



A Review of Calgary Transit **PARK AND RIDE**

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EXECUTIVE SUMMARY

In Calgary, thirty three park and ride lots are provided at LRT stations and at some major bus terminals. In total there are spaces for 17,494 park and ride customers who make up about 15 percent of CTrain customers who value the convenience and cost savings of driving their car for some portion of their trip. For the majority of CTrain customers, connecting bus service is the most common LRT and BRT access mode while walking and cycling are also important. The primary focus of this report is to provide an overview of park and ride history, benefits, current management challenges, particularly those related to Transit Oriented Development (TOD) and the current reserved parking policy and to address questions about the supply of park and ride facilities at CTrain stations.

HISTORY AND CURRENT POLICIES

Park and ride facilities have been provided for Calgary Transit customers to enable access to higher order transit service since the mid-1970s when parking was provided for 'Blue Arrow' bus service customers at what is now Heritage Station. The number of park and ride lots was expanded as the Blue Arrow bus services were extended to northeast and northwest Calgary and these lots now serve LRT stations. When it was introduced, park and ride was considered to be an important means of attracting customers to transit during an era when transit use was declining and auto use and traffic congestion were growing rapidly, particularly for downtown commuter travel. In 1986, following a series of reports, Council approved policy guidelines that called for park and ride to be provided to serve between 15 to 20 percent of customers accessing LRT service. These policy guidelines included reference to:

- Providing a balance of LRT access modes with consideration given to serving the largest possible market with emphasis on attracting trips on local feeder buses.
- Attracting those who may not otherwise use transit.
- Not placing a financial burden on the transit system.
- Providing park and ride outside of a five kilometre radius of the downtown.
- The need to determine the size of each lot based on the size of the station service area, capacity of adjacent roadways and the nature of the adjacent communities.

Experience has found that park and ride provides an attractive option for those who value the convenience and travel time savings by using their car for a portion of their transit trip. Although they are a relatively small portion of transit customers, some park and ride users would be less likely to use transit service without this option since they need a car for a portion of their trips (e.g. drop children at daycare). Most park and ride customers are either travelling to the downtown or to post-secondary schools so they enjoy a cost savings over parking at these locations as well as not having to deal with traffic congestion at or near their destinations. By intercepting these travellers near the origin of their trip, park and ride reduces the number of traffic lanes needed on approaches to the downtown as well as a considerable reduction in land required for downtown parking.

Most park users start their trips from communities nearest to their closest LRT station although about ten to fifteen percent of park and ride users live outside of Calgary. For out of town users, park and ride is their main means of accessing transit service. While park and ride is an important access mode for some LRT customers, there is no correlation between station by station ridership and supply of parking. Stations with highest ridership have a lower than average park and ride supply and some of these stations have no parking. Local bus service plus walking and cycling account for 85 percent of modes used to access CTrain service.

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OTHER CITIES

Calgary Transit provides between two and 15 times more parking than other major Canadian transit systems¹. These transit systems provide park and ride for the same reasons as Calgary Transit and experience similar issues with managing the supply of parking in relation to customer demand and transit oriented development aspirations. All systems charge a fee for some or all of their parking. There are also good examples of using shared parking with private sector lot owners to meet park and ride demands.



Crowfoot Station park and ride

COSTS

The cost of constructing and operating park and ride is not insignificant. Based on current industry experience in Calgary an approximate construction cost per space is about \$15,000 and \$50,000 for surface and structured parking, respectively. The average weekday operating cost is about \$3 for surface or \$8 for a parkade space. Construction costs may be higher within a more developed or TOD setting, particularly when land costs (typically higher adjacent to an established transit hub) are taken into account. To provide access to a CTrain station the capital cost of providing parking is significantly more expensive on a per customer basis than purchasing buses to transport customers to a station. While the operating cost per customer is lower for surface parking the provision of feeder bus service is a more cost effective investment since the connecting bus routes also serve local community trips.

¹Vancouver, Edmonton, Winnipeg, Toronto, Ottawa

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CUSTOMER FEEDBACK

Numerous surveys have found that while customers appreciate the benefits of park and ride some are frustrated with the availability of parking, the need to pay for this service, and the lack of certainty in using the facilities provided (i.e., unable to get a space). Many customers have expressed a desire for investment in improved bus services to access the CTrain. More parking and free parking are also requested frequently. A majority of customers feel that park and ride users should pay the parking operating costs (see Appendix 5).

TRANSIT ORIENTED DEVELOPMENT

To realize the sustainability goals inherent in Calgary Municipal Development Plan (MDP) will require creating more compact communities and redevelopment of existing areas for higher density, more diversified uses around transit nodes to take advantage of the investment in high quality transit services. Eleven current CTrain stations are located within areas identified for higher density development and seven of these stations have large surface park and ride lots that could be valued at hundreds of millions of dollars if these sites can be redeveloped for TOD over time. Other stations also have the potential for TOD but may have a lower development priority.

For TOD to occur at these stations, a replacement strategy is required to address any park and ride stalls that may be displaced by redevelopment. The strategy options include some combination of:

- Use of shared parking provided by private developers at the site.
- Retain some surface parking at the station and reduce TOD potential.
- Construction of replacement parking (surface or parkade) at another suitable station on the line.
- Construction of parkade structures at the TOD station to accommodate some or all of the displaced parking.
- Enhancing feeder bus service to serve displaced parking customers.

Considerations for retaining park and ride include the lost value of potential land sales, property and business taxes. As well, TOD both generates and attracts transit ridership which can be more than the number of transit trips generated from a similar area of land used for parking. The cost of providing replacement parking can be funded from the proceeds of TOD or from other sources. To determine the best approach, a site specific, market based study is required for each station along each LRT line.

CRITERIA FOR PARK AND RIDE

LRT stations and major bus stops are found in many environments including expressways and arterial streets, commercial/ industrial areas and residential districts of varying density. The nature of adjacent areas and their ability to successfully interface with parking is a critical consideration when planning new park and ride lots, expanding or reformatting existing parking facilities. This will be most important when planning park and ride in conjunction with TOD. Too much parking will negatively impact the economic viability and liveability of these areas. Too little parking can restrict transit ridership and result in spill-over parking pressures. Therefore, it is important to strike a balance that optimizes land use at transit connection hubs – both bus and LRT.

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It is suggested that an overall system goal of providing parking for about 15 percent of the LRT system ridership (similar to today) be adopted. The purpose of the goal is to signal the approximate allocation of resources to accommodate this access mode. However, it is also felt that the optimal supply and the parking form (parkade or surface) be determined for each station location or groups of stations to maximize park and ride and TOD opportunities. Criteria to determine the ideal or maximum parking supply are suggested in this report. These include projected ridership, station service area population, distance from the downtown, potential TOD opportunities, quality of connecting bus service, availability of land, cost of parking, availability of shared parking opportunities, character of the adjacent area and road network capacities. It is suggested that the first of these studies be conducted at locations where TOD is a priority (specifically Anderson Station).

CHARGE FOR PARKING, RESERVED PARKING, MANAGEMENT ISSUES

Since 2006, Calgary Transit has been charging a fee for some or all park and ride spaces either in the form of a daily fee (2009 to 2011) or a monthly reservation system (2006 at Fish Creek Lacombe and since 2011 for all LRT stations). The current monthly reservation fee (\$85) for LRT parking generates about \$4 million annually to offset about 40 percent of parking lot operating costs. The monthly reserved parking system allows up to 50 percent of LRT parking spaces to be reserved at all LRT stations and replaces the previous daily \$3 fee. The demand for reserved parking is highest at stations near the ends of the LRT lines where waiting lists for reserved parking exceeds the total number of reserved spaces available in the system.

The reservation system helps to manage demand for spaces and provides about 33 percent of parking lot users with the certainty and convenience associated with having a guaranteed place to park until the spaces become available free of charge at 10 am on weekdays. All parking is free on weekends and holidays. With these provisions, it is important to note that the majority of LRT parking lots and most BRT lots are full to capacity by 10 a.m. on weekdays.

Current park and ride management policy provisions, as recommended by Council in 2012², allow for differential pricing (on a lot by lot basis) or daily parking fees. These provisions have not been implemented to date due to increasing interest in reserved parking (now stabilized) and a lack of suitable technology (now being explored). Calgary Transit believes that moving towards 100% reserved parking in all lots with fees based on demand will increase customer satisfaction by providing certainty to the parking experience and allow more effective enforcement. This will also allow for a daily reservation system to be established. Increased parking revenues will allow more of Calgary Transit's operating budget to be devoted to providing core bus and CTrain services.

²TT2012-03 Calgary Transit Reserved Parking Program Update

INTRODUCTION

Park and ride is a commonly used description for parking lots that are provided to enable people to drive to a location that is served by some form of public transportation so that they can complete the remainder of their journey in a bus, train or, in some cases, a van or carpool. In Calgary, this term applies to parking lots provided at most CTrain (Light Rail Transit – LRT) stations, and some major bus or Bus Rapid Transit – (BRT) stops.

In Calgary, park and ride is an important service that provides an attractive means for about 15 per cent of weekday transit customers to access CTrain service either as a vehicle driver or passenger. Park and ride is also available at some major bus stops particularly bus routes operating along the future Green Line. For these customers, park and ride is an important factor for choosing Calgary Transit since they may require their cars for some portion of their trip. For the majority of CTrain customers, as shown in Table 1, connecting bus service is the most common access mode while walking and cycling are also important.

A policy that provides guidelines for the rationale, quantity and location of park and ride was established in 1986. Since then,

TABLE 1: CTrain Access Modes at Suburban Stations	
ACCESS MODE	PERCENT*
Calgary Transit Bus	52%
Walk	31%
Vehicle (driver)	11%
Vehicle (passenger)	4%
Cycle	1%

* Estimates from customer surveys

this policy has been used to guide the planning and development of parking facilities for all LRT stations. Recent discussions, including the “Consolidated Parking Policy Work Plan” being conducted by the Transportation Department, have suggested that a revised policy should be crafted for the provision, management and operation of park and ride. As well, planning for the redevelopment of the current Anderson Station park and ride lot has raised questions on how to replace any parking displaced by Transit Oriented Development (TOD).

The challenge with park and ride is to determine an appropriate balance of these facilities relative to other transit access modes and land use opportunities. Park and ride is only one segment of transit service and it must be planned in concert with the other transit access modes (i.e. feeder bus, walking, cycling and passenger drop off) and adjacent land uses.

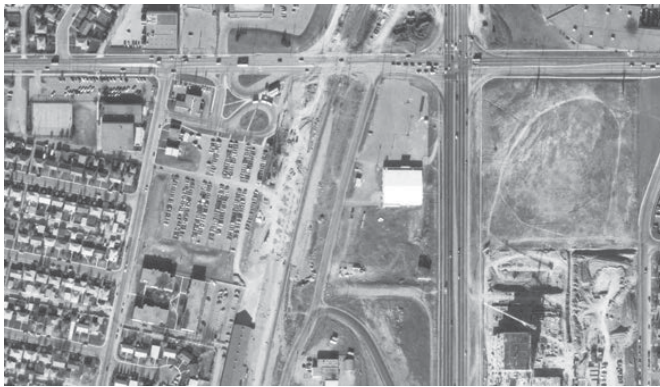
The Calgary Transportation Plan (CTP) and RouteAhead documents recognize the role and importance of park and ride in serving a segment of Calgary Transit customers. Both documents suggest that the current policies and practices surrounding park and ride should be reviewed and updated in light of goals to intensify land use at LRT stations and reduce private vehicle travel.

In response to these issues, Calgary Transit has prepared this report to position park and ride in terms of the evolution of transit service, costs associated with providing the service, customer expectations and recent land use and transportation policies. The majority of the report deals with park and ride facilities provided at current and future CTrain stations.

HISTORY

The need for park and ride at major “interchange stations” was determined during the planning of Calgary’s rapid transit system which began in the late 1960s. A rapid transit system was identified as a critical element to increase transit use and decrease travel by automobiles, particularly to enable more efficient land development and head off the inevitable need for increasing auto infrastructure. This planning was done at a time when transit use was declining, there was rapid city growth with auto use and traffic congestion increasing significantly³.

These studies proposed that a rapid transit system would serve key transportation corridors with a focus on the downtown and other key destinations. Preliminary station locations were identified that would permit riders to access by walking and feeder bus routes. Park and ride lots located at key suburban stations were considered a critical element of the rapid transit system as a means of getting people out of their cars and onto transit before these cars approached the downtown. The objective was to ensure that the rapid transit system was able to increase transit use, reduce traffic congestion and parking demand which would enable higher density development in the downtown to occur.



Heritage Blue Arrow park and ride in 1979, prior to the LRT being built



Somerset-Bridlewood was home to a remote parking lot from 2001 to 2004, prior to the CTrain being extended to that point.

The Heritage Transit Terminal (now LRT station) was the first planned station which included a bus terminal and a park and ride lot for 300 cars⁴. The Blue Arrow Bus Express System, a limited stop bus service (similar to the current BRT), was implemented as a precursor to the LRT network and began operation in the early 1970s. This system eventually included park and ride facilities at a number of major stops which were destined to become future LRT stations. These included Heritage, McMahon Stadium (Banff Trail), Marlborough, and Sunridge (Rundle).

The South LRT line, which opened in 1981, provided five large park and ride lots at stations south of Erfton with a total of 2,500 spaces. The Northeast line, which opened in 1985, provided park and ride at all stations east of Deerfoot Trail with a total of 2,100 spaces at four stations. Park and ride at two of the Northeast stations – Marlborough and Rundle was provided as part of the adjacent shopping mall parking.

³ “Transit For Calgary’s Future”, Simpson and Curtin, 1967.

⁴ “Heritage Transit Terminal – Alternate Site Feasibility Study”, City of Calgary Transportation Department, 1972.

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Prior to the opening of the Northeast line and as part of planning the other LRT extensions, studies were conducted to determine the appropriate number of parking stalls for future stations. Park and ride policy guidelines were established by City Council following a series of reports in 1984 and 1986 (Appendix 1) and have been used to plan park and ride facilities since that time. These guidelines suggest that:

- Calgary Transit should design its services to provide a balance of public transportation options to accommodate various travel needs which enables Calgary Transit to serve the largest possible market.
- Park and ride is designed to serve those who require their private vehicle for some portion of their trip and without park and ride would likely not use transit.
- Park and ride facilities will be provided at CTrain stations and along major bus corridors (e.g., BRT) to provide spaces for between 15 to 20 percent of the customers accessing this higher level of service.
- The calculation of the park and ride supply considers the population of the station service area, the number of transit trips external to the community, auto occupancy, and the efficiency (turn over) of the parking lot.
- Park and ride should not be provided within 5 kilometres of the downtown to discourage travel by automobile in congested areas and to reduce demand for parking.
- The acquisition, development and maintenance of park and ride should not place additional financial responsibilities on the transit system.

The guidelines also recognize that provision of park and ride requires balancing:

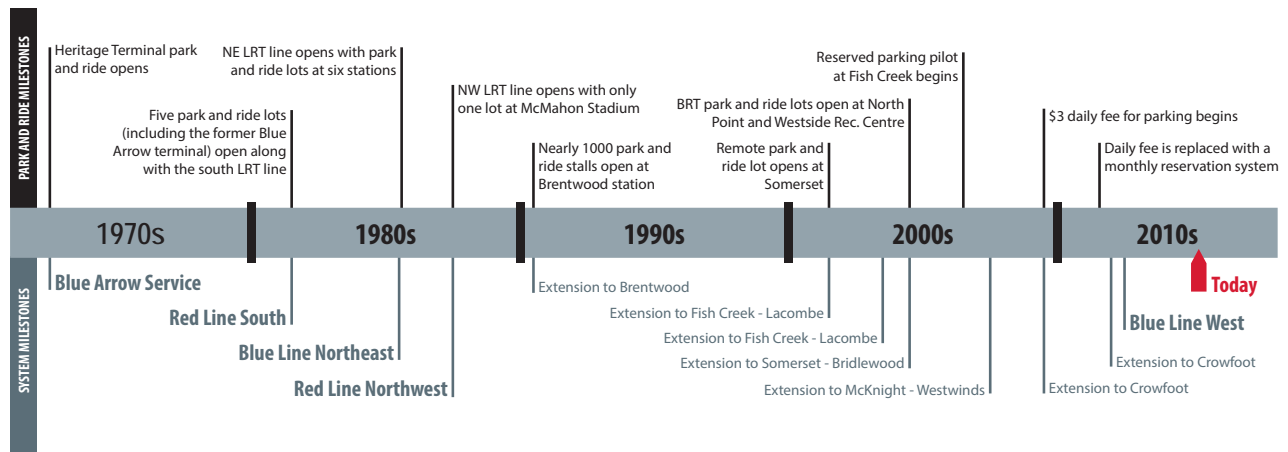
- Benefits of attracting customers who need a vehicle for a portion of their trip, reduced downstream traffic congestion and downtown parking demand.
- Capacity constraints of each potential parking lot, costs of providing and maintaining park and ride facilities, impacts on adjacent communities.
- Ridership requirements to support effective and attractive feeder bus services that also serve local community travel needs.

USE OF REMOTE PARKING LOTS

The reports submitted between 1984 and 1986 also explored the concept of providing remote parking lots served by either regular or express bus routes to provide a connection to LRT stations. This was intended to allow park and ride to be provided on less expensive land. However, it was concluded that these lots would not be successful since they would not decrease travel time, introduce an additional transfer and there would be concerns if the bus service connecting with the parking lot was not frequent. Subsequently, remote parking lots were provided prior to the extension of the South (Somerset -Bridlewood) and Northwest LRT (Crowfoot) lines with very low usage. The City of Ottawa has similar experiences with park and ride lots in rural areas that have buses connecting the lots to their BRT stations⁵.

⁵ "Park and Ride Facilities for Ottawa – Part 1: Best Practices and Policy Directions Report", iTrans Consulting Inc, 2007 September, pg 42.

TIMELINE OF PARK AND RIDE IN CALGARY



CURRENT AND FUTURE PARK AND RIDE FACILITIES

Park and ride for Calgary Transit customers is provided in 33 parking facilities with nearly 17,600 spaces located at CTrain stations and several major bus stops. Eight of these lots are either provided by private land owners (5) or are facilities shared by Calgary Transit and other land holders (3). CTrain parking lots owned and operated by Calgary Transit make up about 70 percent the parking supply with 13,664 spaces at 20 CTrain stations. Two CTrain stations provide structured parking (Canyon Meadows and 69 St SW) while the majority is in the form of surface parking. At 69 St Station, there is both structured and surface parking. A summary of park and ride lots available for Calgary Transit customers is provided in Table 2. Figure 1 shows the location of current and future park and ride lots throughout the city.

PARKING TYPE	LOTS	SPACES	AREA (ACRES)
CTrain – Public – Surface	19	12,583	126.7
CTrain – Public – Structure	2	996	3.0
CTrain – Private – Surface	5	1,600	16.0
Bus – Public – Surface	4	1,339	13.4
Bus – Public – Surface	3	1,006	10.1
Totals	33	17,524	169.2

Figure 1 includes lots that are owned and operated by others including McMahon Stadium, Calgary Zoo, and several shopping malls. Aside from the privately operated lots, the present and future lots reflect the current park and ride policy guidelines in terms of size and location, with several exceptions:

- Park and ride lots at 39 Av (South), Banff Trail (NW), Barlow Max Bell and Calgary Zoo (NE) are located within a 5 kilometre radius of the downtown. However, the adjacent land use (two are privately operated) and the adjacent roadways have sufficient capacity to permit access to park and ride without impacting adjacent communities or having a negative impact on downtown traffic congestion.
- The amount of parking supplied at previous terminal stations – Anderson, Fish Creek Lacombe, and Whitehorn exceed the requirements of their immediate service areas with lots now being provided at new terminal stations. Anderson station currently also serves the area to be served by the future Green Line Southeast stations.

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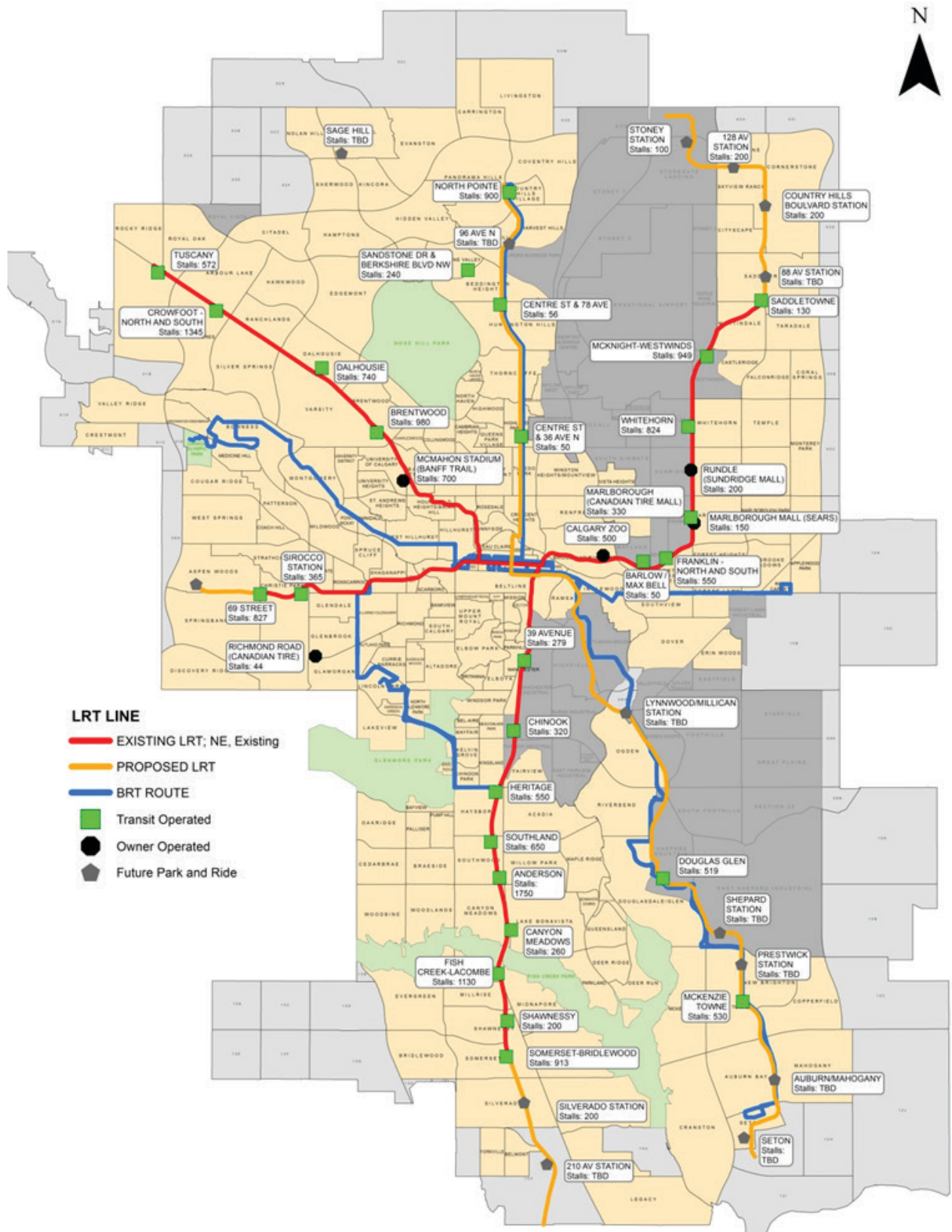
- The Tuscany station parking lots are sized for the immediate service area while Crowfoot station parking continues to serve a larger service area including out of town customers.
- The large parking capacity at McKnight Westwinds reflects the availability of land and the ability of the adjacent industrial / commercial land use to coexist with a large parking lot.
- The Saddletowne station parking supply is very low considering its role as a terminal station, but this is hopefully short term since line extensions are planned and much of the area currently served by this station is easily reached via walking or a short bus trip.
- Planning for the future Green Line has identified the potential for approximately 5,000 to 6,000 spaces and work is being done to explore options for additional spaces.



Somerset-Bridlewood park and ride lot

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FIGURE 1: Current and Planned Park and Ride Lots



LRT ACCESS AND PARKING SUPPLY

It is acknowledged that park and ride can provide a means of attracting ridership, particularly in areas where connecting bus services are not available or of sufficient quality (frequency & operating span) to provide an attractive access mode. Tables 1 and 3 reflect the findings of numerous customer surveys which indicate that an average of 15 percent of CTrain customers are vehicle drivers and passengers who use park and ride in comparison to 85 percent who use other modes (bus, walking, cycling) to access the suburban (non-7th Avenue stations).

TABLE 3: Estimated Suburban CTrain Station Access (non-7 Avenue)	
Weekday Customers at Suburban CTrain Stations	142,700
CTrain Stations with Park and Ride	24
Total CTrain Park and Ride Spaces (Calgary Transit and Private)	15,264
CTrain Customers using Park and Ride Spaces (Drivers and Passengers)	15%
Customers using Other Access Modes*	85%

* Other modes include drivers and passengers who park in areas adjacent to a station

Table 4 shows how the supply of parking varies by CTrain line. On West LRT, the supply of park and ride reflects the short length (8 km) of the line and the limited supply of available land in the vicinity of the two stations located west of Sarcree Trail which is beyond 5 kilometres from Downtown.

TABLE 4: Suburban CTrain Parking Summary					
LINE	WEEKDAY CUSTOMERS (ONS)	STATIONS	STATIONS WITH P+R	TOTAL P+R	PERCENT P+R (stalls/rider)
Red Line South	61,600	11	9	5,967	11%
Red Line Northwest	39,000	9	5	4,337	12%
Blue Line Northeast	35,300	10	8	3,683	11%
Blue Line West	17,500	6	2	1,192	7%
Totals	153,200	24	15,264	15,179	11%



Saddletowne Station, one of the newest park and ride lots in Calgary

FUTURE PARK AND RIDE

Park and ride facilities along the future Green Line have been planned and land for parking has been identified and in some cases it has been purchased or acquired as part of the land use planning process for new communities. Park and Ride facilities to be built at Green Line stations are being reviewed in conjunction with previous studies, the design of the line and Transit Oriented Development (TOD) planned for each station. The future extension of the South Red Line will provide an opportunity for a significant park and ride facility at the terminal station. Park and ride facilities have also been identified for the Northeast Blue Line extension and further work is ongoing. As an outcome of this report it is intended that additional opportunities for park and ride can be identified at many existing and future stations and major bus stops.

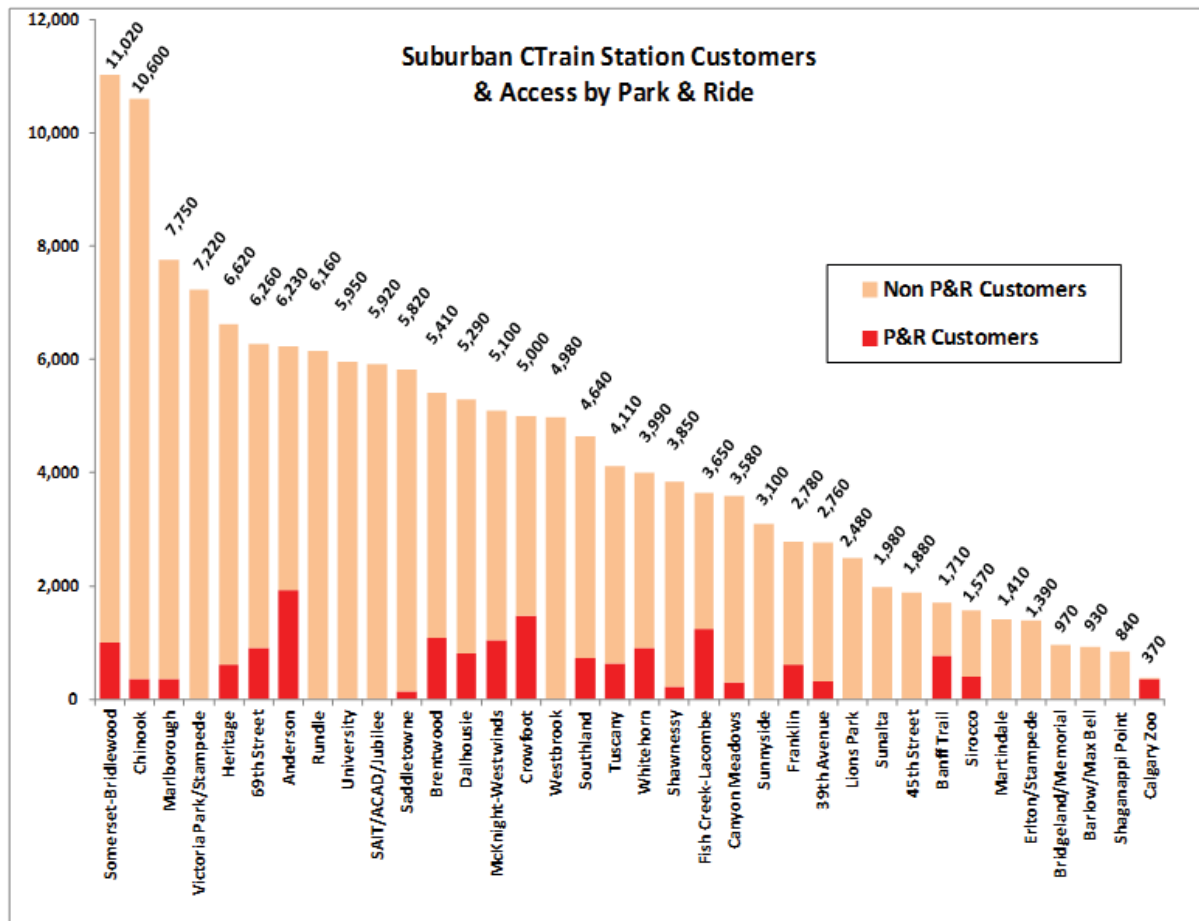
DOES PARK AND RIDE ATTRACT RIDERSHIP?

Figure 2 shows the supply of parking at LRT stations relative to the number of weekday customers boarding at each station. Appendix 2 provides this same information segregated for each LRT line. This information clearly illustrates that there is no relationship between the supply of parking and total LRT station ridership. The ten stations with the highest ridership have parking for only 7 percent of the customers boarding at these locations. The larger than average supply of parking at Anderson station somewhat distorts this relationship. However, where it is offered park and ride provides a means of attracting transit users that may otherwise not use transit. At most stations, the park and ride lots are filled to capacity each weekday.



Parking at Somerset-Bridlewood Station is fully used on the average weekday

FIGURE 2: Suburban CTrain Station Customers and Access by Park and Ride



OTHER PARK AND RIDE BENEFITS

Aside from providing an alternative means to access transit, collectively, park and ride lots intercept about 18,000 vehicles each weekday during the morning peak travel period. If park and ride was not available and these cars continued to park at their destination another 11 traffic lanes would be required on roadways accessing the downtown. To accommodate the current park and ride users with downtown parking would require a significant increase in land devoted to downtown parking lots. This volume of vehicles entering and leaving the downtown during peak times would result in a significant increase in traffic congestion.

PARK AND RIDE CUSTOMER ORIGINS

A map showing the home origins of reserved parking customers for each station is provided in Appendix 3. This map shows that park and ride is very effective at intercepting auto trips that would otherwise be contributing to traffic congestion on roadways approaching and within the downtown. The map also shows the much lower demand for reserved parking in Northeast Calgary.

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Approximately 10 percent of reserved parking customers live outside of Calgary with Cochrane (4%), Okotoks (3%) and Airdrie (1%) being the home of most common out of town reserved parking customers (percentages are of total reserved spaces). The following stations have the greatest number of reserved parking customers living outside of Calgary - Crowfoot (4%), Somerset Bridlewood (2%), Fish Creek Lacombe (1%), Anderson (<1%), Brentwood (<1%). Origin information for all park and ride users (free parking users) is currently not available due to restrictions on the use of license plate data. Previous surveys suggest that approximately 10 to 15 percent of park and ride spaces are used by transit customers travelling from outside of Calgary. For many out of town customers this is their only means of accessing transit.

WHAT DO OTHER TRANSIT SYSTEMS DO?

Table 5 provides a summary of the current park and ride services offered by other major Canadian transit systems. Each system has parking facilities that are provided by both the transit system and private land owners. It should be noted that in Winnipeg, all park and ride lots are located on private sites that include shopping centres, theatres, churches and a casino. All systems charge for parking at some or all lots on either a daily or monthly basis. It is significant to note that Calgary Transit provides between 2 and 15 times more parking spaces per million annual customers compared to these other systems.

Each of these transit systems has some form of parking policy either approved or under development that include the following principles:

- Need to provide parking to either attract customers to transit or to accommodate customers who need their cars and would otherwise not use transit.
- Park and ride can be used in place of bus services to efficiently serve low density or rural areas.
- A pricing policy to manage demand and to recover some portion of parking construction and operating costs.
- The need to allow for a transition of parking to transit oriented development.
- Parking supply and pricing should reflect the demand at each location, local conditions (traffic & land use);
- The private sector via joint use / shared use of established parking can augment the role of the transit system by offering park and ride as part of complimentary development.
- Park and ride should intercept auto trips at the furthest opportunity away from high density destinations.
- The Toronto Transit Commission (TTC) has a policy that any redevelopment of existing park and ride lots must include replacement of all parking displaced on a 1 on 1 basis, at the same station if possible.

CITY	ANNUAL RIDERS (MILLIONS)	TRANSIT LOTS	PRIVATE LOTS	TOTAL SPACES	P+R SPACES PER MILLION RIDERS	CHARGE FOR PARKING	PRICE DAY/MONTH
Edmonton	89.3 m	8	0	5,022	56	3 lots	\$42/month
Ottawa	97.1 m	16	7	8,253	85	7 lots	\$54.75/month
Winnipeg	49.9 m	4	8	529	11	2 lots	\$3 /day \$45/month
Vancouver	231.2 m	18	3	8,042	35	10 lots	\$2 to \$3/day
Toronto (TTC)	534.8 m	14	0	11,202	21	14 lots	\$3 to \$7/day
Calgary	110 m	20	5	17,494	160	18 lots	\$85/month

COST OF PARK AND RIDE – CONSTRUCTION AND OPERATING

The costs associated with providing park and ride are not insignificant and should be considered as an important factor in determining a future strategy on how, where, and the amount of parking that should be provided by Calgary Transit. Costs include land, construction, either surface or structured (above or below grade) and operations.

The current (2015) capital and operating costs for parking are provided in Table 6 which shows typical costs associated with a 500 stall parking facility. This information is based on experience by the Calgary Parking Authority and Calgary Transit. Similar costs are experienced by other parking providers but they can vary depending on where the parking is located, the standards to which it is constructed, other services that are provided (security, lighting, guidance systems) and the level of maintenance and administration of the lot.

TABLE 6: Estimated Land, Construction and Operating Costs of Parking		
	SURFACE PARKING	STRUCTURED PARKING
LAND COSTS		
500 Stalls	5 Acres \$5 million*	1 Acre \$1 million*
Per Stall	\$10,000	\$2,000
CONSTRUCTION COSTS		
500 Stalls	\$2.5 to \$7.5 million	\$25 to \$40 million
Per Stall	\$5,000 to \$15,000	\$50,000 to \$80,000
OPERATING COSTS		
500 Stalls	\$412,000	\$1,037,500
Annual – Per Stall	\$825	\$2,075
Per Weekday – Per Stall	\$3.30	\$8.30

* Price for land may vary by location, size, highest and best use, and market conditions. Recently land for a new park and ride lot for the Green Line in Auburn Bay was purchased at \$1.05 million / acre.

Land for park and ride is typically either acquired as raw land as part of the total LRT construction project or well in advance of the project as adjacent lands develop. As shown in Table 6, there are significant ranges in construction costs. Land for park and ride sites through the development process is purchased in accordance with the Master Development Agreement. Land values are determined by highest and best use, location, size and use (i.e. vacant or improved). In established areas the presence of a nearby LRT station can elevate land value by as much as 30% in comparison to comparable lands without close proximity to transit service⁶. This has significant cost implications for the construction of park and ride after the station is opened or for replacement parking in the case of TOD.

The cost to construct surface parking will vary depending on the need for grading, retaining walls, lighting, landscaping and drainage. The recent cost per stall to construct the surface parking at the new Tuscany Station (2014), a relatively simple lot, was \$14,000 per space. Cost to construct a parkade structure depends mainly on the design of the facility. Open deck style parkades (similar to the Canyon Meadows or 69 Street stations) are the least expensive to construct but their open design results in a shorter life span. The cost to construct this type of parkade (similar to 69 Street Station) is estimated at \$50,000 per stall. Features such as parking guidance, stall counters, enhanced lighting, heating and security systems also add to this cost to build and operate. However, in a TOD setting, a simple open deck parkade would be difficult to integrate with surrounding land uses, while a more expensive structure (above or below grade) that includes some office, retail or residential use would result in higher construction costs, e.g. \$80,000 or more per stall⁷. Examples of these structures are shown in Figure 3.

⁶ "Calgary Transportation Effect – The Impact of Transportation Improvements on Housing Values in the Calgary Area", Real Estate Investment Network, 2013

⁷ Parking cost information supplied by Calgary Parking Authority

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FIGURE 3: Examples of Parkades in a Mixed Use Development



Annual operating costs for parking lots include general maintenance (sweeping, line painting, snow clearing / removal), security, enforcement, lighting, utilities, insurance, payment systems and administration. For parkades there are additional costs related to maintenance associated with the structure including elevators, heating, cooling and fire detection and suppression systems. The typical operating cost per weekday, detailed in Table 7, is based on 250 weekdays per year of exclusive park and ride use based on experience by the Calgary Parking Authority. Detailed breakdowns are difficult to isolate for Calgary Transit parking facilities because the costs are tracked in combination with other LRT station and program operating expenses.

The Calgary Transit LRT parking inventory currently consists of 12,583, surface spaces and 996 structured spaces. Based on the above noted operating costs, these facilities should require an annual operating expenditure of up to \$11 million. The current reserved parking program returns approximately \$4 million in annual revenue or about 40% of the estimated operating cost. The balance of the operating expenditure is included in Calgary Transit's operating budget which is supported by a combination of municipal tax support and transit fares. It is important to recognize that the net cost of operating park and ride reduces the funds available to provide core bus and CTrain services.

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TABLE 7: Average Annual Operating Costs ⁸		
ITEM (ANNUAL)	SURFACE PARKING STALL	STRUCTURED PARKING STALL
Maintenance	\$500	\$825
Gas + Electric	\$75	\$250
Administration	\$25	\$25
Miscellaneous	\$75	\$150
Depreciation	\$150	\$825
Annual Totals	\$825	\$2,075
Daily Equivalent	\$3.30/day	\$8.30/day

COST COMPARISON WITH BUS SERVICE TO LRT STATIONS

The majority of CTrain customers access LRT stations using feeder bus services from their community. Many park and ride customers have historically stated that they would use the connecting bus service instead of park and ride if the bus service was improved (i.e., more frequent, longer hours)⁹. Feeder bus routes also provide service to other community based trips (e.g., schools, shopping, recreation) so service improvements would benefit those who rely on those services as well.

Table 8 provides a comparison of the incremental costs (capital and operating) to serve an additional 550 weekday peak period CTrain customers with either connecting bus service or the construction and operation of 500 additional parking spaces (average car occupancy is 1.1 people, so 500 cars is equivalent to 550 customers).

To transport 550 customers using bus service during weekday peak travel times requires 3 buses providing 4 trips to a station during each weekday am and pm peak period. The bus service costs represent the requirement for increasing service capacity on typical bus routes serving a CTrain station to carry the additional customers. The current capital cost per bus is \$475,000, and the net operating cost per customer (operating cost minus fare revenue) is \$1.82. For the purpose of this comparison, it is assumed that these additional buses and trips would be added to existing routes to accommodate the additional customers. To improve the quality of service may require a service investment on additional routes, but more customers would be carried for non-LRT based trips. A study of buses serving Anderson station found that about 60 percent of the passengers on those routes had local destinations and were not travelling to the station. Therefore, bus service investments would have a more widespread benefit particularly to improve pm peak period connections from CTrain to bus.

TABLE 8: Comparison of Costs – Peak Bus Service vs Parking Options			
	BUS SERVICE	SURFACE PARKING	STRUCTURED PARKING
Customers Served	550	550	550
Weekday Transit Trips	1,100	1,100	1,100
Capital Cost	\$1.4 million	\$7.0 million	\$25.0 to \$44.0 million
Annual Operating Cost	\$0.7 million	\$0.4 million	\$0.9 million

⁸ Provided by the Calgary Parking Authority
⁹ See Appendix 5



Peace Officers and security camera at Tuscany Station

CONSIDERATIONS FOR PARK AND RIDE AT STATIONS WHERE TOD IS PLANNED

Calgary's Municipal Development Plan (MDP), approved in 2009, is founded on the principle of Calgary developing within a more compact, sustainable urban form by balancing growth between existing areas and new communities over the next 60 years. To accomplish this goal will require more compact new communities and the redevelopment of some existing areas for higher density, diversified uses particularly in strategic locations where there are high quality transit services. The Primary Transit Network (PTN) is the main focus of the higher quality transit service that is required to serve and link these existing and new growth areas. The CTrain system (both current and future) is a key element of the PTN.

The MDP identifies areas surrounding eleven current CTrain stations for redevelopment as Major Activity Centres (MACs) or Community Activity Centres (CACs). These areas include both City owned and private lands that have the potential to transition into comprehensive higher density suburban TOD nodes that will further support investment in the PTN. The eleven CTrain station areas include Whitehorn, Rundle, Brentwood, Dalhousie, Chinook, Southland, Anderson, Fish Creek Lacombe, Canyon Meadows, Shawnessy and Somerset Bridlewood stations. This list does not preclude redevelopment of lands at other station areas for more intensive uses. However, given the long-term horizon of the MDP vision, these MACs and CACs are areas that have a greater likelihood to proceed in the next 5 to 30 years.

Current LRT park and ride lots, operated by Calgary Transit, fall within seven of the proposed MACs and CACs. These seven stations have large surface parking lots that occupy about 70 acres of City owned land. If these assets can be developed for TOD they have a potential value of hundreds of millions of dollars (including tax revenues) after investment by The City in the planning approval and site preparation process. These sites are of critical importance to achieve the MDP goal of accommodating more of Calgary's growth within established areas vs. development on the fringe. Appendix 4 provides a map showing the PTN and locations where MACs and CACS are planned on lands currently occupied by surface park and ride lots).

A Review of Calgary Transit Park and Ride

When TOD is being planned at these locations, a replacement strategy is required to address any park and ride stalls that may be displaced from City owned park and ride facilities. The options include some combination of:

- Use of shared parking provided by private developers on the site.
- Retaining some surface parking at the station and reduce TOD potential.
- Construction of replacement parking (surface or parkade) at another suitable station on the line.
- Construction of parkade structures at the TOD station to accommodate some or all of the displaced parking.
- Enhancing feeder bus service to serve displaced parking customers.



Anderson Station, a future TOD site



New office buildings developed adjacent to Southland Station.

There are capital, operating and opportunity costs associated with retaining significant amounts of parking, particularly single use parking, within a TOD. Large surface parking lots are not compatible with the goals of the MDP and Calgary Transportation Plan (CTP) to encourage high-density, mixed use development at the above noted LRT stations. Structured parking within the TOD can certainly allow parking to be provided within a much smaller footprint and can be developed to include other uses as part of the structure. The dual or joint use of public or private parking facilities may also be an option depending upon the land use. However, there are significant costs associated with this type of combined structure so this may not be an ideal method to replace surface park and ride stalls in all cases. The related traffic congestion and impacts of providing park and ride within a higher density, mixed use environment may detract from the desired outcome for a walkable, pedestrian friendly area.

Opportunity costs of retaining park and ride within a TOD include the lost value of potential land sales, property and business taxes. As well, TOD both generates and attracts transit ridership which can be more than the total number of transit trips generated from a park and ride facility¹⁰. Transit trips attracted by TOD often occupy the lesser used CTrain capacity for travel opposite to the peak direction.

If park and ride is displaced by TOD, it may be possible to provide replacement park and ride capacity (surface or parkade) at other suitable locations – either elsewhere at the station or at another suitable station along the same line where TOD potential is lower. Some combination of replacement parking and improved feeder bus services in combination with a TOD staging plan should also be explored. As well, funding from TOD proceeds or other sources could be used to fund replacement parking. To determine the best approach, more site specific, market and ridership based study is required at each station and along each LRT line.

¹⁰ "Transit's Enemy: Cheap Parking", J. Schrieber & J. Weiland, Nelson Nygard for Transport Chicago, 2011.

CHARGING FOR PARKING

In 2006, Calgary Transit, in response to customer requests, implemented a pilot program to permit customers to reserve up to 220 parking stalls at the Fish Creek-Lacombe station on a monthly basis. The program was managed by the Calgary Parking Authority and was fully subscribed. Revenue from reserved parking was used to provide a higher standard of parking lot maintenance (sweeping, security and snow clearing) and to cover the cost of administering the program.



Pilot reserved parking lot at Fish Creek-Lacombe station



Reserved parking stalls at Dalhousie Station

In 2008, Calgary Transit was faced with a number of issues related to park and ride:

- All LRT and some BRT lots were filling up to and beyond capacity with many customer complaints about not being able to park, spill over and illegal parking.
- Auto crime – break ins, thefts and vandalism – was increasing in the lots.
- Customers had concerns with station security, maintenance and cleanliness.

In 2009 March, Calgary Transit began implementation of a \$3 daily fee for parking in all park and ride lots. The purpose of the fee was to fund improved security, cleanliness and maintenance for the park and ride lots and CTrain stations. In 2009 December, the daily fee was removed from bus route oriented parking lots and the requirement for payment was restricted to weekdays from 2 am to 6 pm. For 2009, the program contributed approximately \$3 million to offset increased operating costs of approximately \$4.4 million. Other parking lot operators such as the Calgary Zoo, McMahon Stadium and a church also initiated parking fees for transit customers.

Initially, with the daily fee, park and ride use declined to about 55 percent occupancy but the use of the lots rebounded over the next 18 months to 66 percent use and approximately \$5 million in annual parking revenue. The charge for parking did not result in any measured loss of ridership. Surveys and counts found that most former park and ride customers were using feeder bus routes, walking or cycling. There was evidence that new customers who were previously unable to get a parking space were now able to use the system. Customer satisfaction ratings related to safety, security and cleanliness improved and auto crime dropped substantially as a result of improved services funded by parking revenues. Customers using park and ride reported satisfaction with the ability to obtain a parking space while others objected to having to pay for something that was previously free or added to their cost of using transit.

A Review of Calgary Transit Park and Ride

Issues related to the daily fees included:

- Reliability of the ParkPlus machines used to collect daily fee was not good, there was no opportunity to pay via smart phone or the ability to pay monthly (CPA has resolved these issues).
- Significant portions of the parking lots were not being used.
- Customers felt they were being discouraged from using transit.
- Spill over parking remained an issue.

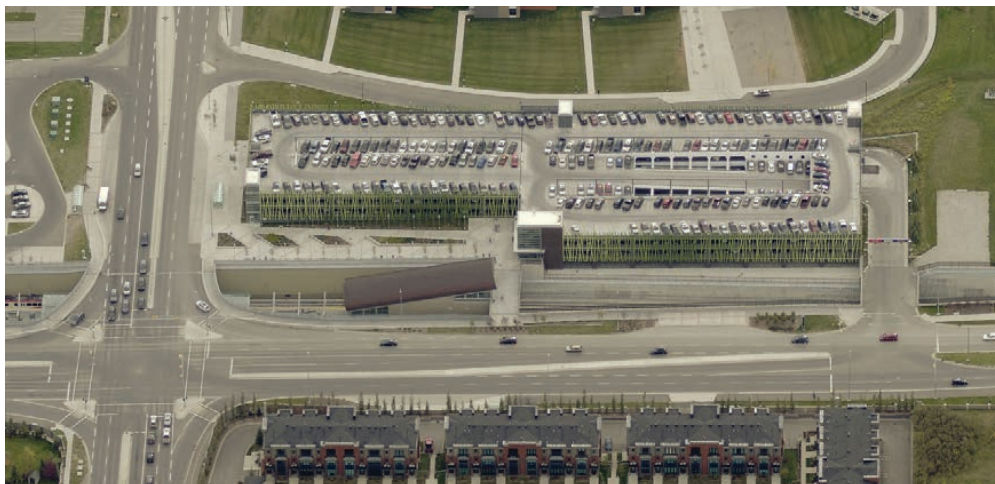
Despite lower use early in the program, by the end of 2010 some lots – mainly the terminal stations – were filling up thus prompting some customers to request the ability to reserve a space.

In 2011 April, at Council's direction, Calgary Transit switched from a daily parking fee for all CTrain station stalls to a monthly reserved system which could be applied to up to 50 percent of LRT parking spaces in each lot and be in effect between 2 am and 10 am on weekdays. The allocation of reserved areas in each lot is based on customer demand. The balance of the spaces are available free of charge on a first come first serve basis. In 2015, reserved parking was available at 18 of 21 Calgary Transit provided park and ride lots. Approximately 65 percent of the possible reserved spaces have been leased at these stations. The monthly fee has been increased to \$85, and in 2015 the annual revenue from reserved parking is approximately \$4 million.

In 2012 December Council, provided additional direction regarding the administration of reserved parking at LRT stations:

- "...revise the reserved parking program...that it be based on a lot-by-lot approach responding to elasticity of demand with regard to:
 - Number of reserved spaces per lot up to 50% reserved spots per lot,
 - Cost of reserved parking spots per lot,
- Develop and implement a daily reservation system utilizing a ParkPlus cell phone account system to enable occasional LRT users to assure parking on a daily fee basis of \$5 and a ration of 10% of the reserved spaces.
- Investigate the feasibility of a flexible system of releasing reserved spots throughout the day.

The number of reserved parking spaces per lot continues to be based on the demand for reserved parking. Calgary Transit has not pursued differential pricing or daily parking schemes since the demand for reserved parking was continually increasing until the recent economic downturn. Advancing technology and stabilizing demand will enable these other these options, particularly differential pricing and daily booking to be pursued in the near future if there is demand.



69 Street Parkade, a park and ride lot that sees high demand

A Review of Calgary Transit Park and Ride

Table 9 provides a summary of reserved parking from 2015 October, the month when the demand for park and ride is normally highest. This table shows:

- 66 percent of the available reserved spaces are being used with over selling of the reserved capacity at some stations to reflect the unused spaces since reserved parking customers do not use their spaces every day.
- Between 1 percent and 123 percent of available reserved stalls are being leased and this varies greatly by lot and LRT line.
- End of line or near end of line stations is where reserved parking is in highest demand with large waiting lists for reserved parking, particularly at the two West LRT stations.
- In total, there are more customers on waiting lists for reserved parking than the total number of reserved parking spaces available in all lots.
- No reserved parking is offered at Whitehorn or Marlborough stations due to lack of demand.
- Most of these lots are filled to capacity by 10 am on weekdays.

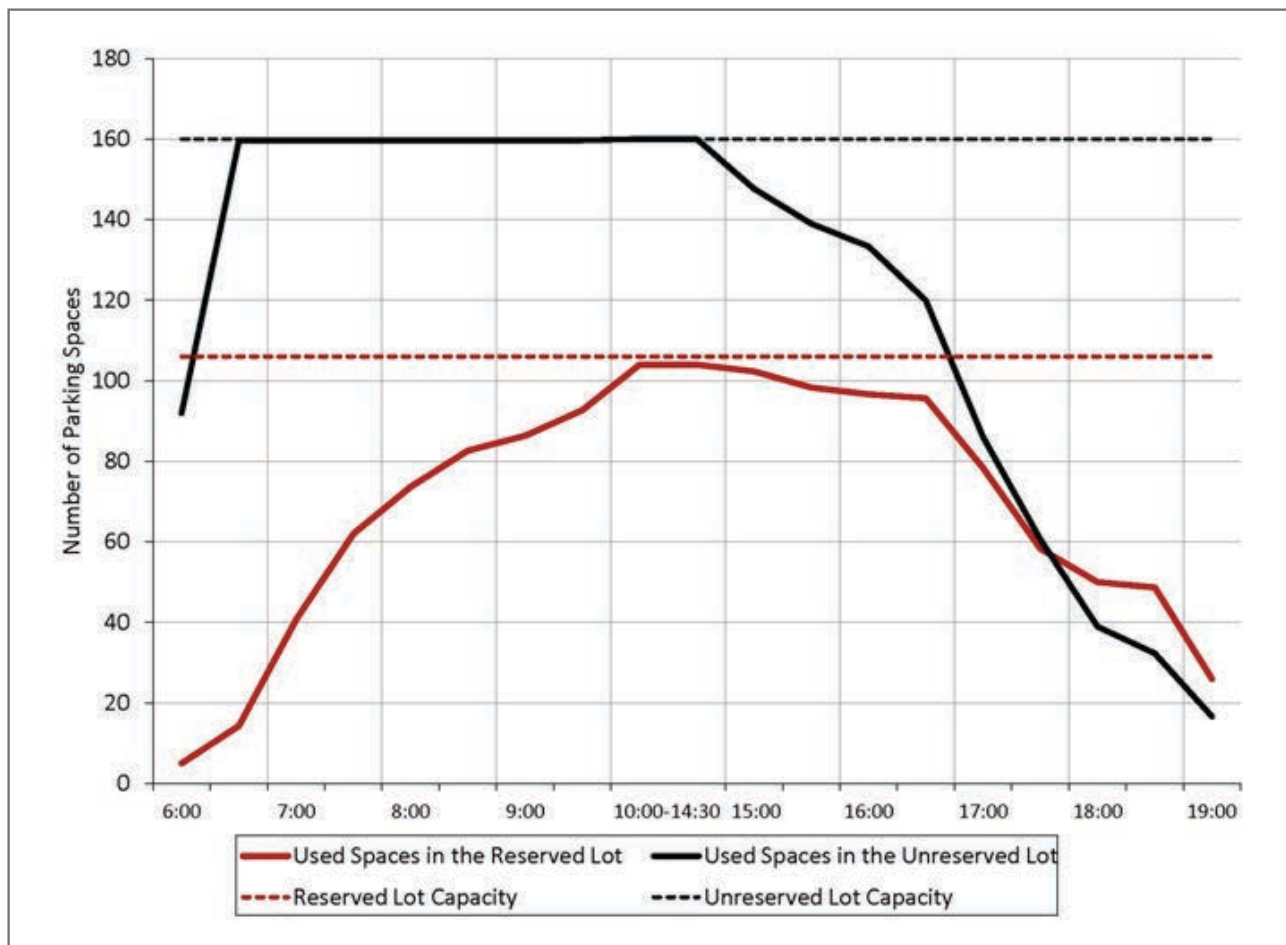
TABLE 9: Monthly Reserved Parking Statistics – October 2015					
PARK AND RIDE LOT	TOTAL LOT CAPACITY	MAXIMUM RESERVED STALLS	OCTOBER 2015 RESERVED	% OF RESERVED CAPACITY	RESERVED WAITING LIST
Red Line Northwest					
Tuscany (Rocky Ridge)	280	107	117	109%	453
Tuscany (Tuscany)	358	179	155	87%	680
Crowfoot	1,345	672	642	96%	0
Dalhousie	740	370	289	78%	0
Brentwood	980	490	317	65%	0
Total Northwest	3,703	1,818	1,520	84%	1,133
Red Line South					
Somerset-Bridlewood	913	456	503	110%	1,840
Shawnessy	200	100	111	111%	741
Fish Creek-Lacombe	1,130	565	519	92%	0
Canyon Meadows	260	130	160	123%	0
Anderson	1,665	833	234	28%	0
Southland	650	325	151	46%	0
Heritage	550	275	62	23%	0
Chinook	320	160	56	35%	0
39 Avenue	279	139	29	21%	0
Total South	5,967	3,025	1,825	60%	2,587
Blue Line West					
69 Street (Parkade)	737	368	443	120%	2,434
69 Street (Surface Lot)	90	45	44	98%	1,650
Sirocco	365	182	214	118%	14
Total West	1,192	595	701	118%	4,098
Blue Line Northeast					
Saddletowne	130	65	50	77%	0
McKnight-Westwinds	949	474	5	1%	0
Franklin	550	275	18	7%	0
Total Northeast	1,629	814	73	9%	0
Total All Lots	12,491	6,252	4,119	66%	7,818

LEARNINGS FROM RESERVED PARKING

There are several benefits from the current reserved parking system:

- Reserved parking customers have the advantage of being able to travel with confidence that they will have a place to park and can travel at more convenient, less crowded times.
- Figure 4 shows the arrival times at the north lot at Tuscany station of both reserved parking and free parking customers. Free parking spaces fill up very quickly and very early in the morning while reserved customer arrivals are spread out between 6 and 10 am. This pattern reduces the peak demand on CTrain capacity and roadways that provide access to parking.
- Revenue from reserved parking continues to assist with the operating cost of park and ride including reserved parking administration, signage, parking lot maintenance, sweeping, line painting, snow clearing, lighting and security patrols.
- Parking revenue allows more of Calgary Transit's operating budget to be used to provide bus and CTrain services.
- Free parking is still available at all lots.

FIGURE 4: Arrival Times of Park and Ride Customers at Tuscany Station - Rocky Ridge Lot



ISSUES WITH RESERVED PARKING

- Customers searching for free parking spaces are concerned with the number of empty spaces they see in the reserved parking areas. However, this is usually due to the later arrival times of reserved parking customers and the earlier arrival of those seeking free parking.
- Due to personal travel needs, approximately 10 to 20 percent of reserved parking customers do not use their parking spaces each day. In some lots, Calgary Transit oversells reserved parking to ensure that the reserved spaces do not go unused. However, a better system of releasing unused reserved spaces through some form of daily parking capability is being pursued.
- Currently, only the end or near end of line stations on each CTrain line have fully subscribed reserved parking quotas (see Table 9). At these lots, there are large numbers of customers on a waiting list for these lots. These lots are in high demand which would suggest that either a higher price or a higher reserved percentage would be appropriate for these lots. Reduced prices could be offered to increase the use of reserved parking in lots where demand is low.
- Many Calgary residents have expressed concern that out of town customers are taking up parking spaces that should be offered first to Calgary residents. A differential pricing for out of town customers may be appropriate. Out of town customers generally occupy about 10 to 15 percent of parking spaces on each line. Appendix 3 provides more information on the origins of reserved parking customers.
- Calgary Transit is working to modify the monthly parking on-line reservation system to permit automatic renewals.
- When the demand for reserved parking declines from month to month or as it has in the later half of 2015 and early 2016, Calgary Transit must make signage changes to reflect a lower number of reserved spaces. When demand increase the signs will need to be moved again. This causes considerable customer confusion and administrative costs. The Calgary Parking Authority, who provide parking enforcement of the reserved spaces, has advised that to better enforce reserved parking fixed video cameras should be installed which would enable 100 percent enforcement at all lots. However, this would require physically segregating reserved areas or a move to 100 percent reserved parking during the enforcement period.
- Most of the park and ride lots were not designed for reserved parking and in some lots the spaces with electrical plug-ins are not in the most convenient parking locations.

PARK AND RIDE USE – CUSTOMER EXPERIENCE

Park and ride appeals to many Calgary Transit customers since it allows them the freedom to better determine their arrival and departure times at an LRT station or BRT stop. They can use their car for other trip purposes on their way to the station (e.g. drop of children at day care) and on their way home (e.g. pick up groceries). It should be noted that the most recent survey of customers regarding their modes of accessing CTrain stations found that only 33 percent of park and ride users cited this as a reason for traveling to the station in a private vehicle (see Appendix 5).



Reserved stalls marked with regulatory signs.

A Review of Calgary Transit Park and Ride

Park and ride is attractive for those persons who:

- Live in communities that are not yet served by transit.
- Enjoy the travel time savings of driving their car.
- Avoid higher parking costs at destinations.
- Live outside of Calgary.
- Travel outside of the times when connecting bus routes, particularly for the evening return trip, is not frequent and long wait times for transfers maybe required.
- Wish to eliminate the uncertainty of making a transfer from LRT to bus.
- Enjoy the comfort and convenience of using their car.
- Have a disability that may make using a bus difficult.

Several customer surveys have been conducted to learn about park and ride customers and how they use this service (see Appendix 5). Park and ride customers are generally travelling to the downtown or post secondary schools where parking is not plentiful or there is a charge. As well, these locations, particularly the downtown experience considerable peak period traffic congestion.



Park and ride is attractive for those traveling to downtown and to universities



The majority of respondents believe drivers should pay for parking expenses

In general, and for many years because of its attractiveness, most LRT park and ride lots have been fully occupied on most weekdays. In fact, most lots fill up very early in the morning and are often oversubscribed, i.e. cars parked in non-designated areas within the lot or in surrounding areas. This results in frustration for transit customers who begin their journey in their car expecting to park to access CTrain service. There is also frustration for adjacent business owners or residents who experience problems with unwanted spill over parking.

Feedback received from customers during the past 35 years of providing park and ride indicates that it provides a valuable service for some customers but feedback often reflects frustrations with this service and how it is managed.

A Review of Calgary Transit Park and Ride

Customer feedback has generally been based on the following themes:

- Build more parking, build parking structures
- I can never find a space to park unless I arrive very early
- Park and ride should be free
- Parking lots should be safer and better maintained.
- Charging a fee discourages transit use.
- Park and ride customers pay twice, it is too expensive
- Need a provision to make daily parking available for occasional users
- Out of town customers should pay more / should not be permitted in lots.
- I don't need to park that often, but when want to use LRT there are no spaces
- Keep the (\$3) parking fees, park and ride fees are necessary to reduce demand so spaces are available for those who need them.

In 2015 November, Calgary Transit conducted a survey of CTrain customers to learn more about how they access LRT and their opinions regarding the mode they currently use, the mode they would prefer to use and potential improvements they would like to see. This online survey received 5,550 responses. Detailed results of this survey are provided in Appendix 5.

Figure 5 provides an overview of the survey findings. Some key findings indicate:

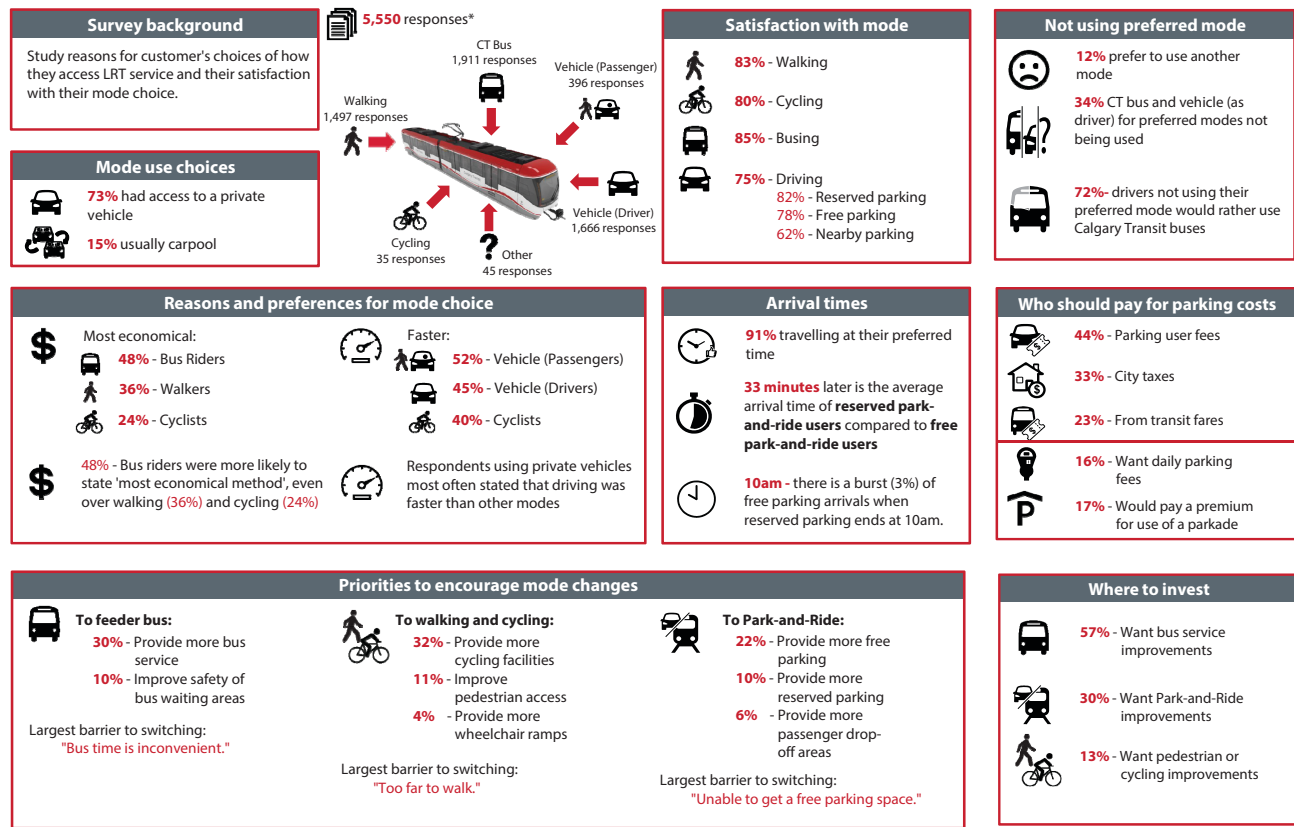
- Most customers are satisfied with the way they access LRT with those who park near the station being least satisfied.
- Customers who use a reserved parking space generally arrive about 33 minutes later than those seeking free parking.
- Customers who use park and ride are more likely to value faster travel time while those using bus, walking and cycling value the lower cost of these modes.
- Just over 10 percent of customers are not using their preferred mode and bus service improvements could result in many of those switching away from their current mode.
- The majority of customers, except vehicle drivers, were more likely to suggest that parking costs should be paid by park and ride users.
- Bus service investment was the number one improvement suggested by respondents.

Clearly it is not possible to provide parking for everyone who wants a parking space. No matter how much parking is provided it will not be enough to satisfy the current demand, particularly when it is free. Many customers are not well informed about the costs and other limitations associated with providing and operating parking and how this affects the overall cost of providing an affordable transit service.

Customers who value the assurance and convenience associated with reserved parking plus the travel time advantage of the CTrain have demonstrated a willingness to pay a fee for parking. The current reserved fee (\$85) plus a monthly transit pass (\$99) is now close to the current cost of parking at some surface lots in the downtown. The level of convenience and travel time advantage offered by CTrain travel is likely the value proposition that determines their mode choice. The higher demand for reserved parking at terminal, end of line stations demonstrates that these locations offer the greatest travel time advantage over driving closer to the downtown. It would be difficult to boost the monthly fee much beyond this to cover the higher cost of providing structured parking.

A Review of Calgary Transit Park and Ride

FIGURE 5: LRT Access Survey Findings



A significant issue for customers attempting to use free park and ride spaces is the lack of certainty of finding a space to park. Most customers have addressed this by arriving very early in the morning; however, this strategy will be offset by those who arrive even earlier, and so on. For those who arrive when the free areas of the lots are full or nearly full, these customers spend considerable time looking a space. When a space is not available, they are then faced with a choice of driving to another lot to make another search, drive to their destination and pay a much higher parking fee, park in a vacant space designated for reserved parking or park in a no parking area either within the lot or in the adjacent community or business. With these scenarios the customer is not experiencing a convenient, reliable or easy to use service and a parking ticket may be the result.

The fees charged for parking have enabled a much higher level of station cleaning and security patrols. Customer feedback has acknowledged these improvements and more frequent security patrols have resulted in a significant decrease in auto theft and vandalism.

When daily parking fees were introduced in 2009, the Calgary Parking Authority's ParkPlus system was not as well developed as it is today. There were reliability issues with the pay machines and customers were required to pay on a daily basis. The move to reserved parking allows customers to conveniently pay online for monthly parking. The online reservation system continues to evolve with the help of the Calgary Parking Authority.

COMMUNITY INTERFACE

Calgary's LRT system operates in a variety of environments with stations located in business parks, commercial and industrial areas, residential neighbourhoods, the medians of major roads, next to railway lines, shopping centres, post secondary schools, and the downtown.

LRT stations, particularly those with park and ride lots, generate significant volumes of auto, pedestrian, cycling and bus traffic on adjacent roadways with the highest volumes occurring during weekday peak periods. With park and ride, the greater the parking lot size, the greater the auto traffic volume. Parking lots also have a visual impact on adjacent areas. Without parking controls, areas adjacent to stations, particularly those with park and ride lots can attract unwanted spill over parking. Therefore, the location and sizing of parking facilities needs to take into account the capacity of the adjacent road network and be sensitive to the nature of the adjacent land use, in particular, residential areas.

FIGURE 6: CTrain Station Environs



Brentwood Station



Tuscany Station



Saddletowne Station



Somerset-Bridlewood Station

A Review of Calgary Transit Park and Ride



36 Street NE



SAIT/ACAD/Jubilee Station



Sunnyside Station



Shawnessy Station

CRITERIA FOR PARK AND RIDE LOCATION AND SUPPLY

Current park and ride policy guidelines stipulate that parking lots should be located beyond 5 kilometres of the downtown and that the amount of parking at each station be capable of serving between 15 and 20 percent of the estimated transit trips generated by the area served by the station. Calgary's experience with park and ride suggests that this criteria needs to be adjusted to reflect many years of experience, customer expectations, land use opportunities and the various cost implications of building and managing large parking facilities.

Too much parking can detract from the general goal of minimizing auto use. The traffic generated by park and ride can negatively impact local community streets (particularly in a TOD setting) and the quality of life in adjacent neighbourhoods. As well, excessive amounts of park and ride will lead to decreased ridership on feeder bus services. Without ridership support, local bus services that also serve local community destinations such as schools, shopping and recreation facilities may not have sufficient demand to warrant operation at attractive service levels.

Too little parking may restrict the transit ridership in the corridor particularly where there are no other options provided for accessing the system. Without some parking at stations, excessive overspill parking pressures will occur in adjacent communities and businesses. The appropriate balance of this option relative to other access modes is important in maximizing overall system efficiency. Therefore, the provision of park and ride requires striking a balance between providing a service to meet demand and recognition of costs and other implications.

A Review of Calgary Transit Park and Ride

While the current park and ride policy guidelines set basic criteria for parking supply it is suggested that this should be treated as an overall target for the system. It is further suggested that this target be used only as a signal for the planning of future facilities. The initial goal of providing parking for between 15 to 20 percent of weekday peak period appears to have been appropriate and effective for a new LRT system in its formative stages. This ratio may continue to be appropriate for terminal stations serving new and developing communities with limited bus service plus customers travelling to Calgary from outside the city limits. However, this amount of parking may not be appropriate for stations located closer to the inner city, with land use plans calling for higher density, more compact development.

The CTP and the RouteAhead plan both call for a review of the current park and ride policies to better reflect integrated land use and transportation goals. Given these policies and the increasing demand for developing higher densities at CTrain stations, plus land values at these stations should certainly preclude continuing to provide large surface parking lots. Structured parking reduces the land consumed by parking however, it is costly to construct and operate and it is difficult to transition to other uses in the future. Traffic generated by large park and ride lots can compromise the ability to provide attractive transit oriented development.

Aside from the economic implications of including parking facilities within station redevelopment plans, these parking facilities need to be evaluated in terms of impacts on TOD and adjacent communities. The evaluation needs to consider both the visual and traffic impacts associated with these parking facilities.

Finally, the pricing of this premium service needs to be considered in any consideration of parking supply. The importance of parking supply and pricing has been demonstrated as a key factor in achieving the current density and form of downtown Calgary as well as the success of the transit system. It is suggested that the need to attract customers to use transit by offering large amounts of free parking is no longer valid particularly where adequate levels of bus service are provided. The destination of most park and ride customer trips to areas of high traffic congestion, limited parking and high parking charges (mainly downtown) signals the need to price park and ride accordingly. A fee for all parking spaces would certainly temper the current high demand for parking and should be considered in the setting of parking supply targets.

It is suggested that the current target of providing park and ride be adjusted by maintaining the current supply to serve about 15 percent of weekday peak period CTrain trips. This figure is intended to provide a signal as to the relative priority that park and ride should have versus other access modes. In addition, it is recommended that the supply and format of parking be evaluated on a station by station basis for both current and future stations. The park and ride guidelines may also need to consider the supply of parking along major bus routes and transitways.

SUGGESTED PARK AND RIDE PLANNING CRITERIA

It is suggested that the following criteria be used to plan park and ride facilities at each CTrain station and major bus stops:

- Overall system park and ride target.
- Projected station / stop ridership.
- Station / stop location relative to the downtown or major attraction i.e, ability to intercept trips and reduce downstream traffic volumes.
- Projected station / stop parking demand based on:
 - Is the station an attractor or generator of trips to/from the area
 - Population within the station / stop service area
 - Quality of the current and planned feeder bus service to the station / stop service area
 - Is the station a terminal station – short term vs. long term

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- Capacity of the adjacent roadway network to accommodate traffic generated by a park and ride lot.
- Availability of land located within a 5 minute walk of the station / stop.
- Adjacent land use – nature and density.
- Potential for Transit Oriented Development within the station area
- Placement within the station area
 - not the prime TOD land,
 - entrance / egress opportunities
 - pedestrian connectivity,
- Appropriate parking form – surface, above grade or below grade structure.
- Opportunity for private sector to provide parking to transit customers.

MANAGING PARK AND RIDE

Parking is an essential part of Calgary's transportation system. All vehicles require multiple parking opportunities so that auto trips can be completed. However, literature on parking management¹¹ suggests that parking is:

- Costly to supply and maintain,
- Often over supplied and underutilized – i.e., vacant for considerable time,
- Generally not managed efficiently or effectively,
- Mostly under priced compared to its value,
- A key factor in generating auto trips and over supply, if offered free of charge.

Parking management refers to various policies and programs that result in more efficient use of parking resources. Effective management strategies are available to both satisfy demand and reduce parking supply by between 20 and 40 percent¹², examples include:

- Increasing the efficiency of parking use via shared parking, pricing and regulation,
- Providing user information on parking availability in advance of the trip and at the lot (way finding),
- Reducing demand by offering improved bus service and improved pedestrian connections,
- Improving enforcement and parking controls,
- Efficient parking lot design,
- Assessing the demand for parking at each location rather than applying city-wide policies for parking supply and management.

The Calgary Transit Customer Commitment promises to deliver six qualities of service – safe, reliable, helpful, informative, easy to use and clean. Based on the experience with the current park and ride operation, it can be argued that improvements should be made to the reliability, helpfulness, information and easy to use elements of this service.

¹¹ "Parking Management: Strategies, Evaluation and Planning", Todd Litman, Victoria Transport Planning Policy Institute, 2013.
¹² Ibid. p1

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Key parking management strategies that could be applied to park and ride in Calgary include:

- **Pricing:** collectively, parking users should pay more of the full cost of park and ride since it is in limited supply, high demand, and provides additional benefits over connecting bus services. The cost of providing park and ride is a draw on the Calgary Transit operating budget with less funds available to support core services. Pricing will act to influence mode choices among those who have other viable choices available thus reducing parking demand. Parking revenues can also be used to provide improved customer services such as security, lighting, and parking information systems. However, pricing should not be the only means of influencing demand.
- **Transit service:** at many CTrain stations quality bus service that provides access to higher order services (LRT & BRT) has demonstrated that this is a viable choice in lieu of parking. Bus service must be sufficiently frequent and operate during the required hours to offer an attractive alternative. Bus service is a more economical means of providing access to LRT than parking and these routes serve many other non-LRT destined trips. Improved bus service should be considered as an alternative to replacing parking displaced by TOD.
- **Transit Oriented Development:** introducing or encouraging higher density, mixed use developments at LRT stations can introduce opportunities for shared parking.
- **Flexible land use / parking requirements:** relaxation of parking requirements for compatible land uses near LRT stations can allow for sharing of parking. This increases the attractiveness for developers since the costs of providing required parking spaces can be reduced and the land can be used more efficiently. Parking revenue opportunities can also improve the attractiveness of this investment for the private sector.
- **Walkability:** improving pedestrian access to CTrain stations can reduce parking demand and allow shared use of other parking facilities in the vicinity of the station. Improved pedestrian facilities can also allow park and ride to be provided on land near the station that is less desirable for TOD.

SHARED PARKING OPPORTUNITIES

Shared parking in the vicinity of transit stations has the potential to reduce both the cost and space consumed by parking facilities. Shared parking has demonstrated its value at several locations adjacent to current LRT and BRT stops. Shared use examples of park and ride include:

- The 900 stall North Pointe park and ride lot serves BRT Route 301 customers on weekdays and is also used by customers of the adjacent theatre and shopping mall during evenings and weekends. The theatre paid for the construction of the lot in return for use by their customers.
- The 200 stall park and ride lot at Rundle station is provided by Sunridge Mall. The parking is the least desirable for mall customers since it is located furthest from the mall entrance and only needed a few times each year. This parking is located immediately adjacent to the LRT station so it is very attractive for LRT customers. This parking was a condition of the original development agreement.
- Marlborough Mall provides 150 park and ride stalls at Marlborough station, also a development condition.
- Canadian Tire provides 50 parking stalls at Richmond Rd and 51 St SW for customers to access several bus routes.
- Parking stalls are provided by the Harvest Hills Alliance Church and the Huntington Hills Community Centre for BRT Route 301 customers

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Other notable private sector park and ride spaces are provided for a fee by both the Calgary Zoo (Calgary Transit paid for construction of 500 spaces) and McMahon Stadium at Banff Trail station.

Shared parking opportunities – or ‘unbundling’ of parking requirements from compatible land uses has the capability to:

- reduce the need for Calgary Transit to construct and operate parking,
- reduce the total amount of parking required in the station area,
- provide revenue opportunities to offset private sector parking costs to attract private sector participation.

Unfortunately, many land use districts do not currently permit shared or dual use of parking adjacent to transit stations. However, land use policy relaxations are possible and could be incorporated into station area land use policies.

Table 10 shows a variety of land uses with different peak parking demands where shared parking opportunities may be appropriate, i.e. where parking demand occurs during evenings and weekends.



TABLE 10: Typical Peak Parking Periods for Various Land Uses ¹³		
WEEKDAY	EVENING	WEEKEND
Park and Ride	Theatres	Parks
Office, Industrial	Community Centres	Churches
Schools, Universities	Bars + Restaurants	Shopping Malls
Medical Clinics, Hospitals	Hotels	
Professional/Public Services		
Recreation Centres		
Funeral Homes		

RESERVED PARKING

The current reserved parking system employed by Calgary Transit at most CTrain park and ride lots (up to 50% spaces can be reserved) is a form of parking management. As noted previously, this system has a number of benefits including providing:

- Revenues to offset parking a portion (currently 40%) of operating costs,
- A means of satisfying customers who value the convenience and certainty that reserved parking offers
- A way to control demand for a portion of the parking spaces.
- Reserved parking customers arrive later than other customers thus spreading out peak demand for CTrain access.

¹³ Ibid, pg 12.

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Current reserved parking shortcomings include:

- The revenues recovered do not cover the full cost of providing and operating the parking facilities to a normal commercial standard (e.g., maintenance, wayfinding, etc).
- There is high demand with waiting lists for reserved parking at some stations and only limited use of reserved parking at other stations.
- Those without reserved parking (about 70% of park and ride users) are unable to use the parking with certainty. People who expect to find parking but arrive when the lots are full are not able to park, cannot easily access transit service and experience frustration.
- On most days, up to 20 percent of reserved parking spaces are not used during peak times since not all reserved parkers show up every day. It is difficult to manage this variability with certainty.
- There are limited resources available to enforce the reserved parking restrictions.
- There is no ability to accommodate occasional users who would like the ability to have daily parking for occasional trips.

POTENTIAL REVISIONS TO RESERVED PARKING POLICY

A more inclusive and flexible reserved parking management policy could result in increased parking use, increased revenues to improve services (both parking and local bus service), decreased spill over and illegal parking, and increased customer satisfaction.

A key benefit of reserved parking is that customers do not leave home with their cars without knowing that they have a place to park. It is suggested that the current policy pertaining to reserved parking be revised to transition towards requiring a reservation for all park and ride spaces in lots (LRT and Bus) where demand exceeds supply. As well, it is suggested that the fee for parking be based on the level of demand for each lot starting with a nominal fee (or free) for low demand lots and a higher fee where waiting lists are significant.

Requiring a reservation and payment for most parking is intended to:

- Ensure that no customer would leave home without an assurance of a place to park. This would increase customer satisfaction and reduce the occurrence of illegal and spill over parking.
- Decrease the sharp spike in demand that occurs on weekdays between 6:00 and 7:00 am. Reserved parking customers are able to travel when they need to travel vs arriving early in hopes of getting a free parking space.
- Better manage demand. If a price is attached to parking (even a nominal amount), like any good or service, customers will decide if the parking is providing a value or a benefit that is reflected in the price versus the cost of any other alternatives.
- Generate sufficient revenue to operate the parking lots and reduce the draw on Calgary Transit's operating budget. This would allow a higher percentage of operating funds (supported by property taxes and transit fares) to be devoted to providing improved bus services to benefit a higher number of customers particularly those accessing LRT stations. Only a small portion of Calgary Transit customers are able to use park and ride.

By requiring a reservation for all parking spaces, Calgary Transit could also introduce a system whereby reserved parking customers who are unable to use their spaces on daily basis could 'sell' their spaces back to the 'pool' in return for a credit on next month's parking fee. These 'released' spaces could be available for daily bookings by other customers. Similar systems are used by golf courses to manage tee times.

The Calgary Parking Authority which provides enforcement of the reserved parking system has advised that the current 50% reserved / 50% free policy makes effective enforcement very difficult. Video cameras at parking lot entrances and exits would provide 100% enforcement. The current mobile video enforcement system provides about 10% daily enforcement.

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The proposed reserved parking change could continue to allow free parking after 10 a.m. on weekdays and all day on weekends and holidays. Finally, it is suggested that bundling the purchase of a monthly transit pass with reserved parking, and ways to encourage car pooling should be explored.

ALTERNATE/SUPPLEMENTARY FUNDING FOR PARK AND RIDE

Currently the Calgary Parking Authority (CPA) returns revenues to The City of Calgary in the form of general revenue. Potentially, a portion of surplus parking revenue could be used to fund the operation of Calgary Transit park and ride lots. In terms of policy alignment this would recognize that The City of Calgary provides a suite of parking options with the most expensive being downtown parking and lower prices at LRT stations to encourage transit use and reduce traffic congestion. This concept needs further examination and discussion.

NEXT STEPS

The following next steps are suggested to clarify the role of park and ride and to optimize its supply and operation at current and future LRT stations and major bus terminals:

- Adopt a city wide park and ride target of providing parking for up to 15 percent of weekday peak period CTrain customers.
- Adopt a set of criteria to determine the appropriate amount, location and format (surface or structured) where new park and ride is being planned or where current park and ride may be reformatted to enable TOD.
- Conduct an analysis of each current and future LRT station or groups of stations to determine:
 - A general TOD strategy for the potential development and redevelopment (including timing) of City owned lands at CTrain stations and major bus terminals.
 - A park and ride strategy for each station and CTrain line that identifies:
 - Opportunities to increase or decrease the supply of parking based on demand, roadway capacities, adjacent and future land use and TOD potential.
 - A replacement strategy for park and ride displaced by TOD including the location and format of replacement parking – i.e. surface lot or parkade on a station by station or groupings of stations along each line.
 - Opportunities for shared use parking including private sector opportunities, where appropriate
 - Opportunities to improve connecting bus services in lieu of parking.
- Develop land use policies for CTrain stations and areas near major bus terminals to reduce overall parking and allow / encourage the shared use of parking facilities.
- Introduce revised park and ride management policies to:
 - Expand reserved parking for all park and ride spaces in all lots where the lot capacity is fully utilized. This is intended to eliminate the uncertainty for customers seeking parking and to increase funds available to operate park and ride. Increase parking revenue will permit more funds to be spent on improved bus services.
 - Base parking pricing on demand, i.e. lower price for lower demand lots, higher pricing for lots where demand is high (e.g. waiting list)
 - Introduce daily reserved parking based on a system to allow parking spaces not used by those with monthly reservations to be reserved on a daily basis (e.g. on the spot or the day before).
 - Explore using monthly transit passes coupled with reserved parking as a requirement to obtain a reserved parking space and to encourage car pooling.
- Explore the option of funding a portion of park and ride operating and capital costs from other parking revenues.

APPENDIX 1: CURRENT PARK AND RIDE POLICY REPORTS

Complete text from 1986 Park and Ride Policy presented to the Operations and Development committee of Calgary City Council in 1986

COMMISSIONERS' REPORT TO THE OPERATIONS AND DEVELOPMENT COMMITTEE

OD86-47 RE: PARK 'N' RIDE TRAVEL

1986 June 9

ISSUE:

This report addresses a range of Park 'n' Ride questions which were raised when Council members considered OD85-65, Park 'n' Ride Travel Options. Particular emphasis is placed on the results of the South LRT Rider Survey.

BACKGROUND:

At the 1985 September 3 meeting of the Operations and Development Committee, Alderman Bardsley made the following motion:

"That Clause OD85-65 be referred to Administration for consultation with the Ward Alderman and affected communities, and the report be brought back to Operations and Development no later than 1985 November 4. The report to contain: 1) inclusion of the N.W. line in ratios worked out, 2) identification of the cost of construction per level of structure and number of stalls per level of structure, 3) number of short-term parking stalls and the rationale for number and location, 4) up-to-date survey of the use of park 'n' ride on the N.E. line."

Previous Clause OD85-65 appears as Attachment 2 to this report. Additionally, Alderman Bell requested a new survey of the South LRT riders to determine their opinions regarding the existing provision of the Park 'n' Ride facilities.

Information addressing Alderman Bardsley's questions was forwarded to Council in OD86-28, Transportation Department Response to Aldermanic Questions Re: LRT Construction Priorities and OD86-31, The Northeast LRT Feeder Evaluation. However, a summary of the responses to Alderman Bardsley's questions is also presented in the attached information (Attachment 1, Appendix 1).

RECENT DEVELOPMENT:

On 1985, January 15 the Transportation Department distributed survey forms to all transit patrons boarding the South LRT between 0630 h and 1400 h at stations south of and including 42 Avenue Station. A copy of the survey results is attached (Attachment 1, Appendix 2, the South LRT Rider Survey Results).

The survey results were presented at a 1986 May 1 meeting to interested community association presidents (or their representatives) within the major South LRT catchment area (i.e. communities accessing LRT at 42 Avenue Station or any station south of this point). Attendees found the survey data interesting, but did not present formal recommendations based on the information.

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INVESTIGATION:

Information provided by the South LRT Rider Survey combined with LRT Park 'n' Ride user data was used to review the adequacy of existing South LRT Park 'n' Ride capacity (Transportation Department Report on Park 'n' Ride Travel, Attachment #1). Although parking is at capacity at the internal stations (Southland, Heritage and Chinook stations) increased Park 'n' Ride is ranked as the most important transit improvement by only 10% of the LRT riders. In contrast, investment in level of service (frequency) improvements for bus or C-Train represents the most important improvement for 45% of the LRT riders.

The investigation of the potential for incremental expansion of station parking capacity is recommended as an option which is consistent not only with technical concerns regarding major Park 'n' Ride expansion and desirable long range transportation goals (balanced mode use) but also with stated patron improvement priorities. Affected communities should be included in this investigation.

Finally, if Council wishes to increase Park 'n' Ride design guidelines, a range of 15-20% is recommended for consideration.

RECOMMENDATIONS:

That the Operations and Development Committee recommend Council approval of the following:

1. That the Transportation Department pursue opportunities to provide some expansion of Park 'n' Ride capacity at Southland, Heritage and Chinook LRT Stations and that such options be discussed with affected communities prior to formal presentation to Council.
2. That if Council wishes to increase the Park 'n' Ride design guidelines, a range of 15-20% should be considered.
3. That the Transportation Department continue to search for appropriate sites to develop additional Park 'n' Ride capacity along transit corridors.
4. That to maintain the attractiveness of the LRT/feeder bus system, the Transportation Department continue to actively pursue the development and marketing of level of service improvements to both the LRT and feeder bus components.

RECOMMENDATION OF THE STANDING POLICY COMMITTEE ON OPERATIONS AND DEVELOPMENT, 1986 JUNE 9

1. That Recommendation Nos. 1, 3 and 4, contained in Clause OD86-47 be approved.
2. That Recommendation No. 2 contained in Clause 0086-47 be filed and the following substituted therefore:

"2. That the Transportation Department increase the Park 'n' Ride design guidelines in the range of 15-20%."
3. That Recommendation Nos. 5,6 and 7, as follows be added:

 - i) University of Calgary Station,
 - ii) Brentwood,
 - iii) Dalhousie, and
 - iv) 85th Street.
6. That communities along the N.W. L.R.T. line be consulted with regard to this issue and that the report summarize their perceptions of the adequacy or inadequacy of the facilities being planned.

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7. That the Transportation Department explore the potential for additional opportunities to expand Park 'n' Ride capacity along the N.W. line, should this be necessary based on the technical analysis and community response.

ATTACHMENTS:

Attachment 1 - Park 'n' Ride Travel

Attachment 2 - OD85-65 - The Park 'n' Ride Travel Option

Figure 1

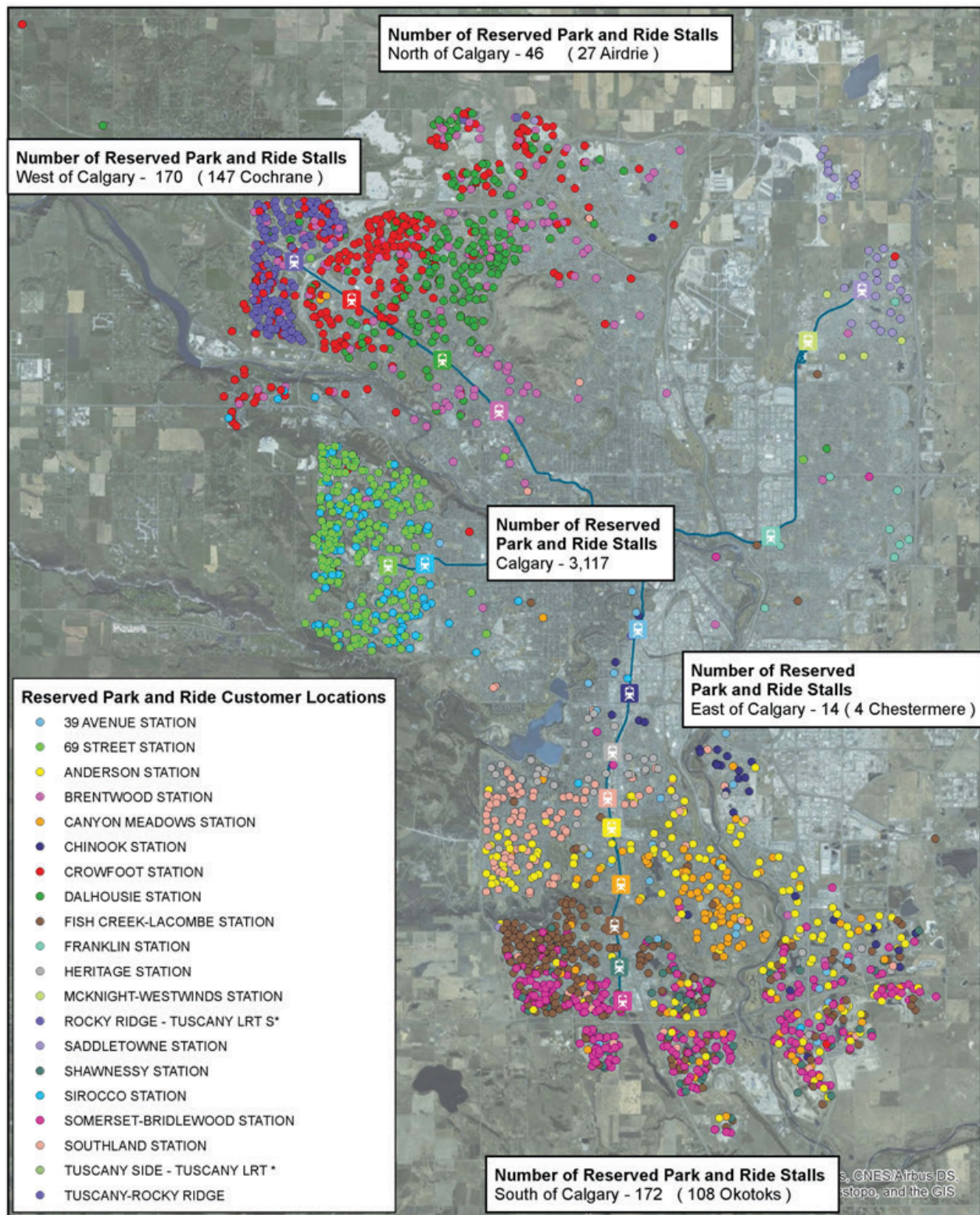
Figure 2

APPENDIX 2: WEEKDAY RIDERSHIP AND PARK AND RIDE USE AT SUBURBAN LRT STATIONS

LINE / STATION	ONS + OFFS	CUSTOMERS	CALGARY TRANSIT P+R SPACES	PRIVATE LOT SPACES	PERCENT P+R USERS
Red Line South					
Somerset-Bridlewood	22,040	11,020	913		9%
Chinook	21,200	10,600	320		3%
Victoria Park/Stampede	14,440	7,220			0%
Heritage	13,240	6,620	550		9%
Anderson	12,460	6,230	1,665		29%
Southland	9,280	4,640	650		15%
Shawnessy	7,700	3,850	200		6%
Fish Creek-Lacombe	7,290	3,650	1,130		34%
Canyon Meadows	7,160	3,580	260		8%
39 Avenue	5,510	2,760	279		11%
Erlton/Stampede	2,780	1,390			0%
Total South	123,100	61,560	5,967		11%
Red Line Northwest					
University	11,900	5,950			0%
SAIT / ACAD / Jubilee	11,830	5,920			0%
Brentwood	10,810	5,410	980		20%
Dalhousie	10,580	5,290	740		15%
Crowfoot	9,990	5,000	1,345		30%
Tuscany	8,210	4,110	572		15%
Sunnyside	6,200	3,100			0%
Lions Park	4,960	2,480			0%
Banff Trail	3,420	1,710		700	45%
Total Northwest	77,900	38,970	3,637	700	12%
Blue Line Northeast					
Marlborough	15,500	7,750	330	150	7%
Rundle	12,310	6,160		200	4%
Saddletowne	11,630	5,820	130		2%
McKnight-Westwinds	10,190	5,100	949		20%
Whitehorn	7,970	3,990	824		23%
Franklin	5,550	2,780	550		22%
Martindale	2,820	1,410			0%
Bridgeland/Memorial	1,940	970			0%
Barlow/Max Bell	1,860	930		50	6%
Calgary Zoo	730	370		500	149%
Total Northeast	70,500	35,280	2,783	900	11%
Blue Line West					
69 Street	12,520	6,260	827		15%
Westbrook	9,950	4,980			0%
Sunalta	3,960	1,980			0%
45 Street	3,760	1,880			0%
Sirocco	3,130	1,570	365		26%
Shaganappi Point	1,680	840			0%
Total West	35,000	17,510	1,192		7%
TOTAL	306,500	153,320	13,579		11%

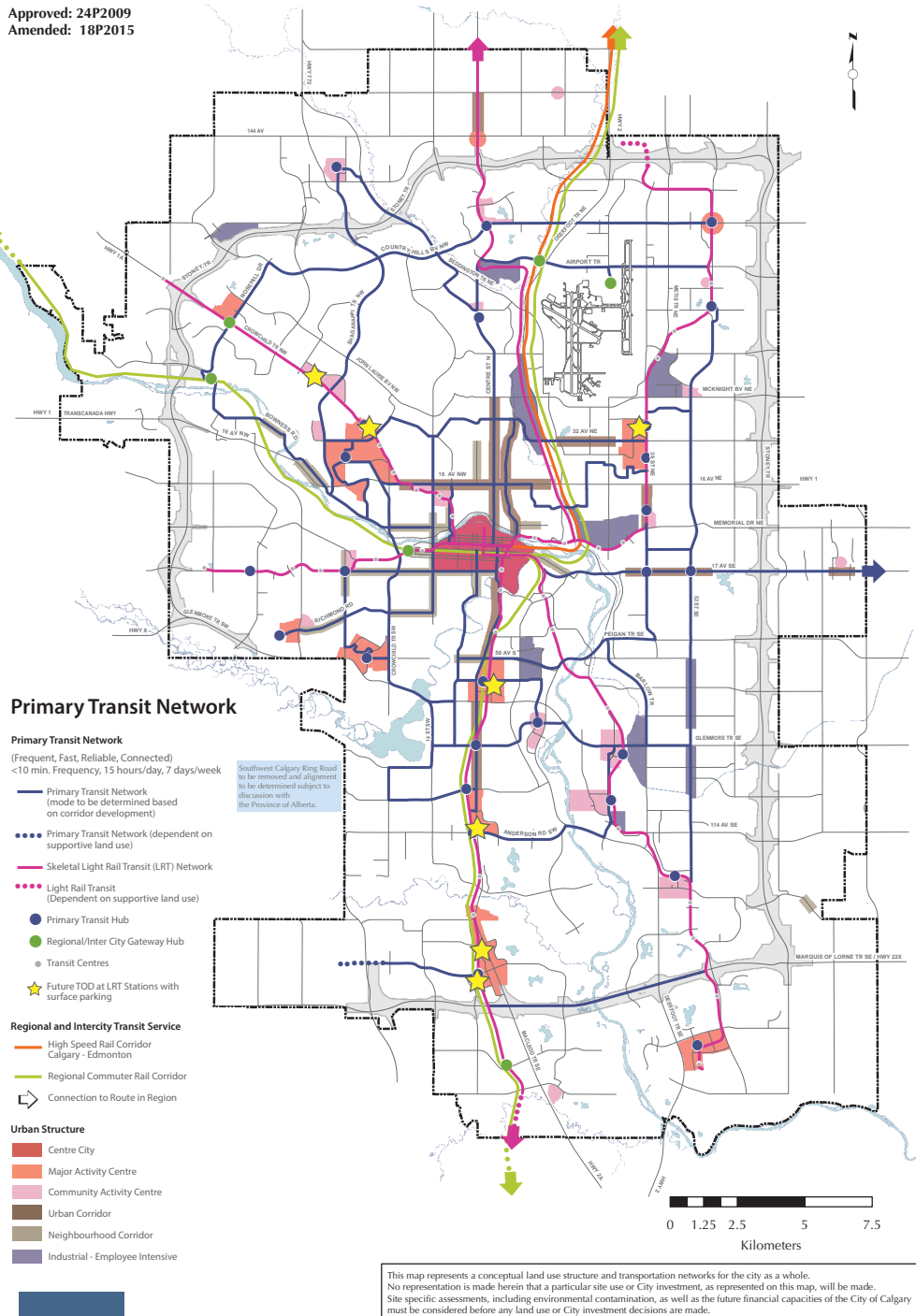
Note: all lots are filled to capacity by 10 am on weekdays.

APPENDIX 3: RESERVED PARKING CUSTOMER ORIGINS



APPENDIX 4: CTP/MDP PRIMARY TRANSIT NETWORK – FUTURE TOD AT LRT STATIONS WITH SURFACE PARKING

Approved: 24P2009
Amended: 18P2015



2

Primary Transit Network

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APPENDIX 5: PARK AND RIDE SURVEY RESULTS

The following are summaries of surveys of customers regarding LRT access and park and ride.

2015 Accessing LRT Survey

- Purpose - to determine the reasons for customers choice of how they access CTrain service and their level of satisfaction with their mode choice.
- Response to the online survey was invited via invitations posted online and station hand outs. Total responses = 5,500
- Customers arriving by private auto were over represented in the results (37% respondents vs 15% actual use)
- Preferred mode:
 - 87% of respondents are using their preferred mode to access LRT
 - Biggest barrier for those not using their preferred mode is bus service not meeting their needs (various).
- Reason for preferred mode of access:
 - Most economical bus (48%), walk (36%), cycle (24%)
 - Vehicle users most often stated that it was faster than other options
- Arrival time:
 - Travelling at their preferred time – 91%
 - Those using reserved parking arrive an average of 33 minutes later than those using free parking
- Satisfaction with current mode of access:
 - Walking 83%
 - Cycling 80%
 - Bus 75%
 - Private vehicle 75%
- Actions required to shift modes:
 - To feeder bus
 - Provide more bus service 30%
 - Improve safety of waiting areas 10%
 - To Park and Ride
 - Provide more free parking 22%, more reserved parking 10%
 - Provide more passenger drop off areas 6%
 - To Walking and Cycling
 - Provide more cycling facilities 32%
 - Improved pedestrian access 11%
 - Provide more wheelchair ramps 4%
- Investments requested to improve station access:
 - Improved bus services 57% (more frequent, later hours)
 - Improved park and ride 30% (more parking, more free parking)
 - Improved pedestrian and cycling connections
- How parking costs should be recovered:
 - Parking user fees 44%
 - City taxes 34%
 - All Calgary Transit customers via fares 23%
 - Daily parking fees 16%

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2011 Park and Ride User Survey – November 2011

Conducted in 2011 October after implementation of reserved parking in 2011 April

- Destination of reserved parkers – Downtown 90%
- Use of reserved parking by those who reserve:
 - 21 to 25 times per month 63%
 - 16 to 20 times per month 29%
 - 15 or less days per month 7%
- Satisfaction with reserved parking 77%
- Those who use free parking or park nearby:
 - Price is the main deterrent for paying for a reserved space
 - Would use reserved parking if price was lower 50%
- Frustration by those who cannot find a free space while some reserved spaces are empty.

2015 Calgary Transit Customer Satisfaction Survey

- Transit customers who use park and ride are nearly twice as likely to use transit to avoid traffic and parking costs at their destination.
- Park and ride customers are just as committed to continuing to use Calgary Transit.

2011 Park and Ride User Survey – January 2011

Conducted in 2011 January prior to termination of \$3 daily parking fee (April 2011)

- Respondents = 2,067
- Destination
 - Downtown 82% (work)
 - Post Secondary School 10%
- Use park and ride prior to \$3 fee
 - Yes 86%
 - No 14% - Mainly new users attracted by parking availability
- Those who stopped using park and ride after \$3 fee
 - Park and ride was too expensive
 - Found parking nearby
 - Walked to LRT instead
- Those who did not use park and ride would use Park and Ride if:
 - It was free 37% (\$3 fee eliminated)
 - Parking space guaranteed 14% (reserved parking)
- Highly valued aspect of park and ride:
 - Ability to get a parking space 7.9 / 10
 - Clean, well maintained lot 7.5 / 10
- Preference to retain \$3 fee
 - Retain \$3 fee 27%
 - Eliminate \$3 fee 33%

A Review of Calgary Transit Park and Ride

2010 Park and Ride User Survey

- Respondents = 506
- Park and ride costs should be paid by:
 - Park and ride users 41%
 - Tax payers 23%
 - General transit fares 21%

2008 Park and Ride Survey – 5 Stations

- Respondents = 530
- Anderson, Somerset Bridlewood, Brentwood, Dalhousie, Marlborough
- Destination of Park & Ride Users
 - Downtown 90%
- Trip Purpose
 - Work 88%, Post Secondary School 8%
 - Duration of Parking – 8 to 11 hours

1992 Northwest Park and Ride Users (Banff Trail & Brentwood)

- Respondents = 653
- Destination = Downtown 97%
- Difficult to find parking – No 86%
- Reason for using Park & Ride
 - Car is faster 46%
 - Need car for other trip purpose 14%
 - Bus service not convenient 25%
 - Bus service not available 14%
- Suggested transit service improvements
 - Improve feeder bus service 33%
 - Extend LRT 12%

A Review of Calgary Transit Park and Ride

1990 South LRT Park and Ride Users

- Respondents = 1,381
- Reasons for using P&R vs Bus:
 - Faster 44%
 - Convenience 28%
 - Bus Frequency not adequate 14%
 - No bus available 11%
- Reason for using Calgary Transit:
 - Parking cost at destination too high 58%
 - Dislike driving 17%
- Improvements requested:
 - More frequent trains 47%
 - Extend LRT 17%
 - Improve bus frequency 15%
 - More park and ride 9%

1984 Park and Ride Survey

- Users and Non-users of transit
- Disagree “there are not enough park and ride spaces” – 73%
- Most important actions for improving transit service - #1 better bus service, #11 Increase park and ride.