Alberta, School of Business, taking the course "Project Course – Leadership Practicum" (BUS 880/885). I would like to invite you to participate in a study about *transportation and businesses in Old Strathcona*. The survey should take less than 5 minutes.

1. How did you get here today?
 - a. Car (see 1a)
 - b. public transit
 - c. walk
 - d. bicycle
 - e. other
- 1a. If you drove, where did you park?
2. How much time do you expect to spend during your visit to Old Strathcona today?
3. What types of shops and services do you expect to visit?
 - a. clothing
 - b. food
 - c. pubs & clubs
 - d. theatre
 - e. services
 - f. general shopping
 - g. other
4. How much money have you spent today?
 - a. none
 - b. less than \$20
 - c. between \$20 and \$50
 - d. between \$50 and \$100
 - e. more than \$100
5. How much money do you expect to spend during your visit today?
 - f. none
 - g. less than \$20
 - h. between \$20 and \$50
 - i. between \$50 and \$100
 - j. more than \$100
6. How often do you visit Old Strathcona?
 - a. rarely – less than once (1) per month
 - b. occasionally – about once (1) per month
 - c. regularly – two (2) to four (4) times per month
 - d. frequently – at least once (1) per week
7. What is your preferred mode of transportation when visiting Old Strathcona?
 - a. car
 - b. public transit
 - c. taxi
 - d. walk
 - e. bicycle
 - f. other

Appendix 1. Public Survey



Retailer Survey

My name is **Michael Pinkoski**. I am student in the EMBA program at the University of Alberta, School of Business, taking the course "Project Course – Leadership Practicum" (BUS 880/885). I would like to invite you to participate in a study about *transportation and businesses in Old Strathcona*. The survey should take less than 5 minutes.

1. How did you get here today?
 - a. Car (see 1a)
 - b. public transit
 - c. walk
 - d. bicycle
 - e. other
- 1a. If you drove, where did you park?
2. How do you staff get to work?
2. Do you have dedicated parking for staff?
3. Do you have dedicated parking for customers?
4. Do you have a dedicated loading area?
5. How do people access your business?
Choose or rank
 - a. Walk
 - b. Bicycle
 - c. Car
 - d. Public transit
 - e. Taxi
 - f. A combination of the above
5. If the space in front of your business were not used for parking, could you make use of the space?
6. If you could utilize the area in front of your business, what would you do (if anything)?
7. In your view, who makes the most frequent visits to your business: pedestrians, cyclists, motorists or other (bus/taxi)?
8. In your view, who spends the most money at your business: pedestrians, cyclists or motorists or other (bus/taxi)?
14. Would you like to see on-street parking removed from Whyte Avenue (yes/no/don't care)?
15. What is the size of your business
 - # employees
 - square footage
16. What is the nature of your business?
 - a. Attraction
 - b. Food
 - c. Health & Wellness
 - d. Hotels & Accommodation
 - e. Music
 - f. Pubs & Clubs
 - g. Schools & Educational Services
 - h. Services
 - i. Shopping
 - j. Theatre

Appendix 2. Retailer Survey

Stakeholder	Organization	Position
Chris Chan	Edmonton Bicycle Commuters	Executive Director
Bernadette Blakey	Edmonton Bicycle Commuters	Director
Karly Coleman	Alberta Bicycle Association	Vice President, Recreation & Transportation
Andy Holmwood	Alberta Bicycle Association	President
Leslie Bush	University of Lethbridge	M.Mgmt Student
Murray Davison	Old Strathcona Business Association	Executive Director
Officers	Edmonton Police Service	

Appendix 3. Stakeholders interviewed

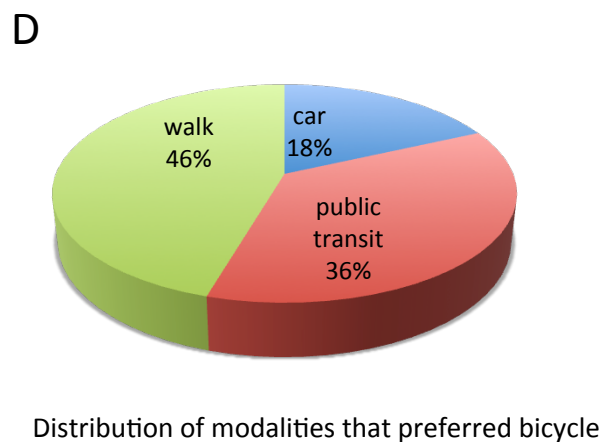
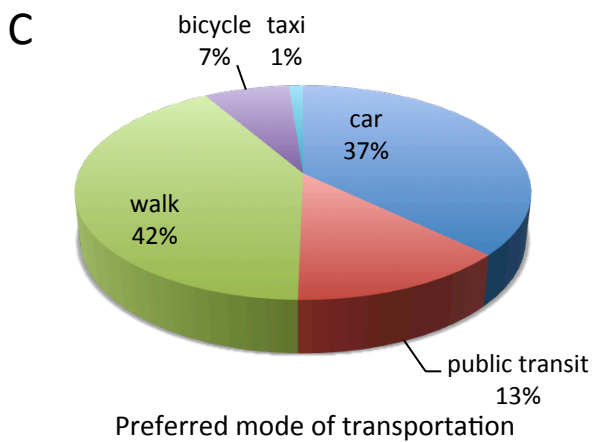
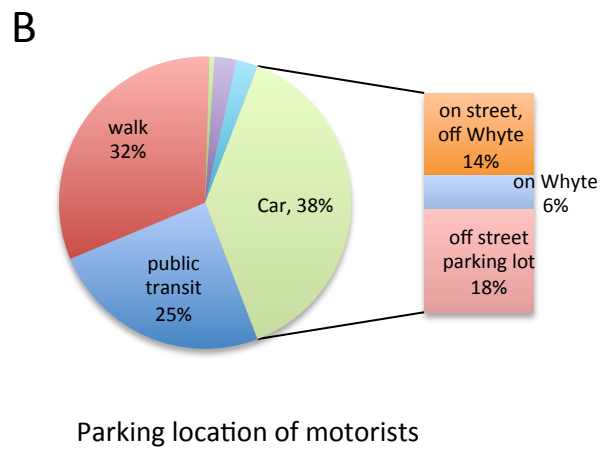
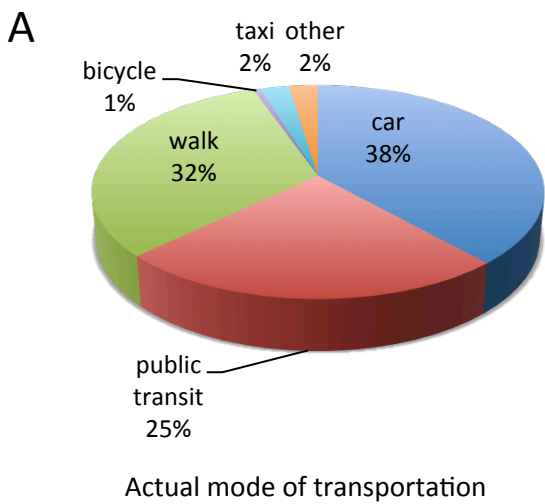


Figure 1. Actual and preferred modes of transportation for visitors to Old Strathcona, February 2013.

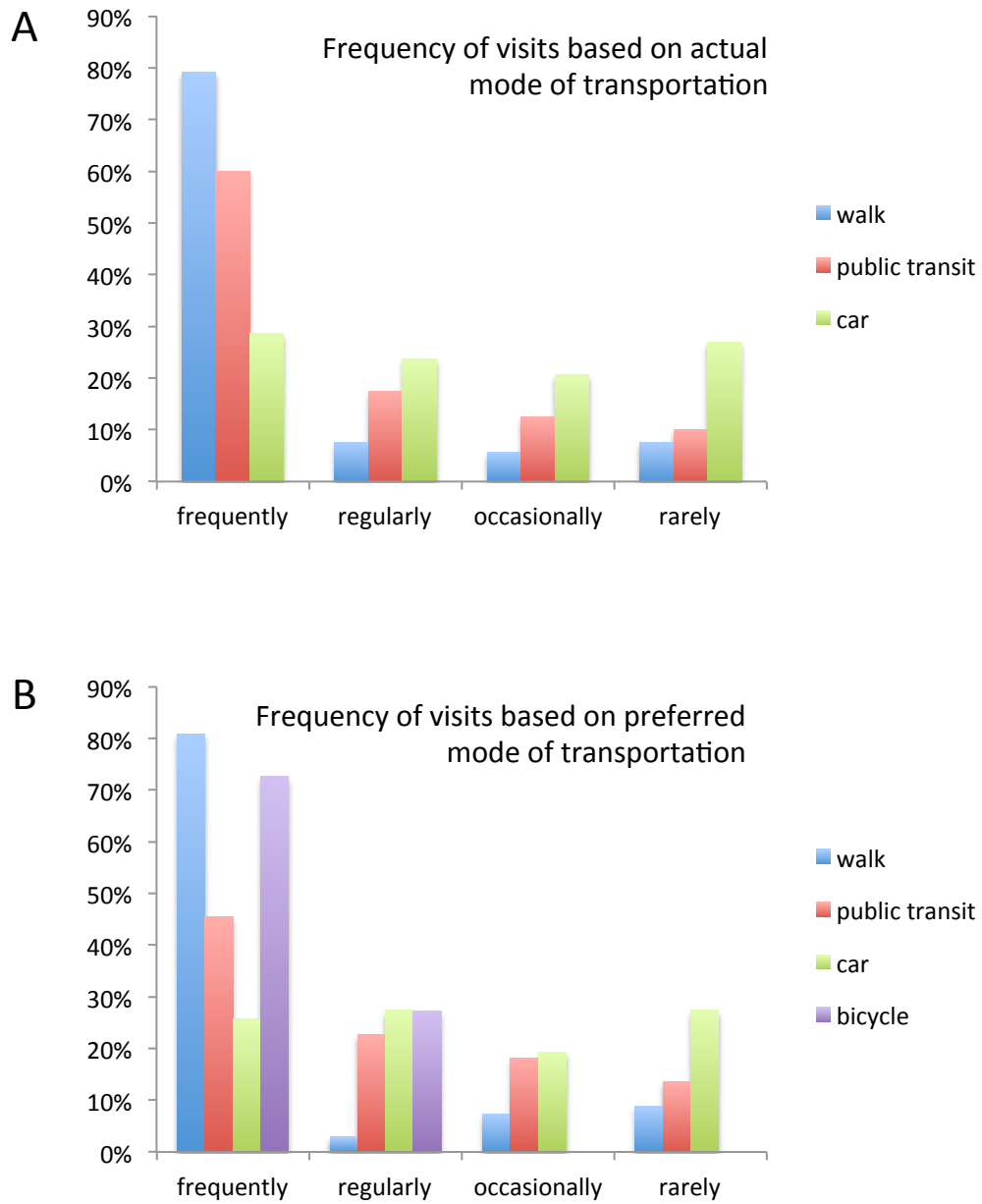


Figure 2. Frequency of visits to Old Strathcona based on actual (Panel A) and preferred (Panel B) modes of transportation, February 2013.

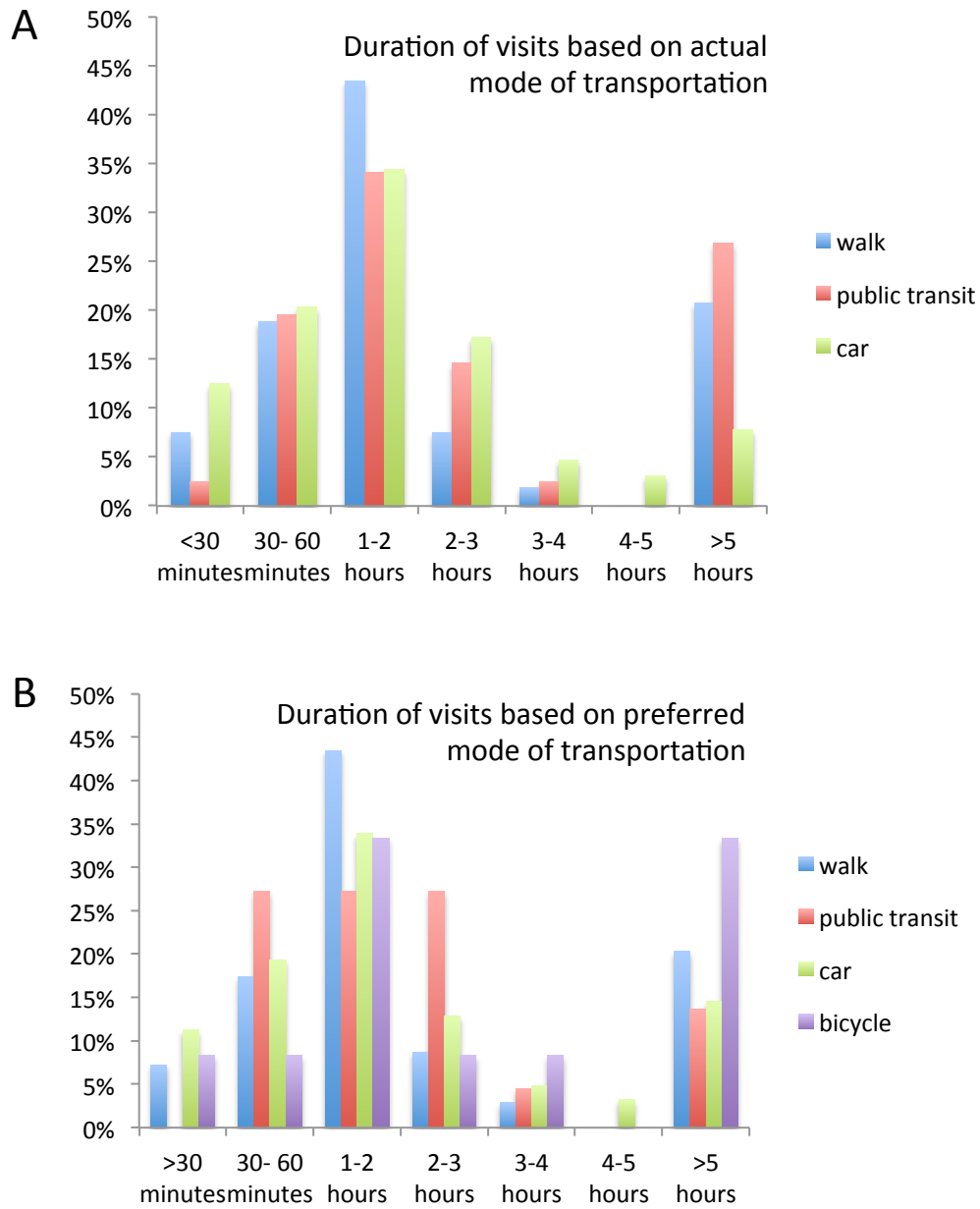


Figure 3. Duration of visits to Old Strathcona based on actual (Panel A) and preferred (Panel B) modes of transportation, February 2013.

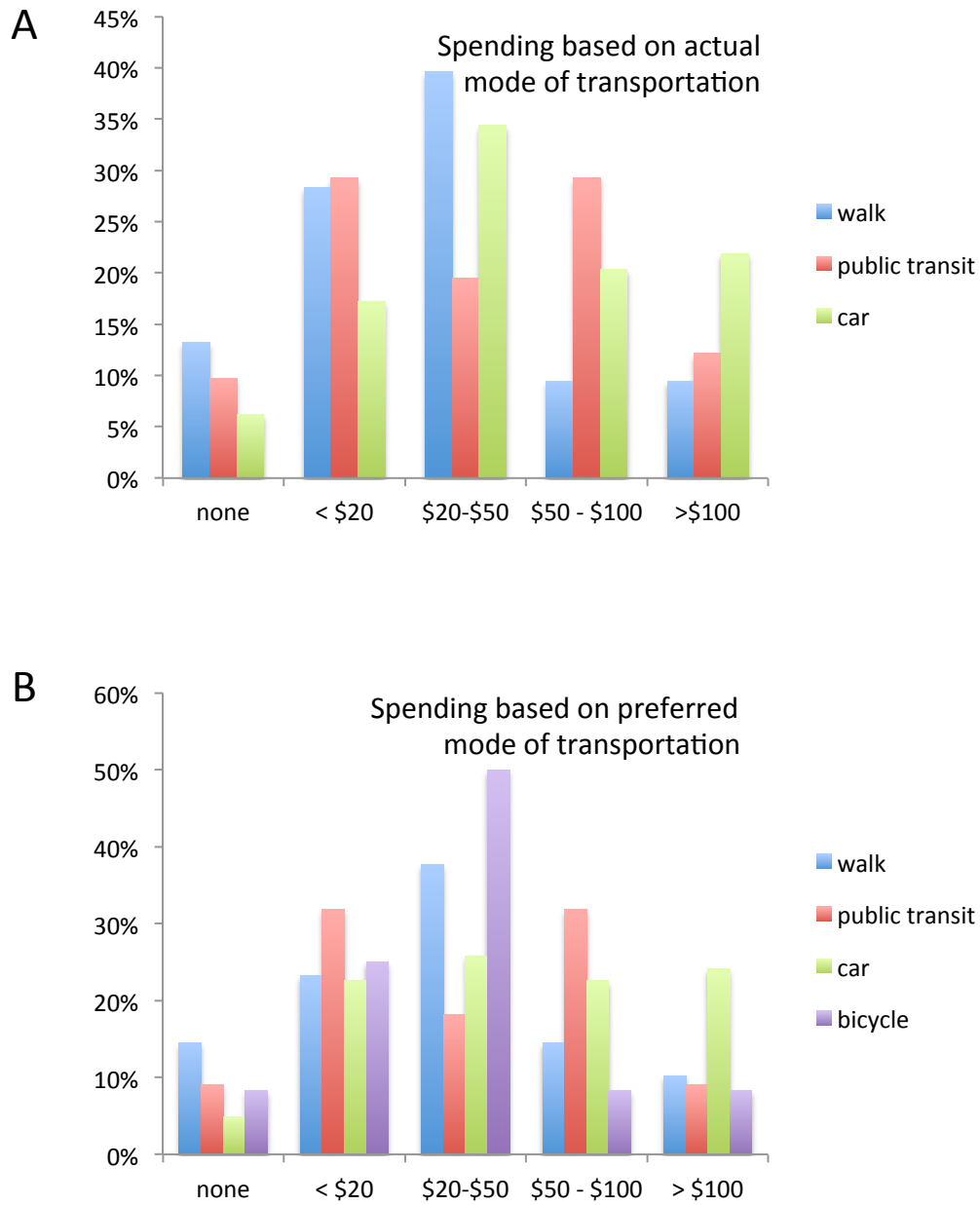


Figure 4. Spending during visits to Old Strathcona based on actual (Panel A) and preferred (Panel B) modes of transportation, February 2013.

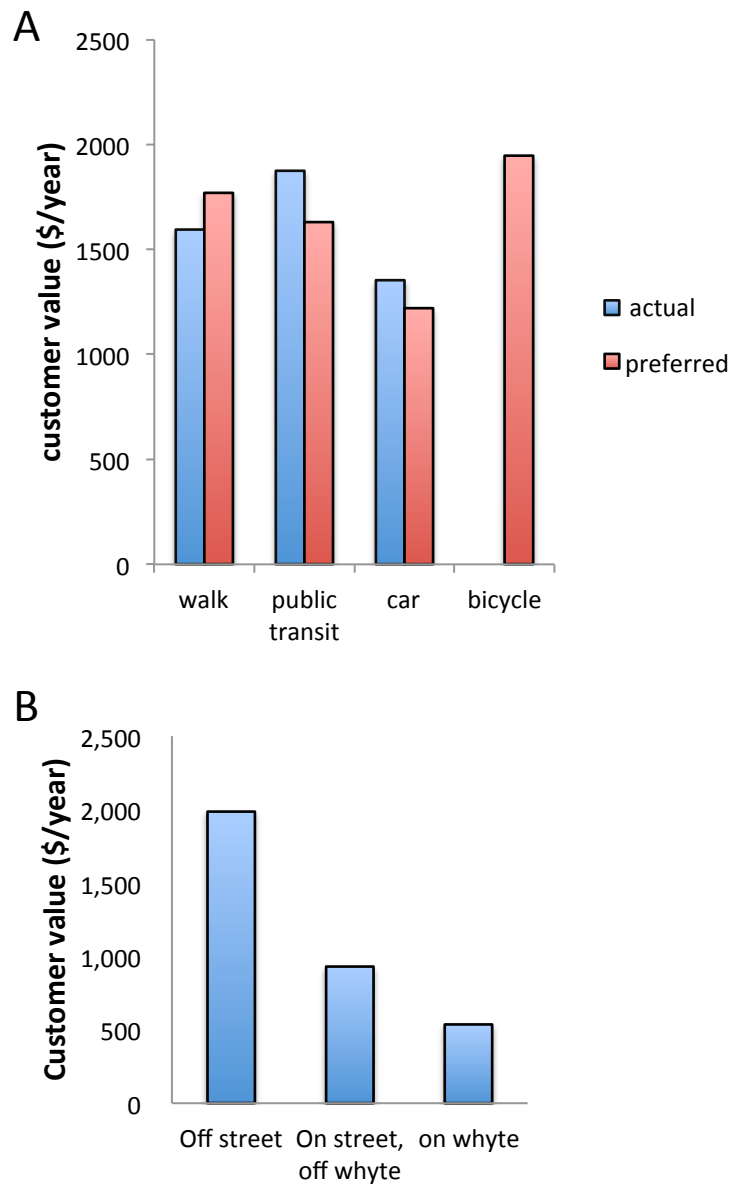


Figure 5. Annual customer value according to actual and preferred mode of transportation (Panel A) and parking location (Panel B), February 2013.

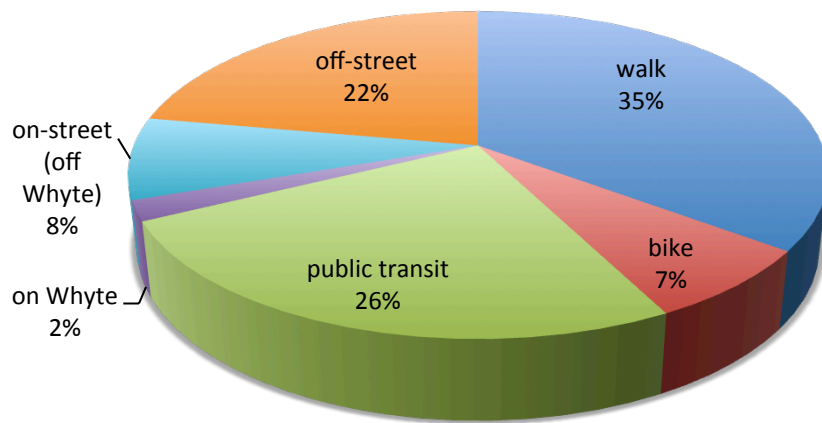


Figure 6. Overall contribution to customer value based on prevalence and segment annual value.

