City of Saskatoon

SASKATOON TRANSIT STRATEGIC PLAN STUDY

FINAL REPORT

OCTOBER 2005

IBI GROUP

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EXECUTIVE SUMMARY

Background and Study Objectives

The City of Saskatoon is a medium-sized urban area of just over 200,000 people with medium growth rates. As such, it may not have the urban transportation congestion and demands of the nation's largest urban areas, but it is not without its own challenges in terms of traffic delays, air quality and an increasingly sprawling pattern of new residential development. As in most Canadian cities, urban areas have continued to grow, but transportation facilities and services have not kept pace. In recent years, transit systems in particular have lost funding and have had to cut services and raise fares, resulting in significant ridership losses and an ever-increasing trend to more single-occupant automobile use.

As transportation problems have worsened, and as social and environmental concerns have heightened, there now seems to be higher public expectations on transit to play a greater role in meeting overall transportation needs of Saskatoon, as well as most urban areas across Canada. Transit will also have to play a major role in overall efforts to meet environmental goals. There is a realization that transit will need to be far more innovative than in the past to increase its market share and that "business-as-usual" approaches will not succeed.

The primary objective of this **Strategic Plan** is to create a comprehensive plan that provides practical and effective transit improvements, and guides the short-term and longer-term development of transit priorities for Saskatoon. An equally important element is to also cover the required supporting policies and initiatives in the areas of transit-oriented land use, Transportation Demand Management and focused marketing needed to increase transit's market share. As such, the plan by necessity is also a **Sustainable Transportation Plan** for Saskatoon with corresponding wide-reaching implications and influence, but one for which transit is the centrepiece.

Downtown Saskatoon

A very specific aspect of the objectives for transit is the focus on high quality customer service and the development of new transit markets, but doing so in a manner that is cost effective and affordable. At the same time, the plan maximizes the potential shift to transit as a means of reducing greenhouse gas emissions and achieving other environmental goals.

This report provides a summary of the analysis undertaken as part of the plan development and the resulting recommendations. A major focus of the study, and hence the report, is on the development of a **Short-term Transit Improvement Plan** that can be implemented within the next year and can produce immediate benefits in terms of increased ridership and greater transit system performance (efficiency and effectiveness). The report also outlines the **Longer Term Strategy** which is designed to encourage significant increases in transit ridership. Both the short term plan and the long term plan are supported by financial analysis and include supporting strategies.

What Was Heard From the Public

Based on extensive public and stakeholder consultation and in-depth analysis of both current performance and future market potential, this Saskatoon Transit Strategic Plan proposes both *a major restructuring* of the Saskatoon transit network and an introduction of *"higher-order" transit services (Bus-Rapid-Transit or BRT)* designed to reach out to new markets and attract significant new riders to transit.

The public consultation included several key activities:

- Focus groups and other discussions with key stakeholders (business, students, seniors, disabled, transit drivers, Councillors);
- Surveys of both transit users (on-board) and non-users (telephone);
- System-wide ride checks.

The main message received from the consultation was that *the transit service needed major improvements to both attract and retain riders*. These would need to include faster speeds, higher frequencies, longer hours, greater coverage and more direct service (less transferring) to primary destinations, especially downtown and the University.

The analysis of the existing system and potential future transit markets also showed significant deficiencies in the service structure. These included long one-way loops, forced transfers and lack of service in newer developments, especially evenings and weekends. The analysis also identified several routes that were performing poorly, usually because of structural or service design problems.

Overview of Proposed Transit Plan

Based on the consultation and analysis, a new service strategy is proposed to effectively address service deficiencies, tap into new transit markets and improve the efficiency and effectiveness of the transit system overall. The conceptual routing network is shown in Exhibit 1.1. *This conceptual strategy is designed to provide the structure for a new short-term service plan and lay the foundation for longer-term improvements* as further urban development and ridership growth take place. The overriding objective of this strategy is to maximize ridership growth, both in the short term and the long term, but to do so in an efficient manner and generally work within the City's financial resources. The essential components for this service strategy are:

- Increased trip speed, route directness, higher frequency and service efficiency by introducing higher-order service on major core corridors;
- Major re-orientation of routes that better serves the University including more direct service from both the east and west sides of the City;
- Expansion of service into newer suburban developments, especially designated suburban centres and higher-density developments;
- Improved service to the North Industrial Area, including the airport, that is consistent with major shift start/stop times;
- Terminal improvements downtown and at the University that are needed to meet current demands and support higher-order service.

SHORT TERM IMPROVEMENT PLAN

To put this strategy into practice, a proposed Short-term Service Plan has been developed, consisting primarily of two major elements:

- ***A re-orientation of the current regular service network to better serve the University, and other key destinations*** (Kelsey-SIAST, suburban centres, the airport, industrial areas) and to provide more direct, no-transfer (including cross town) connections, especially to key destinations;

- ***The introduction of higher-order BRT service on four corridors*** interlined into two routes; the first providing a connection between the Confederation Park, downtown, the University, and Centre Mall and Lakewood suburban centres; and the second connecting Lawson Heights, Kelsey-SIAST, downtown, the University, and the new University Heights suburban centre.

The service improvements proposed in the Short Term Service Plan are detailed in this report. They are considerable and far reaching, with the most significant benefits being as follows:

- The higher service quality of the BRT lines (speed, frequency, all day service);

- The vastly improved direct service coverage to the University;

- More direct and less circuitous local routes (elimination of large one-way loops);

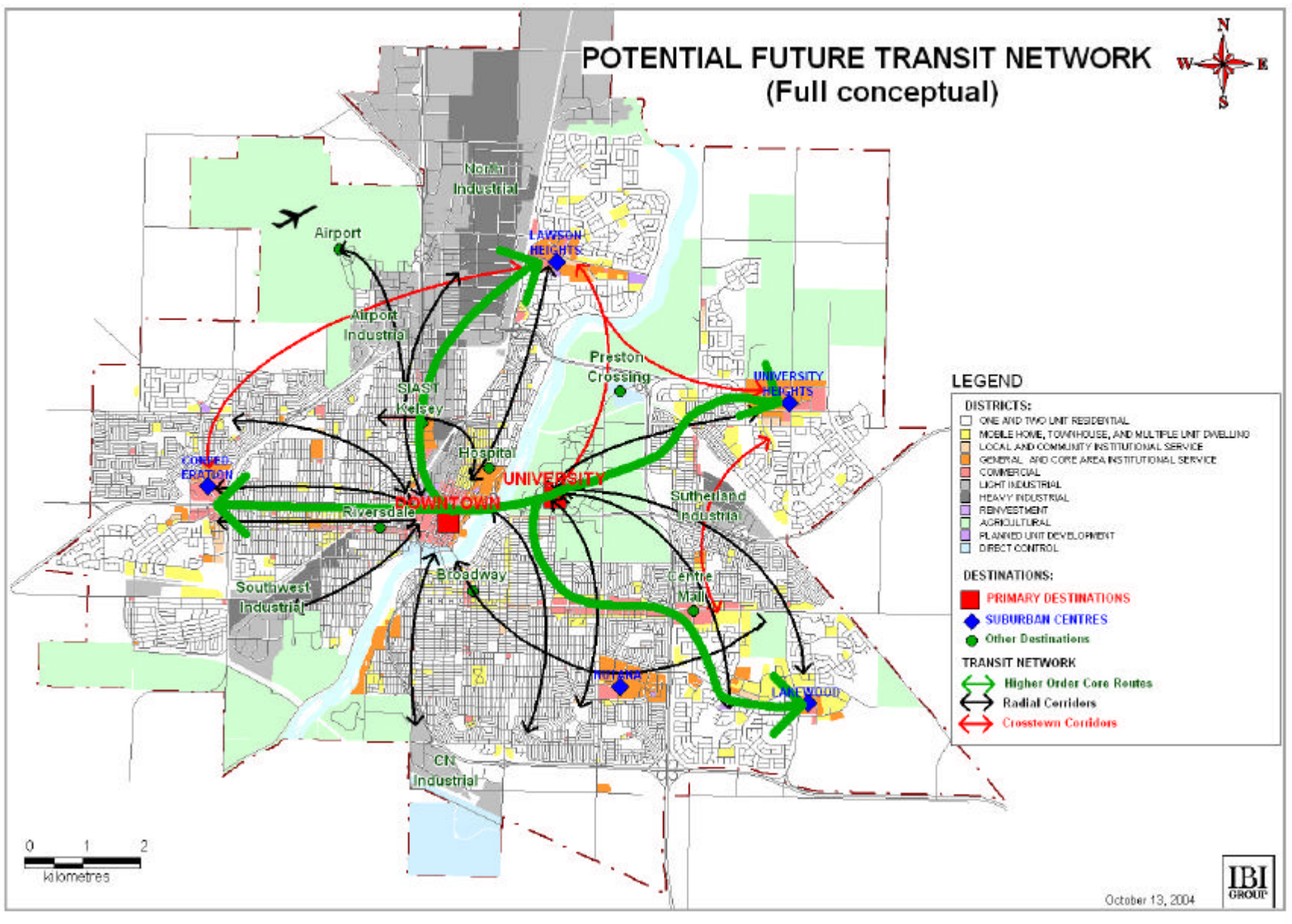
- Full service into all significant new suburban residential areas;

- Improved and more extensive service to the industrial areas;

- The consistent interlining of routes downtown with less need to transfer;

- The combining of suburban routings with trunk routes, again with less need to transfer.

Exhibit ES-1: Full Potential Future Transit Network



Recognizing the need for significant service improvements, but also to get the best value from current resources and not unnecessarily commit significant new funding, the Short Term Service Plan has been crafted to meet the objectives of the service strategy but do it generally within the existing funding envelope for transit. As a result, *the resource requirements for the proposed Service Plan are very similar to the current system.*

The peak vehicle requirements for the new Service Plan are essentially the same as at present. *In the first year of the Service Plan, no additional vehicles will be needed, either for local routes or BRT.* In the longer term, however, the BRT and other improvements are expected to generate significantly higher ridership growth than has been forecast in the past. Thus, a more aggressive fleet growth program will be needed to respond to this demand, which will be addressed in the Long Term Plan.

Some short-term capital improvements will be required for the short-term Service Plan, especially the three terminals, namely:

- New Off-street Downtown Terminal
- University (Place Riel) Terminal Improvements
- New Nutana (Market Mall) Terminal

Additional recommended short-term capital improvements would be select transit priority applications at major congestion points on the BRT corridor, especially the University Bridge and the access and egress points to and from Place Riel.

The Short Term Service Plan will result in *a net increase of about 6,600 hours or about 2.3% over current levels.* The small increase in service hours, even with the same number of peak vehicles, is because the new route structure is more streamlined with less duplication and circuitousness, which saves vehicles, but this is more than offset by increases in service during off-peak times, specifically to achieve the following:

- Provide BRT service with good frequencies at all times of the day;
- Improve service coverage and frequency to the University, especially during off-peak times;
- Have consistent full service coverage into many of the newer areas that now do not have service at all times.

The service quality improvements proposed in the Short Term Service Plan, however, are expected to generate significant new ridership, for the many reasons noted above. As with any major service restructuring, time will be needed for riders to adjust and become familiar with the new services. Thus, only minimal ridership gain is likely in the first year. Subsequent years, however, should see *ridership improvements in the order of 5% per year in the second year of the Plan.* Further ridership gain beyond that is expected as well, but will depend on further service improvements, such as adding service to the BRT lines and core routes and being able to extend routes into newly developing areas.

The end result of the Short-term Service Plan should be ***a major improvement in transit service quality, including the introduction of Bus-Rapid-Transit, at little or no net operating cost increase to the City.***

LONG TERM PLAN

The long-term vision for the transit system is one that emphasizes service quality, sustainability and economic development, and environmental management.

STS needs to provide a basic high quality service for all citizens focussing on the needs of youth, seniors, adult workers, and persons who do not have a choice. STS needs to be a cost-effective alternative to the automobile with services tailored much closer to the non-student demand with a more community-based route system focussed on the City's main activity centres, and higher frequency straight-line route structures in the City's main travel corridors. STS needs to build its services so that it can attract people away from the automobile and start growing its ridership to reduce automobile use and GHG emissions; the ultimate goal is to reduce GHG emissions by 35%. STS needs to position itself as the "economic engine" for community growth and prosperity, with services and costs reflective of the City's economic development initiatives and consistent with the growth in its residential and commercial tax base.

To achieve this long-term vision for transit, objectives, and service standards are recommended to achieve the following three goals.

- Goal 1: To Improve Service Levels and Ridership
- Goal 2: To Improve Service Quality and Customer Satisfaction
- Goal 3: To Improve Productivity and Cost-Effectiveness

The long-term plan developed and presented in this report represents a move to a more balanced/coordinated approach to the delivery of transit services. It would make better use of limited funds by building on the strong points of the route system to increase ridership and the modal split. The main features of the plan are as follows:

- Restructures routes into a "tiered" grid/feeder concept. Grid routes would operate on the main arterial roads connecting the City's community centres to the downtown and University; they would include base routes offering 15 minute or better peak and 30 minute off-peak service 18-7 in all city sectors (the BRT routes would form the core routes in the base system). Feeder routes would include local routes feeding the grid routes at the community transit centres, and community routes feeding the high schools in the various communities.
- Provides faster more direct service from the north, east, south and west sectors of the City to the main attractors; downtown, the Hospital, the University and College, the four malls, the airport and north industrial area. The intent is to provide better service to the City's growing non-student and adult worker markets.

SUMMARY AND FINANCIAL IMPLICATIONS

The following is a summary of the key operating statistics and financial implications of the Saskatoon Transit Strategic Plan. :

- **Revenue Hours** - the proposed service strategies will make significant improvements to the transit services over the long term. In the short-term, there will be significant changes to the routes although relatively modest increases in revenue hours and accordingly operating costs; the revenue hours will increase to 314,000 hours which will have minimal affect on the number of operators required because of scheduling efficiencies. In the long term after the Short Term Service Plan is implemented in 2006, revenue hours

will increase to 330,000 by 2011 and 400,000 by in 2016. This will require an increase in STS staff.

- **Operating Costs** -$22.0 million in 2005 to $24.4 million in 2007 after the Short Term Service Plan is implemented. If the Long Term Service Strategy is implemented after 2008, operating costs could increase to $28.3 million by 2011 and $39.4 million by 2016. The rise in unit operating costs over the period is due primarily to the fuel costs, wage rates and inflation. Unit operating costs in transportation, maintenance and administration, are assumed to increase by 3% per annum for the 10-year period of the Plan to account for inflation and wage increases. Fuels costs are assumed to increase by 30% over the 2005 to 2007 period and 3% per annum for the remainder of the 10-year period.

- **Ridership and Modal Split** - the proposed increased service levels should cause annual ridership to increase 5% from 8.7 million in 2005 to 9.1 million by 2007 (assuming the new short term services have been in place for about 2 years). After 2007 if the long term strategies are implemented, ridership should continue to increase to about 9.5 million by 2011 and 9.9 million by 2015. This is an average annual ridership increase of 1.0% over the 2007-2015 period, which is consistent with the population increase and the service improvements that will have been made. In 2016 if the frequencies are increased and a new north-south east-end crosstown route is introduced as proposed in the long term plan, ridership should increase to about 10.9 million which is a 10% increase from 2015. The ridership level is expected to rise from 42 to 44 passengers per capita in the short term, and to 49 passengers per capita over the long term. The service improvements are intended to increase the modal split from 6.0% to 7.0% over the 10-year period; higher modal splits than this will require more extensive improvements and significantly higher costs.

- **Operating Revenues and Fare Rates** - annual passenger and related operating revenues are based on the expected ridership using the proposed fare structure and rates in Exhibit 4.14. Council will need to increase the fare rates so that average fares increase about 8 cents per annum over the 10-year period. This will be necessary to meet inflation and the financial targets that have been established for STS.

- **Operating Cost Recovery** - it has been determined that the transit system will need to recover over 50% of its operating costs from operating revenue within the next ten years. If the transit system performs as shown in Exhibit 4.14, the cost recovery goal could be achieved by 2009 assuming that the Short Term Service Plan is completely implemented by that time. The cost recovery is expected to reach 56% by 2015.

- **Net Operating Cost/Tax Burden** - the net operating costs of the transit system should reach the $12.9 million level when the short term service plan is implemented in 2006, which is a 3% increase over the present net costs. The tax burden as measured by the net cost per capita should reach the $61.00 level by 2007 and stay close to this level until 2011; the current tax burden is $60.00 per capita. The containment of the tax burden is due to increases in ridership, fare rates and population over the short-term.

- **Municipal Subsidy** - STS will require a municipal subsidy of about $13 million or $61 per capita over the next 5 years. When the Long Term Strategy is implemented, a municipal subsidy of $14 million or $64 per capita could be required by 2015 and $17 million or $75 per capita by 2016, which is an additional subsidy of $4 million or $14 per capita. The additional municipal subsidy can be offset by Saskatoon's share of the federal gas tax revenue, which is expected to be about $10 million annually.

- **Capital Expenditures** - when fully implemented by 2016, the Long Term Service Plan will require approximately 110 vehicles in peak hours, or a total fleet of 125 including a 20% spare ratio, for maintenance and operations purposes. Over the 10-year period, 94 buses will need to be acquired for replacement and growth purposes, at an estimated cost of $42.3 million based on a projected $450,000 per vehicle in 2006 dollars, excluding applicable taxes.

1. INTRODUCTION

1.1 Study Purpose

This project is a system-wide study of public transit in Saskatoon that will result in a Strategic Action Plan for transit into the year 2015. The overall goals of the project are to improve the efficiency and productivity of the transit system while increasing ridership and helping the community achieve its goals for economic and environmental sustainability.

The current system for providing public transit in Saskatoon has followed the same format for many years. Through an extensive operational review and analysis, a more innovative, efficient, community driven and customer responsive service can be achieved along with a broad environmental performance goal of reducing GHG emissions. Optimizing the efficiency of transit routes, enhancing service and increasing transit ridership, thereby making the transportation system more energy efficient, can achieve this.

The Strategic Action Plan has three main elements:

1. **Short-Term Transit Improvement Plan** – Recommendations for service improvements that can be implemented within one-to-two years.

2. **Long-Term Strategic Plan** – A comprehensive 10-year strategic plan to improve transit service. The main focus of this is on developing longer-term transit service strategies that provides a blueprint that can guide City policies and decisions.

3. **Supportive Strategies for Transit** – Identification of transit-supportive policy options for walking, biking, ridesharing, transit-supportive land use, employer and University programs, and Transportation Demand Management.

1.2 Study Approach

In the spring of 2003, Saskatoon City Council approved funding for a system-wide study to improve transit services in Saskatoon. Early in 2004, it was announced that the study received additional support from the Federation of Canadian Municipalities (FCM) Green Municipal Enabling Funds. The additional funding from the FCM provides the City with the ability to expand the depth and scope of the project to include greenhouse gas emission (GHG) reduction strategies, measurement tools, and the development of a sustainable transportation decision model for public transit route planning and scheduling. IBI Group, a consulting firm with offices in Toronto and Calgary, was awarded the study contract.

A Steering Committee was established to ensure all facets of the community interest are included and have input into the study. The Steering Committee consists of two members of City Council, representatives of the business community, post-secondary institutions, public and separate school boards and representatives of the general public. A Technical Working Group was also established consisting primarily of managers and professionals from City of Saskatoon Transit, City Planning, Environmental Protection and Municipal Engineering branches. The role of the Technical Working Group is to provide technical advice and support for the consultant and Steering Committee throughout the study.

1.3 Organization of Final Report

This report documents the methodology, findings and recommendations of the Strategic Plan Study for Saskatoon Transit.

- Section Two *Existing Conditions and Needs* details the findings of market research, and public and stakeholder consultation to define the transportation needs of the community.

- Section Three *Policy Framework for Future Actions* identifies potential directions for transit policy and recommend specific goals, objectives and standards for the transit service.

- Section Four *The 10-Year Strategic and Business Plan* includes short and long term recommendations to restructure and improve transit service in Saskatoon.

2. EXISTING CONDITIONS AND NEEDS

This section documents the approach, findings and conclusions from the assessment of existing transit services in Saskatoon.

After identifying perceived deficiencies through public consultation activities, the study team conducted a detailed service and ridership review to collect and analyze ridership data for every route in the network. Peer comparisons were conducted to compare the performance of Saskatoon's transit system with similar Canadian cities. The study team conducted numerous site visits and reviewed previous studies to gather more information on the system. Land use data was collected from the City's GIS system and first-hand observations. Each route was methodically driven by the team to develop a better understanding for the City, major destinations and the route network. In September and October of 2004 trained staff rode each bus counting boardings and alightings at every stop and monitoring on time performance. These figures were collated and analyzed by the study team. The results can be seen in the series of route-by-route boarding maps in Appendix A.

2.1 Public Consultation

Hearing from all parts of the community is important whenever a major municipal service, like transit, is being reviewed or studied. This section documents the approach and results of public outreach and consultation efforts that were undertaken during this project.

There were extensive public outreach and consultation efforts in the data collection phases of the study. The consultation process used several approaches to gathering input on the goals for transit and STS, current challenges, and opportunities for improvement. These efforts included workshops, focus groups, surveys; and accepting written and verbal comments via phone, the Internet and post. The public were invited to provide input throughout the planning process. The rest of this section describes the outreach and consultation activities in detail and the insights that were gained by hearing from and talking to many people and groups throughout Saskatoon.

2.1.1 STEERING COMMITTEE VISIONING WORKSHOP

Throughout the project a Steering Committee provided input to STS and the consulting team. Several meetings with the Committee were held, including a Visioning Workshop. This workshop provided the Committee with the opportunity to discuss long-term hopes and short-term priorities for transit in Saskatoon. The Committee was broken into three groups of ten and each group was facilitated by one of the consulting team. The groups were asked to address four broad questions:

1. What should transit be trying to accomplish overall?

2. To what extent should transit be working to attract new riders?

3. What markets, land uses and key locations should receive higher priority for transit service? (Maps of Saskatoon were provided for this exercise.)

4. What aspects of transit service need the most improvement?

After developing group answers for the four questions, the groups discussed their conclusions. The small groups conclusions led to several larger discussions concerning the strategic direction of transit in Saskatoon.

The key visioning messages that appeared in each break-out group, and in the day's overall discussions, were:

- General desire to improve the effectiveness of the transit system (with environmental, economic and social benefits recognized) but efficiency must be maintained; this will likely require significant changes and innovative approaches will be needed.

- An overall direction should be to attract new ridership but this should be done without increasing the net cost (subsidy). If new resources are invested in transit, the ridership payback will have to be there.

- Transit should concentrate on the most important markets, especially travellers to downtown and the University (University could be a key focal point, taking some of the transfer pressures off downtown); other key markets and land uses will be SIAST, the Airport, major industrial-area employers, suburban centres, higher density residential areas and new developments.

- Important service improvement considerations will be better peak service (more important than off-peak), route restructuring that better serves target markets, fare policies that encourage ridership and better public information.

2.1.2 FOCUS GROUPS

A series of four focus groups were held to collect input from groups heavily impacted by transit services. The groups included the business community, secondary students and institutions, the High School Boards, low-income advocates, seniors and the mobility challenged.

Focus group meetings were held in City Hall and at the University of Saskatchewan. The focus groups were held as group discussions led by members of the consulting team. Councillor Beverly Dubois and STS staff attended most meetings. A set of preliminary questions structured the discussions that often diverged into particular concerns held by the group. The discussions were documented in meeting minutes that are that are summarized in the sub-sections below. The groups were specifically asked:

1. How does transit benefit or affect your group/community?

2. How could transit better serve your group/community?

3. What partnership opportunities might there be between transit and your group/community?

4. What other issues related to transit are important to your group/community?

Business Group Discussion: This focus group discussion was held October 19th at City Hall and was attended by 12 members of the local business community including representatives from the Saskatoon Chamber of Commerce; The Partnership; the Saskatoon Regional Economic Development Authority, Inc; and several individual companies and small businesses. Generally, manufacturing and service employers with large staffs and limited parking saw a greater need for transit services than smaller companies or retailers who's transportation concerns were more focused on customers. In general the group felt that most customers do not use transit to shop. Many business participants saw transit as an important way of getting employees to jobs. Travel costs are prohibitively high for some employees leading to recruiting or retention problems. The costs associated with providing parking for employees can also be high, acting as a barrier to growing businesses.

It was felt that providing improved transit service to support growing businesses would benefit the entire community. Several large employers, especially those with relatively low-wage jobs, reported recruiting/retention problems associated with insufficient access or inadequate transit service. Some employers are being challenged by significant growth (one plant has gone from 200 to 450 employees) and lack of access and inadequate transit service can limit opportunities for growth.

Negative impacts of current transit services on businesses were also discussed. Firms with the least need for employee-oriented transit service tended to be the most critical of the perceived negative impacts associated with transit. The downtown Transit Mall was a primary concern for some participants, especially nearby retailers. On a larger level it was recognized that municipal transit service contributes to the tax burden on businesses. The need to use tax money as efficiently as possible and lessen the burden was recognized.

The greatest shortcomings in transit services employers identified are in scheduling, including hours of service, followed by routings. The airport and some industrial areas do not have service, and schedules do not always mesh well with changing shift times. Current transit schedules do not start early enough to get workers to the earliest shifts (6:00 am and earlier in some cases), or return them home from the later shifts. Limited transit schedules also reduce the flexibility of the workforce. Some workers are not able to accept promotions because there is not enough transit service to accommodate their new duties.

It was recognized that the changing shift schedules seen in manufacturing creates a challenge for transit service. Seasonal and market-demand changes to shift times and staffing levels make matching transit service to demand difficult. It can be challenging to plan and schedule effective routes without up-to-date information about these changes.

There was willingness to explore options for partnerships between businesses and the transit system, with the recognition that benefits of services must make financial sense for employers. Opportunities to increase transit ridership that also reduce business costs (parking, recruitment, retention, etc…) should be considered. One example of a successful partnership between business and transit was illustrated. A successful program in Portland, Oregon allows employers to purchase discount transit passes in bulk and provide them to their employees as an alternative to employee-paid parking. This arrangement can increase ridership and reduce business expenses. Other options include chartered service that is requested and paid for by employers.

Academic Community Group: This group focused on the needs of University and Kelsey SIAST students and the challenges facing the two academic institutions. The meeting was held at the University campus on October 19th. It was attended by 11 University students and planning staff of the University and Kelsey. Although invited, no students from Kelsey attended.

Saskatoon's large student population is a natural market for transit. Transit is crucial for many students who cannot or do not drive. Students are often without a car, on fixed incomes or too young to drive but most still have large transportation needs similar in magnitude to commuters. These factors make transit an attractive means of travel for students.

Students and administration personnel representing the high school boards, SIAST and the University at a STS focus group.

As the University and Kelsey continue to pursue their primarily mission of education they are challenged by accessibility problems. On-campus parking at the University and Kelsey is limited making access more difficult for students and staff. The University has 6,500 employees, 19,000 students and parking for only a fraction of all people arriving on campus each day. It was

recognized that transit could assist the institutions in their core missions by providing a useful alternative for accessing campuses.

Group participants felt that the amount, quality and organization of transit service currently available are not adequate. Student travel patterns are not the same as typical commuter activity and the transit system should take those needs into account when planning service. Annual academic calendars, class schedules and other school-specific travel needs create travel schedules that vary by individual, institution, day and season. Lack of route and schedule flexibility limits off-campus travel for recreation and work. Affordable housing in areas without adequate transit services is not accessible. Lack of service may also limit some potential students from attending school at all.

The University is a major destination for students and one of the largest destinations in the city. Inadequate or poorly organized transit services to and from campus were a common concern. Several issues at the University related specifically to the layout of transit operations in front of Place Riel. It was felt the current traffic operations at Place Riel are not adequate to accommodate the number of buses arriving or the volume of passengers. As a result traffic operations on campus are chaotic while some bus routes no longer enter the campus and are stopping on the opposite side of College Avenue forcing students to cross the street on foot. Given the large number of student and heavy traffic several people felt this was dangerous. Other service deficiencies included reliability, evening and weekend service and security. One female student reported feeling insecure at the downtown Transit Mall. Transit faces an image problem among young students. A stigma associated with using transit discourages students from riding. Unreliable service has contributed to the image problem. Previous attempts to bolster transit's image on campus were undercut by this stigma and frustrated with STS services.

On a positive note it was felt that transit is safer and more reliable in winter weather when driving becomes dangerous and maintenance costs increase. Biking and cars are preferred in the fall and spring, but transit is often preferred in the winter. Ridership could be encouraged with education and incentives for students. Bike racks at bus stops or on buses may be an effective way to increase ridership and make transit more effective for students.

Previous attempts to implement a student U Pass at the University have been rejected by the student body and will continue to face opposition unless STS service and the proposal become more attractive. The proposal itself must be fair for residential students and students living too far away to use STS. The need for better terminal operations at Place Riel is also apparent. The current situation is disruptive, dangerous and not as effective as it should be for a high-volume destination. Significant improvements to terminal functions at Place Riel should be considered. Such improvement will require a close partnership between the City and University.

Specific concerns for Kelsey students were linked to the different needs of the two student populations. Many Kelsey students are completing basic skills programs and have fewer resources for travel expenses than University students. Kelsey students also tend to be on fixed-incomes and residents of low density, low-traffic areas of the city that receive less transit service. Kelsey students are older, the median age is 32, and many SIAST students have additional family responsibilities that affect their travel needs. Kelsey also reports a parking shortage with on-campus parking limitations impacting surrounding neighbourhoods. Although the campus is centrally located, only two routes serve it directly. More direct service to the city could make transit more attractive to Kelsey students. Kelsey already has a bus stop but it does not function well because the traffic at rush hour often pins the bus to the curb and the bus cannot pull back out into traffic. Kelsey has good elements for increasing transit service: central location, strict 8 a.m. - 4 p.m. class schedule, and parking is difficult.

Public/Catholic School Boards Group Discussion: A follow-up focus group was held January 7, 2005 with representatives of the Saskatoon Public School Board and the Catholic School Board

who shared their perspectives on the challenges of providing educational services in Saskatoon. They noted that transportation is becoming a limiting factor in both the individual's ability to access education opportunities and the Boards' budgets. The Boards wish to focus on their primary mission of education and reduce their direct involvement in the transportation of students. It was also felt that transit can help students access destinations beyond school activities and the entire community would benefit from improved access for students. High school students (14+) are seen as a primary student market for public transportation. It was felt that transit service in Saskatoon could become more effective with innovative arrangements for transporting students.

Currently the School Boards rely on a mixture of conventional transit service, STS charter services (student-only buses), and private bus service to transport students. Of course, many students are dropped off by car or drive to school on their own. Nevertheless, a large number of students need transit and parking is a challenge at some schools. While the structure of STS services was seen as meeting current demands fairly well it was felt that tailoring services to more closely meet students' changing travel needs will make the transit more attractive. Service area and access for students throughout the city was identified as a crucial element of transit service. Other desired services included enough afternoon and evening service to facilitate after-school activities throughout the city. Long distance services (express) to schools with unique programs might be useful. While many students could use regular STS services, some degree of segregation will continue to be necessary. Special student-only buses already provide more direct service while reducing the potential for behaviour problems that impact regular riders. The potential to create life-long riders by getting students comfortable with using transit was also discussed.

Beyond service design, the Board representatives felt the greatest benefit to students will come from innovative new arrangements for funding transit and making transit easier for students to use. Opportunities for the City and School Boards to work together to create innovative cross-program funding options that make public service more effective while using tax dollars wisely should be considered.

The Boards felt the greatest potential for win-win arrangements could be found in a new universal pass for high school students. Universal high-school passes allow students to use all transit services without paying individual fares. This arrangement makes transit far easier to use and allows students all-hours access to the entire community for school, jobs or recreation. It also opens a large market of potential riders to transit, some of who may become life-long users. The passes would be purchased in bulk and distributed by the Boards. The Boards believe they could save money on current transportation spending through a universal pass program. It was noted that the universal pass would likely require the same total subsidy as the Boards already spend on transport. An arrangement like this increases the value of public funds by maximizing school funding and improving transit performance while directly assisting students.

Seniors, Low-Income and Mobility Challenged Group Discussion: A focus group with representatives of the seniors and mobility challenged community was held on October 18th at City Hall. Eight residents participated, including members of the Access Transit Advisory Committee. Demographic trends indicate that seniors will account for a larger percentage of the population in future and efforts to accommodate this change should begin now. In addition some Saskatoon residents with mobility impairments cannot drive and are reliant on the transit system to access essential elements of life such as jobs and social activities. Low-income residents of Saskatoon are also often dependant on transit and constitute a sizable portion of STS's core ridership. For users reliant on transit due to economic circumstances transit services provide links to jobs, housing, medical facilities, community institutions and all other aspects of society. The group felt that providing transportation for persons with mobility limitations or an economic dependence on transit should be an important part of Saskatoon Transit's mission.

The amount of service, direction of the service (in bound or out bound), low-floor accessible buses, distance to and from stops (especially in inclement weather), and driver sensitivity to the special needs of those with mobility challenges are all crucial for passengers with special needs. Unpredictable transit service and limited availability of low-floor buses makes riding and transferring difficult and discourages transit use.

Getting to and from bus stops is seen as a major barrier for many people in wheelchairs. Much of Saskatoon is not accessible to persons with mobility challenges. The lack of curb cuts and even sidewalks in many areas of the city prevents wheelchair users from traveling, acts as a barrier to mobility and discourages transit use. Several group members noted that a greater percentage of mobility-challenged persons might use transit if the system was more accessible and if other physical factors in the community could be improved to make travel easier.

Participants applauded STS for converting the fleet to low-floor buses. They also felt that training for bus drivers is necessary to help them understand and respond to the special-needs of those with mobility limitations. The group suggested an accessible infrastructure policy for all city infrastructure and buildings to ensure the entire community provides a minimum level of accessibility. Many of Saskatoon Transit's existing services for special needs populations are not widely understood in the community, even among users. This indicates a need for providing more and better information to the disabled community. It was also felt that the Access Transit service is a part of the larger transit system and it should not be forgotten in the larger discussion of improving transit.

2.1.3 TELEPHONE SURVEY

A citywide telephone survey of five hundred Saskatoon residents, including regular transit users and those who never use transit, was conducted in October 2004 by a local market-research firm. Participants were asked a serious of questions to gauge how frequently they use transit, their perception of transit service and ideas for improving transit. Residents were called at random to achieve a natural split between STS users and non-users. Participants were chosen by geography to ensure all parts of the city were represented.

Most survey participants (71%) responded that they *had not* used transit in the previous three months while 29% responded that they *had* used transit in that period. The survey asked different questions of users (those who had taken transit) and non-users (those who had not). Later questions concerning perceptions of transit were asked of both groups.

STS Users: Almost 30% of respondents indicated they had used STS in the previous three months. Of those 34% had made taken no one-way trips on STS in the preceding week, 34% made fewer than 4 one-way trips on STS in the preceding week, 25% made 5 to 10 one-way trips, and 7% made more than 11 one-way trips. Exhibit 3-1 illustrates the frequency of use.

Bus riders were asked why they used STS. 47% responded that transit is a convenient alternative to their car, 34% said it provides service to their area and 32% said they do not have access to their car for their trip.

Approximately one third of those residents who have used transit in the past three months say the most important feature that would encourage them to use transit more often than they currently do is more frequent service. Other features included longer service hours, improved customer service and service to more destinations, as seen in Exhibit 2-2.

Exhibit 2-1: Frequency of Transit Use Among STS Riders

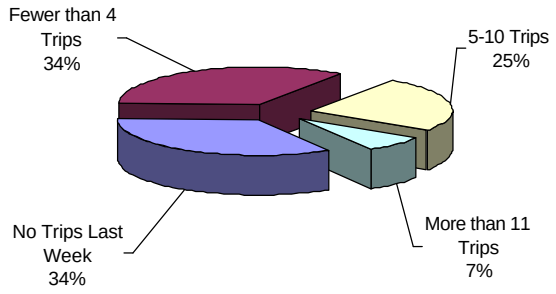
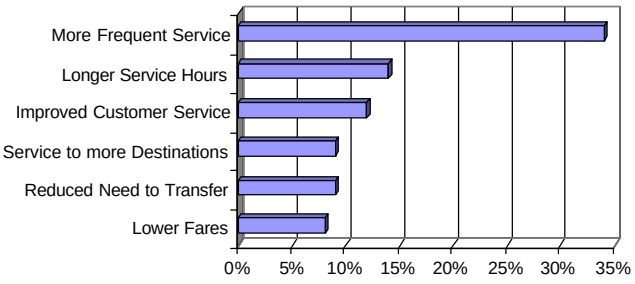


Exhibit 2-2: Improvements to Encourage More Frequent Use



Non-Users: 71% of respondents indicated that they had not used transit in the pervious three months. The vast majority of people who do not use transit (87%) drive themselves by car. The most common reasons non-users of the transit system give for not using the service (Exhibit 2-3) include inconvenient service (44%) and they prefer to use their car (35%).

When asked what service enhancements might encourage them to start using transit, most replied that nothing could encourage them to use transit (Exhibit 2-4). Others responded that more frequent service, lower fares and faster travel times would encourage them to try transit.

Exhibit 2-3: Reasons for Not Using Transit

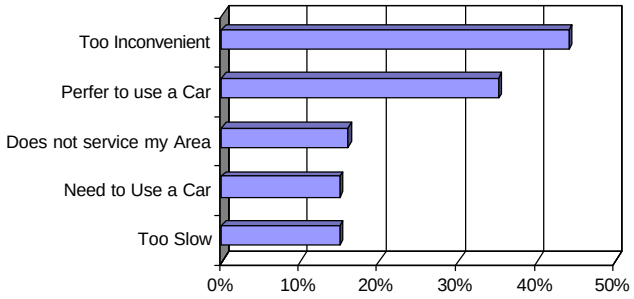
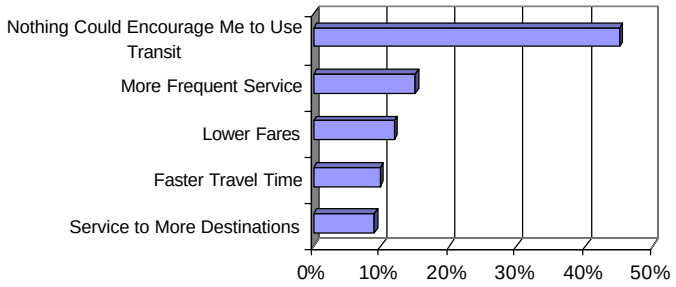


Exhibit 2-4: Improvement to Encourage Transit Use



Community Perception of Transit:

Residents were then asked to indicate the degree to which they agreed or disagreed with statements about transit to gauge community perceptions of transit. As seen in Exhibit 2-5 the large majority of survey respondents agree that transit is important in the community because it helps those without a car and those who cannot drive (99%), it helps reduce road congestion (91%), it improves the environment (87%) and is a safe and secure means of transportation (85%).

Exhibit 2-5: Community Perceptions of Transit

	Strongly agree	Somewhat agree	Combined agree
Public transit is important in our community because public transit helps those without a car and those who cannot drive.	88%	11%	99%
Public transit is important in our community because it helps reduce road congestion.	57%	34%	91%
Public transit is important in our community because using transit improves the environment.	55%	32%	87%
Saskatoon Transit is a safe and secure means of transportation.	46%	39%	85%
Downtown is the best place for bus routes to come together.	43%	33%	76%
Public transit is important in our community because public transit service contributes to the region's economy.	32%	38%	70%
It is easy to get information on how to use Saskatoon Transit.	33%	30%	63%
Saskatoon Transit provides convenient service to the destinations I need to get to.	21%	30%	51%
The $2.00 adult fare is too high.	23%	24%	47%
I support the idea of increasing transit service as a way to attract new riders, even if my taxes increase somewhat.	14%	30%	44%

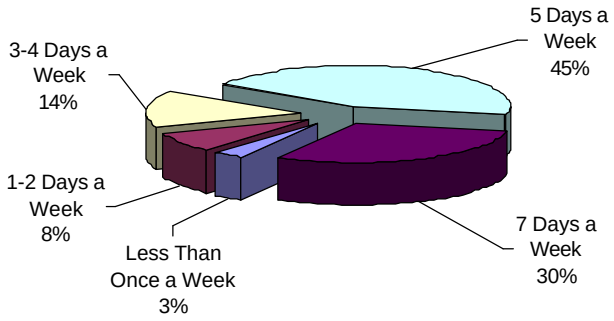
The majority agree that downtown is the best place for bus routes to come together (76%), it contributes to the regions economy (70%), it is easy to get information on how to use Saskatoon Transit (63%) and it provides convenient service to the destinations they need to get to (51%).

When asked to chose the most important destinations for transit trips in Saskatoon the University and downtown were identified as the two most important destinations followed by hospitals and medical centres, high schools, suburban centres and malls, Kelsey-SIAST, industrial areas, the airport and community centres.

2.1.4 ON-BOARD SURVEY

Written surveys were distributed to STS riders in late summer of 2004. Survey cards were handed to riders as they boarded the bus and collected before they left. Surveys were only distributed in the mornings to avoid the potential for surveying the same riders twice. 1,148 surveys were collected and the results as summarized below.

Exhibit 2-6: Riders' Weekly Transit Use



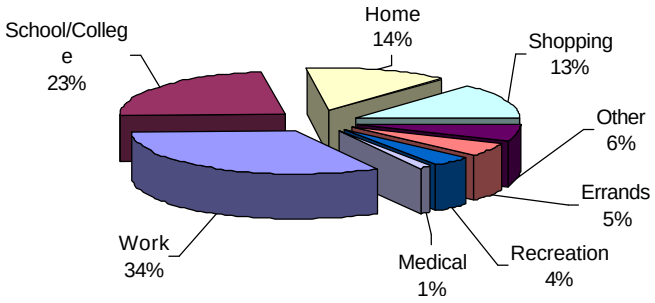
Frequent Riders: When asked how often they used transit, almost 75% responded that they used transit 5 or more days a week. Exhibit 2-6 shows the responses in greater detail. These figures indicate a reliance on

transit for regular commuting trips as well as the proportion of STS riders who rely on transit even on weekends (29%).

Trip Purpose: The purpose of traveling can be seen in Exhibit 2-7 that illustrates the responses to the question "*Where are you going?*" The largest proportions of transit users were traveling to work or school/college. Others were going home (possibly in reverse commute patterns), shopping, running errands, going to recreation activities or going to medical facilities. Not surprisingly when asked where they were coming from, 81% responded they had started their trip at home.

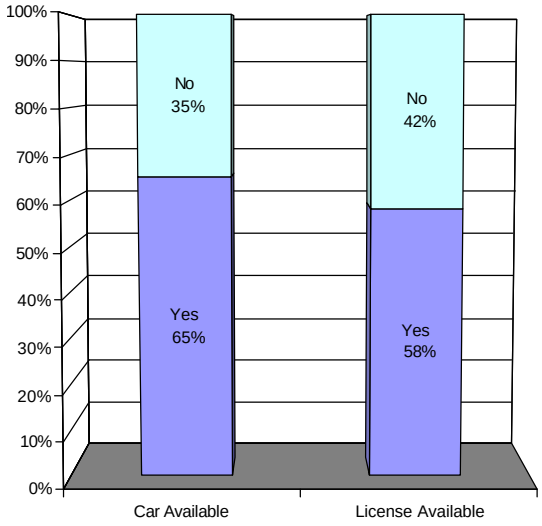
***Reliance on Transit*:** 40% of respondents do not have a valid drivers license. When asked how their trip would have been made if this bus was not available, many riders (17%) indicated that they would not have traveled at all. Other said they would walk, get a ride, drive themselves, take a taxi or another means of travel.

Exhibit 2-7: Destinations of Transit Riders



Car Availability: Almost 2/3 of respondents do not have car to use in place of public transportation (see Exhibit 2-8). 11% indicated there was a car available but using it would have caused someone else an inconvenience possibly indicated households with one car but several travelers. Together these last two questions underline the reliance on transit in Saskatoon. 40% have no license and 65% do not have a car available. Perhaps most striking in the 17% who indicated that the trip was not possible with out transit. These factors underscore the importance of transit service's social role in proving transportation to those with no other options.

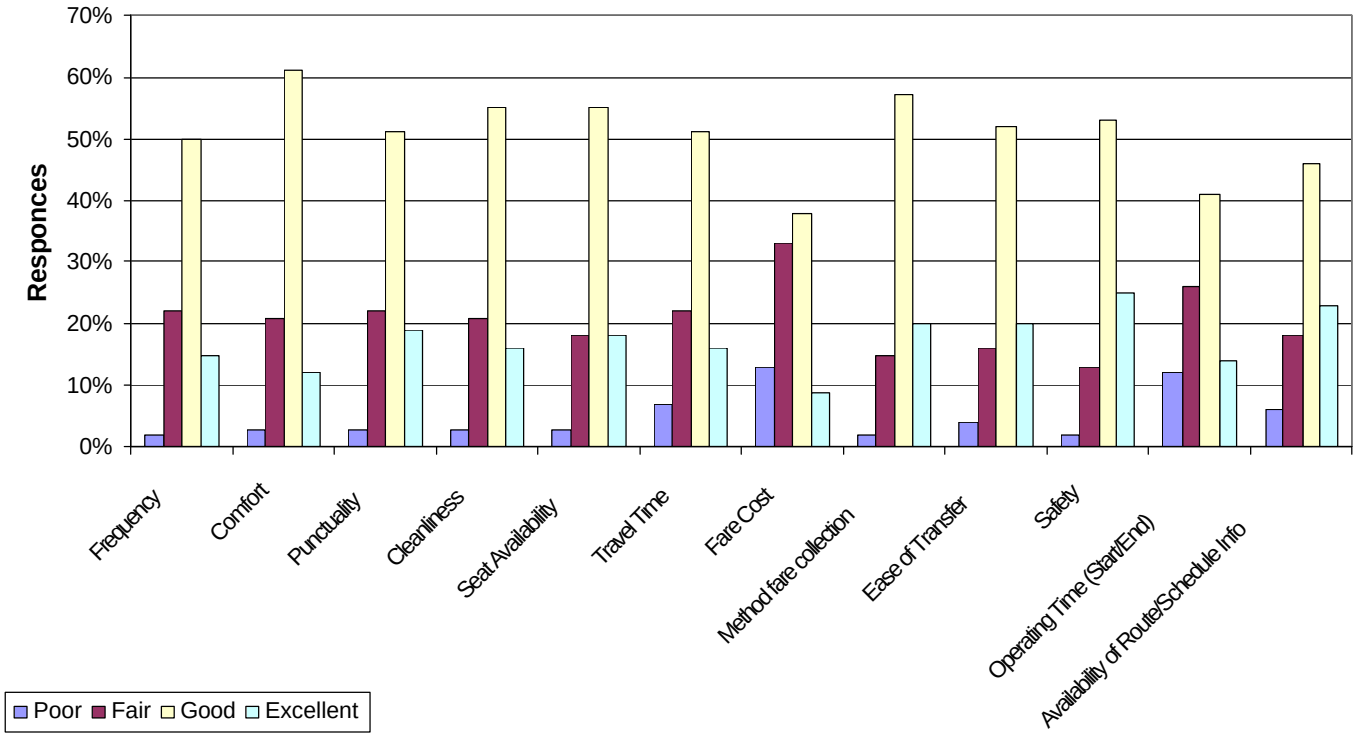
Exhibit 2-8: Car and License Availability



Interestingly 21% said that there was a car available to them, but they chose to ride STS. Other questions found that 58% of riders had a valid drivers license. This indicates that STS service can and does attract discretionary riders who have alternatives yet chose STS. The reasons travelers use STS can be seen in the next set of questions.

***Rider Perception of STS Services*:** The survey also asked riders to rate various aspects of STS service. Exhibit 2-9 below shows the responses to the question "*Please let us know your thoughts on various aspects of Saskatoon Transit.*" Travellers were asked to rate each element of STS service poor, fair, good, excellent, or no answer.

Exhibit 2-9: Riders' Perceptions of STS Service



Overall STS services are well thought-of by riders. Most aspects of service were rated "Good" or "Excellent" by 65% to 71% of respondents. Two aspects of transit service, fare cost and operating time (start/end), were rated noticeably lower than other aspects. Safety and method of fare collection were rated somewhat higher than other aspects. Furthermore, these answers mirror opinions heard from riders in the telephone survey.

Finally, the survey provided space for riders to outline any other comments or service improvement ideas they wanted to share. Responses covering a wide range of issues were received. Most common were requests for additional shelters/benches, bus stops, more routes/specific route changes, additional customer service training for drivers, special considerations for mobility-challenged passengers, provide additional service for students, on-board bike racks, longer service hours on evening and weekends, passenger behaviour, removal of advertising, and safety concerns at the Transit Mall.

2.1.5 WEBSITE FEEDBACK

A project website was established at the beginning of the project to provide the public with up to date information on the study and to allow for general feedback through email. The project website also provided on-line visitors an opportunity to participate in a survey similar to the telephone survey. The website was very popular receiving over 800 visits in the first three months and over 2,900 over the course of the study.

On-Line Survey: Between August and November over 500 people elected to fill out the on-line survey. This is very positive response to the use of Internet technology to communicate with customers. While not a scientifically valid survey, it provides the study with another level of

understanding the perceptions of transit and why Saskatoon residents do, or do not, use STS. Generally the answers supported the findings of the other surveys. When users were asked about the three main reasons they use transit the answers were 1) Provides service to my area, 2) I do not have access to a car for my trip, and 3) Is convenient alternative to my car. When asked what three improvements to transit would encourage them to ride more often users responded 1) More frequent service, 2) Longer service hours [e.g. evenings, weekends], 3) lower fares. When asked how they currently travelled the vast majority of non-transit users responded that they drove themselves. Riding as a passenger, taxi, vanpools, walking and bicycling received far fewer answers.

When asked to identify the three main reasons they do not use transit non-user responded

1) *Transit is too slow.*

2) *Too inconvenient.*

3) *Does not come frequently enough.*

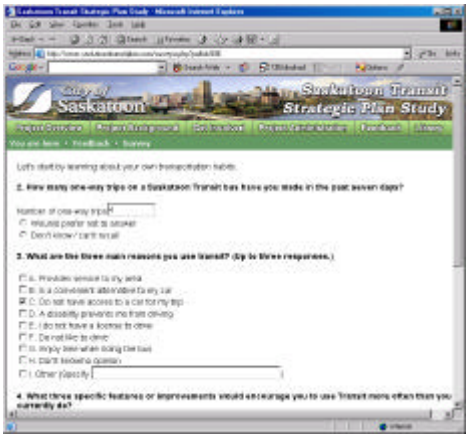
When asked what three improvements would encourage them to try transit non-users responded:

1) *Faster travel time.*

2) *More frequent service.*

3) *Reduced need to transfer.*

Relatively few people replied that nothing could encourage them to try transit.



The project website was visited over 2,900 times.

The survey also asked visitors to what extent they agreed or disagreed with statements about transit and STS. As in the telephone survey each question elicited responses of strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree, or don't know/no opinion. There was strong agreement with the following statements

- *STS is a safe and secure means of transportation,*
- *Public transit is important to our community because it helps reduce road congestion*
- *Public transit is important in our community because using transit helps improve the environment.*
- *Public transit is important in our community because it helps those without a car and those who cannot drive.*

While still receiving support, these statements saw more people disagreeing.

- *The $2 fare is too high.*
- *It is easy to get information on how to use Saskatoon Transit.*
- *Public transit is important in our community because it contributes to the region's economy.*

Opinion was split over the statement *STS provides convenient service to the destination I need to get too*.

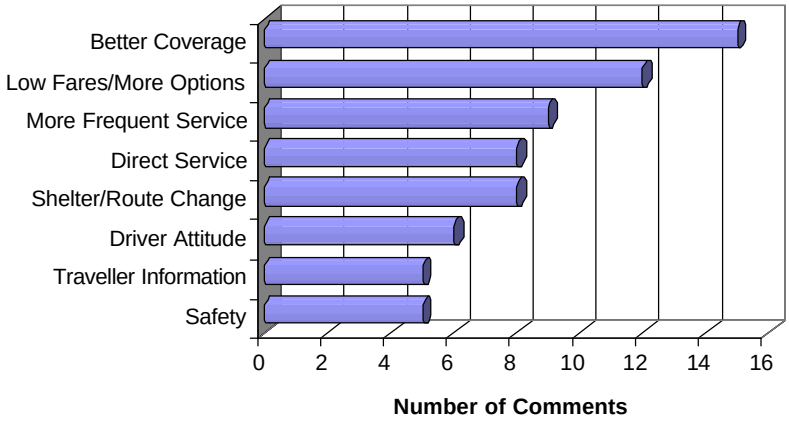
2.1.6 WRITTEN AND VERBAL COMMENTS

The project website provided opportunities for residents and STS employees to send written comments to the project team via conventional post and email. 50 written comments were received as well as five comments from STS staff. The STS Customer Service Centre received twenty-seven additional telephone comments. In their written and verbal comments residents highlighted perceived strengths and weaknesses of STS service. They also made compliments and suggestions for improvements. The most frequent comments, illustrated in Exhibit 2-10, were as follows (parenthesis indicates number of comments received):

- ***Service:*** The most comment requests were for more service. Increased coverage for access to jobs (15) and more frequent service (9) were the most common, followed by more direct service/better transfers (8), requests for new shelter or specific changes (8), on-time performance (3), faster travel times (2), service to the airport (1), and support for low floor buses (1) were all mentioned.

- ***Fares:*** Several people (12) felt fares were too high or ought to make more provisions for low-income residents. Three more felt transit ought to be cost competitive with personal automobiles. Another four comments reflected a desire for more discount fare options, including schools passes for younger students.

Exhibit 2-10: Most Requested Improvements



- ***Quality of Service:*** Many issues beyond quantifiable service levels affect how a person feels about their trip. Several people (6) reported drivers they felt were rude, three reported negative customer experience with other STS employees, vehicle condition (3), suggestion of bike racks on buses (2), crowding (1), and the behaviour of other passengers, primarily students (1), were all sighted.

- ***Other:*** More and better traveller information (5), Transit Mall safety (5), efficient use of taxpayer money (1), suggestion for light rail (1), more provisions for those with mobility challenges (1).

- ***Compliments:*** Six respondents complimented STS feeling that it was generally a good service.

- ***Staff Comments:*** A special page on the project website was devoted to hearing feedback from employees. A wide range of suggestions were received for improvements to internal STS business practices, fare structures, facilities, bus lanes, the downtown terminal, as well as suggestions for increased hours of service on weekends, better route coverage and connections with jobs.

It appears that most respondents used the web site email to make comments. Should STS upgrade its website in the future, it should consider adding a similar email-comment function to allow customers to file comments on-line.

2.1.7 MEDIA OUTREACH

During the early stages of the study spots were played on CFCR radio to encourage residents to use the project website and submit comments for the study. Several respondents indicated that the radio notice had alerted them to the project. Several newspaper articles were also published in the Star Phoenix during the study.

2.1.8 KEY MESSAGES

Several key points were observed throughout the consultation process.

- There is wide support for transit and STS even though there are some frustrations with the current service.
- Transit is an essential public service. Nevertheless, it must be an efficient use of public dollars.
- Transit must be effective at serving travellers.
- Transit's core markets are workers, students, seniors, low-income residents and persons with mobility limitations.
- The downtown Transit Mall can be a source of security concerns and frustration for nearby merchants. However, the majority of residents who commented favour keeping the transit hub downtown.
- There are several opportunities to build stronger relationships between STS and groups that are looking for better transportation alternatives.

2.2 Transit Market Analysis

2.2.1 LAND USE PATTERNS

The land use pattern of Saskatoon is quite traditional in nature. It has a centrally located downtown that continues to be the hub of commercial activity (offices, retail, institutions). It also has a major university campus very close to downtown that, from a transit perspective, provides an excellent opportunity to complement the downtown and provide an efficient twin focus for transit services, which will be explained further later in this report. Other traditional commercial land use tends to follow traditional radial main streets (20th St., 22nd St., 3rd Ave., 8th St., Broadway)

Much of the newer commercial activity has been concentrated in a series of four designated suburban centres (Confederation, Lawson, Nutana, University Heights), which have been planned as focal points for commercial, institutional, community and high-density residential development. Each of these has been located in one of the four quadrants of the city (north, south, east, west), with a fifth centre (Lakewood) planned for the more distant south-east area as development there takes place.

In general, Saskatoon has a relatively high proportion of medium-to-high density residential development, which usually has better-than-average potential for attracting transit trips. Some of the most important areas with these types of residential development include:

- Areas adjacent to downtown;

- Traditional radial main streets;
- Designated suburban centres;
- Newer higher-density developments, such as Lakewood, Fairhaven, Forest Grove.

Saskatoon also has large industrial areas, although these tend to be segregated into specific areas, especially the north end of the City east and southeast of the Airport. As is often the case with industrial areas, there is a large amount of employment but it is spread over a large area with low densities and, as a result, is difficult to serve effectively with transit.

2.2.2 KEY TRAVEL DESTINATIONS

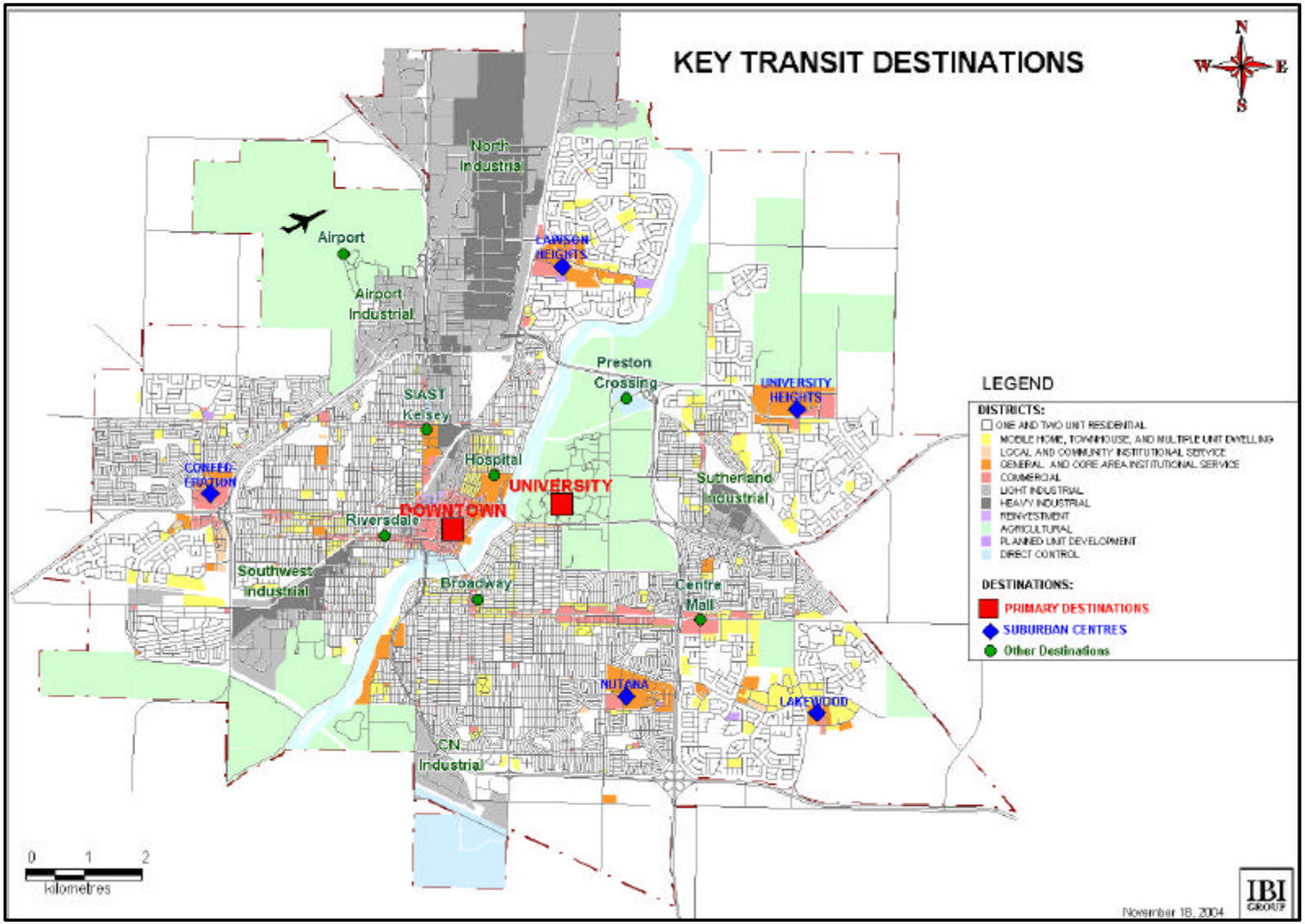
Major destinations are a natural focus for the transit system. In Saskatoon important destinations include downtown, the University, SIAST-Kelsey, other commercial and employment areas, high schools, and community centres. Exhibit 2-11 shows the major destinations for transit riders in Saskatoon.

Downtown remains an important destination for workers and plays a crucial role as a transfer hub. Growth in student ridership has elevated the University of Saskatchewan to an equally important destination, although less of a transfer point. These two major destinations, downtown and the University, now serve approximately the same magnitude of riders and are the two largest destinations in the City, especially for transit trips.

While not as busy as downtown or the University, the designated Suburban Centres (Confederation, Lawson, Nutana (Market Mall), University Heights and, eventually, Lakewood) are also important destinations for work, shopping and community activities. They also can and should serve as transit transfer points for travellers heading downtown or across town. Kelsey-SIAST is another important destination as many students use transit to access the campus.

Entry-level and lower-wage employees are another important ridership market for transit. Areas providing numerous jobs site for these workers become important destinations. In particular the airport and the North Industrial Area are important destinations for workers. Even though these areas are of a low density, there are some key employers with large numbers of employees (many over 100, some as high as 1000) where transit has potential.

Exhibit 2-11: Major Destinations



2.2.3 DEMOGRAPHICS BY NEIGHBOURHOOD

Exhibit 2-12 provides a summary of key demographic indicators by neighbourhood. These are from the 2001 census and all (except for average and median income) are expressed as percentages. The neighbourhoods are ordered by the percentage of work trips taken by transit.

Probably the most important relationship is that relatively higher transit use seems to be more prevalent for those living in higher density residences, especially those in areas with large high-density developments, such as the suburban centres. Also, for better or worse, the neighbourhoods with the highest propensity to use transit tend to be those with relatively low income and lower educational levels. As the travel mode figures are only for work trips, student travel, which we know from the ride checks is highly oriented to transit, is not included in this analysis.

2.2.4 EMPLOYMENT PATTERNS

Exhibit 2-13 provides a summary of employment levels by neighbourhood. These figures are from the City's business database and do not include government offices or agencies or other public institutions (University, college, high schools, hospitals, etc.). They still, however, provide a fairly accurate picture, given that much of the public sector employment is downtown or at major institutions.

The downtown continues to be the largest area of employment and that with the highest employment density. The north industrial area also has high employment but, as noted earlier, it is spread out over a large area. Other areas of relatively high employment are the suburban centres, also with fairly high density, and other industrial areas, again with low density.

Exhibit 2-12: 2001 Census Profiles for Saskatoon Neighbourhoods (20% Sample Data)

Neighbourhood	Total	Age Distribution					Avg.	Education 20+ by highest level of schooling						Labour Force 15 yrs.+			Labour force by mode of transp.					Private Dwellings						Persons	Low	Average	Median
	Popu-	0-14	15-19	20-24	25-64	75+	Age	No H/S	H/S	Trades	Some	U./Coll.	Univ.	Particip	Empl.	Unempl	Car	Car	Public	Walk	Other	Single	Semi-d	Apart-	Mobile	Owned	Rented	per	Income	Househ'd	Househ'd
	lation		(high/s)	(u/coll)		(sr's)		Grad.	Grad.	Dipl	U./Coll.	Dipl	Degree	Rate	Rate	Rate	Driver	Pass.	Transit		Mode	Det.	Row H	ments	Home			Dwlng		Income	Income
Saskatchewan	963155	21.6	8.1	6.8	49.4	14.2	36.5	35.2	10.8	13.9	11.2	16.6	12.3	67.8	63.5	6.3	79.7	6.7	2.4	8.3	3.0	76.1	7.3	14.9	1.8	70.8	26.8	2.5	15.8	49,068	40,251
Saskatoon	193665	20.4	7.6	9.2	51.2	11.6	35.1	24.3	10.4	13.0	13.1	18.8	20.4	69.1	64.2	7.2	78.7	6.6	4.7	5.9	4.2	58.4	12.6	28.6	0.4	62.2	37.8	2.4	19.7	51,941	41,991
Confed S.C.	575	31.3	7.0	12.2	37.4	9.6	25.9	31.9	8.3	22.2	22.2	11.1	5.6	58.8	46.2	21.3	64.9	10.8	13.5	8.1	0.0	0.0	31.5	66.7	0.0	16.7	79.6	2.2	57.8	23,558	17,115
Central Business D.	2470	0.4	1.8	4.9	38.3	53.9	60.2	39.8	7.1	9.5	9.3	14.1	20.1	37.2	33.5	9.8	41.3	2.7	12.0	38.7	6.7	0.8	1.1	98.7	0.0	16.8	83.2	1.3	29.3	35,617	23,699
Pleasant Hill	4415	27.1	6.3	8.5	48.6	9.3	31.6	50.4	10.4	11.9	13.3	8.4	5.8	49.3	36.5	25.9	59.8	13.2	11.9	10.5	5.5	38.9	14.3	47.3	0.0	25.8	74.4	2.2	63.4	22,603	17,011
Kelsey-Woodlawn	995	15.6	7.0	20.1	44.2	14.6	34.9	42.3	10.9	9.6	18.6	18.6	1.3	55.6	54.9	2.5	68.9	0.0	11.1	11.1	10.0	71.4	7.7	19.8	0.0	47.8	51.1	2.2	38.4	35,887	29,954
Airport Industrial	580	28.5	12.1	5.2	51.7	1.7	26.8	42.0	7.3	11.6	15.9	18.8	2.9	63.4	50.0	23.1	68.4	13.2	10.5	10.5	5.3	16.3	58.1	27.9	0.0	4.7	95.4	2.7	67.2	26,950	21,702
Holiday Park	1605	17.8	7.5	7.5	54.8	13.7	37.5	40.0	9.0	16.7	11.4	14.7	7.4	66.4	58.7	11.5	72.4	9.0	9.0	6.2	5.5	62.6	13.0	23.0	0.0	53.6	45.7	2.3	27.2	38,826	30,464
Brevoort Park	3315	18.1	6.6	10.4	51.0	13.1	36.2	19.9	9.0	12.7	12.9	22.1	23.3	66.2	60.0	9.2	75.9	6.5	8.8	5.5	3.9	57.8	11.3	30.6	0.0	55.6	44.0	2.3	20.5	48,254	38,501
Eastview	3495	18.6	7.3	7.2	53.4	13.7	38.6	25.9	10.8	13.4	12.4	20.1	17.4	65.0	62.0	4.9	76.5	5.8	8.2	4.0	5.5	57.2	21.2	21.6	0.0	60.2	39.4	2.5	18.5	55,804	48,037
Lawson Heights S.C.	1545	4.5	2.3	8.1	34.6	50.2	57.7	43.2	9.1	12.9	10.5	15.7	9.8	39.0	36.9	5.2	78.0	10.0	8.0	4.0	2.0	1.0	21.4	78.7	0.0	67.2	32.8	1.6	16.5	37,888	31,160
Mayfair	2485	19.3	7.0	11.3	51.3	11.1	33.6	34.1	8.5	12.8	13.6	21.0	10.4	66.8	60.3	9.3	75.2	6.8	7.7	6.4	4.3	78.0	19.2	2.3	0.0	68.7	31.3	2.3	34.0	34,395	31,903
Fairhaven	4990	23.5	8.1	9.1	50.5	8.8	33.0	32.8	11.4	16.0	15.5	16.5	7.6	74.5	69.0	7.5	78.8	7.3	7.3	4.2	2.4	41.7	12.6	45.1	0.8	49.9	50.1	2.6	18.0	44,061	40,411
Confederation Park	6300	28.8	8.0	7.8	51.4	3.8	28.7	34.0	14.6	16.7	11.2	16.1	7.7	75.3	69.6	7.7	81.4	7.2	7.3	2.0	2.0	76.4	4.3	19.6	0.0	69.1	30.7	3.0	21.2	45,945	42,037
North Park	1915	17.5	5.2	9.9	56.7	11.5	36.6	27.7	10.5	15.2	13.2	17.6	16.2	74.8	70.7	5.5	74.3	7.1	7.1	5.2	5.2	73.1	12.1	14.8	0.0	64.5	35.5	2.1	15.8	43,470	38,191
Queen Elizabeth	2555	21.1	9.0	8.8	47.4	14.5	36.4	18.0	13.6	11.6	12.2	19.9	24.1	71.4	67.2	5.9	77.4	4.0	7.1	6.4	5.2	66.7	31.8	1.0	0.0	67.5	32.5	2.5	14.6	51,112	45,988
Riversdale	2140	29.0	7.0	8.2	45.8	10.8	32.1	51.8	4.0	13.1	13.1	8.4	9.5	49.0	35.5	27.5	57.0	11.0	7.0	11.0	12.0	65.6	12.3	20.8	1.3	41.6	58.4	2.6	63.1	27,031	20,362
Grosvenor Park	1365	9.5	8.1	12.8	54.2	13.6	38.3	10.3	4.5	1.4	17.5	17.5	48.0	66.1	62.0	6.8	63.7	11.3	6.5	12.1	6.5	47.8	3.0	50.0	0.0	48.2	51.9	2.0	28.7	63,441	41,235
Exhibition	2480	15.1	6.3	10.7	56.1	11.9	35.7	28.5	10.8	18.0	12.8	17.7	12.3	72.4	69.1	4.3	76.5	5.7	6.4	4.3	7.8	62.9	10.1	27.0	0.0	57.3	42.7	2.0	23.4	37,794	32,630
Greystone Heights	2340	19.9	5.3	9.8	49.2	15.4	36.9	17.4	8.3	10.6	10.0	16.0	37.7	67.7	63.7	5.9	70.3	5.5	6.4	7.8	8.7	62.9	6.1	31.5	0.0	61.4	38.6	2.4	17.7	55,502	46,846
Pacific Heights	4265	26.6	9.0	6.0	54.9	3.4	29.9	31.1	19.8	12.6	8.7	22.2	5.5	73.5	68.4	6.9	85.6	4.1	6.3	1.5	1.7	92.7	6.5	0.0	0.0	81.9	18.1	3.3	19.6	52,824	49,030
Mount Royal	4110	15.5	7.1	6.3	48.8	22.3	41.4	43.6	12.0	15.3	7.6	14.9	6.5	54.1	47.6	12.0	75.4	7.4	6.2	5.2	5.2	66.3	16.6	16.8	0.0	60.6	39.1	2.2	22.8	37,288	32,069
Sutherland	4605	16.7	7.6	17.3	47.6	11.2	33.5	21.8	11.6	9.6	17.5	21.1	18.2	72.3	65.5	9.2	76.5	5.2	6.1	5.2	6.7	42.5	14.9	37.2	5.4	46.5	53.6	2.2	32.1	40,206	32,761
King George	1785	23.0	4.2	8.1	55.2	9.8	34.1	43.9	11.8	16.4	9.9	13.4	5.0	59.6	53.8	9.7	77.2	7.6	5.5	3.5	2.8	84.3	11.8	5.9	0.0	67.3	32.7	2.3	39.9	31,522	27,843
College Park East	4625	20.4	8.3	10.5	55.4	5.4	32.7	17.9	9.4	13.5	13.7	18.2	27.1	78.7	73.8	6.2	84.5	6.6	5.4	0.8	2.6	73.6	2.9	22.7	0.9	77.9	22.1	2.7	9.5	63,051	53,004
Haultain	2800	16.6	3.0	11.1	57.9	11.8	35.7	19.3	7.1	12.2	11.8	18.9	30.7	74.5	68.5	8.3	75.9	7.0	5.4	6.0	6.0	65.9	23.1	11.7	0.0	62.0	37.6	2.1	22.8	44,913	40,838
Meadow Green	3855	24.9	8.4	9.0	48.6	8.7	31.8	44.1	10.9	15.8	12.7	10.3	6.2	57.3	50.4	12.0	78.3	6.0	5.3	6.7	4.6	49.4	10.6	40.7	0.0	47.4	52.6	2.5	37.6	34,414	27,310
Caswell Hill	3510	19.7	6.1	10.4	55.4	8.4	33.5	29.4	9.0	13.7	15.0	18.9	13.9	66.3	60.1	9.4	68.8	9.6	5.1	12.7	4.5	67.7	7.8	23.9	0.0	57.8	41.9	2.2	31.8	35,191	31,570
Holliston	3360	19.2	5.8	9.2	50.9	15.5	37.9	17.8	12.3	11.7	13.6	24.3	20.6	71.0	66.1	7.0	79.8	5.9	5.0	6.2	3.0	63.0	17.0	20.0	0.0	64.0	36.0	2.2	16.5	45,373	41,482
Nutana Park	2815	20.3	7.1	6.0	51.3	15.3	38.3	17.9	12.5	12.3	12.8	18.2	26.8	64.5	60.7	5.9	83.2	8.8	4.8	2.0	1.2	87.3	11.3	1.5	0.0	87.8	11.7	2.8	8.2	63,205	53,356
Massey Place	3505	25.7	7.7	8.3	50.9	6.9	31.7	31.6	15.4	13.7	13.0	20.7	5.6	65.6	59.3	9.6	78.9	7.1	4.8	5.1	4.8	64.4	6.5	28.7	0.0	61.3	38.7	2.7	32.1	39,994	34,812
Nutana S.C.	2110	6.9	2.4	1.4	14.2	75.4	67.1	62.4	4.7	7.5	6.2	12.4	6.2	13.9	12.4	12.7	71.4	9.5	4.8	14.3	4.8	0.7	9.8	89.9	0.0	22.6	77.8	1.4	38.0	26,563	18,642
College Park	5065	19.0	8.8	11.9	50.9	9.5	34.2	19.0	9.7	12.0	13.3	16.1	30.1	72.9	66.3	9.0	76.0	6.7	4.7	8.9	3.7	57.1	17.5	25.2	0.0	59.3	40.8	2.5	16.6	54,356	44,212
City Park	4305	7.9	4.2	14.3	54.7	19.3	41.1	20.1	7.4	11.4	14.1	17.7	29.7	63.1	57.5	8.8	55.6	5.6	4.7	28.4	5.4	23.8	4.2	72.1	0.0	32.2	67.8	1.6	30.7	35,681	27,219
Westmount	2240	22.1	6.0	8.7	52.7	9.8	33.5	36.7	8.4	17.4	11.8	18.6	6.5	60.9	50.6	17.0	71.1	5.8	4.6	9.8	7.5	87.1	11.3	1.6	0.0	62.7	37.8	2.4	42.0	32,659	30,842
Wildwood	6795	13.2	7.8	13.3	47.1	18.5	39.8	19.5	8.5	11.4	14.3	19.7	26.7	66.0	61.3	7.1	79.6	7.8	4.6	5.3	2.4	29.6	21.9	47.7	0.8	63.8	36.2	2.2	16.8	51,454	40,978
Lakeview	7570	21.0	9.5	11.0	51.7	6.8	33.2	13.3	8.8	11.2	15.4	20.9	30.5	75.9	72.5	4.6	84.2	6.5	4.5	2.7	1.9	59.4	8.5	31.7	0.0	72.3	27.7	2.7	13.0	73,970	57,838
Forest Grove	5655	24.1	9.6	13.9	48.6	4.1	29.5	17.2	10.9	14.9	14.5	21.7	20.6	81.2	75.5	7.0	83.9	8.6	4.4	2.0	1.1	56.2	18.7	19.4	6.0	65.3	34.7	2.8	16.8	56,486	51,010
Lawson Heights	4810	18.6	10.4	11.8	53.5	5.7	33.6	14.7	10.9	12.3	14.8	23.0	24.2	77.3	72.1	7.0	82.1	6.6	4.3	2.7	4.1	54.6	14.1	31.3	0.0	64.5	35.7	2.7	14.6	67,633	57,605
University Hts. S.C.	550	5.5	5.5	8.2	43.6	38.2	48.5	22.2	9.1	21.2	10.1	14.1	24.2	47.6	45.7	4.0	87.2	0.0	4.3	6.4	4.3	0.0	42.6	57.4	0.0	90.2	8.2	1.8	8.2	49,785	50,555
Parkridge	4505	28.4	11.1	6.2	49.7	4.4	29.1	22.8	11.4	22.3	13.3	21.0	9.4	75.9	72.8	4.3	83.4	8.0	3.8	2.0	2.7	74.2	19.4	6.1	0.0	72.4	27.6	3.2	15.8	57,556	52,162
Nutana	6150	12.6	5.1	12.5	55.6	14.2	37.8	13.5	6.9	7.6	15.7	15.7	40.6	72.7	68.2	6.4	64.8	4.5	3.7	19.4	8.0	37.5	9.0	53.6	0.0	48.3	51.6	1.9	20.8	55,745	37,023
Dundonald	5285	29.0	9.3	6.8	51.0	4.1	28.4	24.7	14.2	15.9	13.6	21.9	9.7	81.1	76.9	5.1	85.3	7.7	3.7	1.7	2.0	71.9	7.8	20.3	0.0	74.9	25.4	3.2	15.0	55,195	53,458
Adelaide Churchill	3530	22.2	6.5	5.0	49.9	16.3	37.5	19.3	11.3	12.5	11.7	21.7	23.5	68.2	63.1	7.5	82.3	5.5	3.7	3.1	6.4	84.5	14.8	0.8	0.0	89.4	11.0	2.7	7.1	66,965	59,695
Westview	3410	25.2	5.9	5.9	56.5	6.2	33.0	32.1	14.3	16.8	12.3	16.6	7.7	74.1	70.6	4.8	86.2	8.5	3.5	0.0	1.2	84.8	13.5	2.1	0.0	84.8	15.6	2.9	15.0	52,003	46,169
Richmond Heights	940	18.6	7.5	3.2	39.4	30.9	44.6	29.5	13.0	9.4	12.2	21.6	15.1	46.1	44.8	2.8	58.5	18.5	3.1	12.3	9.2	63.1	6.0	29.8	0.0	73.5	27.7	2.3	12.3	42,837	34,408
Arbor Creek	1765	30.3	4.5	4.0	57.2	3.7	29.8	14.4	8.7	12.7	15.3	17.0	31.4	80.7	77.9	3.0	89.7	3.8	2.7	0.0	2.7	95.5	5.4	0.0	0.0	100.0	0.0	3.2	1.1	104,566	78,369
River Heights	4385	19.6	7.8	7.4	57.2	8.2	35.9	15.3	8.3	13.2	11.9	22.2	29.1	77.1	73.4	4.6	84.8	6.2	2.6	2.8	3.4	70.6	11.0	18.7	0.0	76.6	23.1	2.6	7.2	77,582	63,446
Varsity View	3490	8.2	8.6	21.8	45.0	16.1	36.9	11.9	6.4	5.0	19.7	12.6	44.2	64.7	59.4	8.2	59.8	5.1	2.6	19.7	12.5	39.8	21.6	39.0	0.0	38.0	61.7	1.9	30.9	44,346	28,867
Silverspring	3525	28.9	6.5	3.8	58.2	2.7	28.5	12.1	10.5	12.1	9.4	25.7	30.3	85.3	81.9	4.0	86.7	6.5	2.4	1.6	3.1	87.0	13.0	0.0	0.0	98.3	2.2	3.1	3.8	77,939	75,475
Avalon	3160	20.9	5.1	5.9	51.3	16.9	37.5	22.0	10.0	15.6	10.0	21.6	20.7	66.2	64.2	3.3	83.8	7.3	2.3	4.0	3.3	74.6	11.2	13.8	0.0	75.5	24.2	2.4	11.0	53,759	47,116
Silverwood Heights	11095	22.4	11.2	8.3	53.7	4.3	32.0	14.9	12.9	15.6	13.4	21.8	21.5	80.9	76.5	5.5	86.5	6.5	2.2	2.0	3.0	76.6	14.6	8.8	0.0	77.4	22.8	3.1	5.2	75,360	69,509
Lakeridge	4120	29.5	8.7	4.9	52.8	4.1	31.0	12.8	11.2	10.6	14.4	23.4	27.6	82.8	79.8	3.5	87.8	5.9	2.1	2.1	2.1	99.6	0.8	0.0	0.0	99.2	0.8	3.5	1.3	90,138	85,880
Buena Vista	2850	13.0	6.3	9.5	56.3	14.4	38.5	16.7	12.8	15.0	12.0	21.3	22.2	71.8	69.8	2.8	74.1	9.3	1.8	8.7	6.0	77.8	11.6	10.9	0.0	66.7	33.3	2.0	14.3	45,978	40,403
Erindale	4465	29.3	9.3	5.0	53.3	3.5	30.2	11.6	7.6	12.4	11.3	27.5	29.8	81.4	79.1	2.5	90.2	4.1	1.7	1.3	2.4	79.8	18.8	1.1	0.0	96.7	3.3	3.3	2.8	90,462	80,394
Montgomery Place	2735	21.4	12.3	5.1	50.6	10.8	36.0	25.8	14.0	14.0	11.5	21.4	13.5	71.6	69.3	3.6	88.8	5.1	1.1	1.8	3.3	95.6	3.9	1.1	0.0	92.8	6.6	3.0	4.4	65,690	56,248
Briarwood	1685	18.4	8.0	6.2	58.8	8.6	36.5	14.1	9.2	12.9	11.7	18.5	33.7	73.3	69.3	5.4	94.1	4.1	0.0	0.0	1.2	89.3	10.7	0.0	0.0	100.0	0.0	3.0	5.3	133,468	103,380
Hudson Bay Park	1830	14.5	4.4	6.3	45.1	29.8	45.3	39.5	11.2	15.9	8.5	16.6	8.1	47.3	43.8	7.4	83.6	5.5	0.0	6.3	6.3	64.0	9.3	27.3	0.0	63.4	36.6	2.1	16.8	36,407	34,939
Southridge East	160	0.0	0.0	0.0	6.3	96.9	81.4	43.8	6.3	18.8	9.4	21.9	0.0	12.5	9.4	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	100.0	0.0	70.8	33.3	1.3	0.0	0	0
U of S Mgmt. Area	645	16.3	6.2	25.6	52.7	0.0	25.1	2.0	0.0	2.0	37.3	11.8	47.1	44.0	37.0	13.6	15.6	11.1	0.0	53.3	24.4	3.6	0.0	94.6	0.0	0.0	100.0	2.2	74.8	14,723	8,624

Exhibit 2-13: Employment Levels by Neighbourhood

Source: City of Saskatoon

SDA	Neighbourhood	Org's	FT Empl	PT Empl	Total Empl
Central Business District	Central Business District	949	6264	3403	9667
U of S MA	U of S MA	87	848	526	1374
U of S MA	U of S Lands South MA	2	11	2	13
Core Neighbourhoods	City Park	213	1287	416	1703
Core Neighbourhoods	Nutana	166	572	452	1024
Core Neighbourhoods	Riversdale	156	544	217	761
Core Neighbourhoods	Caswell Hill	103	455	283	738
Core Neighbourhoods	Pleasant Hill	68	260	225	485
Core Neighbourhoods	Varsity View	45	199	107	306
Core Neighbourhoods	Westmount	22	89	89	178
Core Neighbourhoods	King George	14	18	62	80
Confederation	South West Industrial	48	2342	188	2530
Confederation	Confederation Suburban Ctr	114	836	1126	1962
Confederation	Mount Royal	32	180	312	492
Confederation	West Industrial	77	377	114	491
Confederation	Hudson Bay Park	18	104	127	231
Confederation	Meadowgreen	17	54	62	116
Confederation	Agpro Industrial	2	108	4	112
Confederation	Montgomery Place	6	28	38	66
Confederation	Holiday Park	14	35	20	55
Confederation	Confederation Park	7	18	34	52
Confederation	Dundonald	7	23	22	45
Confederation	Massey Place	6	17	11	28
Confederation	Gordie Howe MA	5	10	16	26
Confederation	Westview	6	8	15	23
Confederation	CN Yards MA	2	10	2	12
Confederation	Fairhaven	2	9	2	11
Nutana	CN Industrial	64	1296	288	1584
Nutana	Holliston	68	566	656	1222
Nutana	Brevoort Park	81	655	500	1155
Nutana	Greystone Heights	25	270	815	1085
Nutana	Nutana Suburban Centre	102	480	514	994
Nutana	Grosvenor Park	77	390	508	898
Nutana	Exhibition	27	369	185	554
Nutana	Buena Vista	17	112	52	164
Nutana	Haultain	39	107	57	164
Nutana	Avalon	27	49	69	118
Nutana	Eastview	14	75	41	116
Nutana	Adelaide/Churchill	10	28	56	84
Nutana	Queen Elizabeth	2	17	18	35
Nutana	Nutana Park	6	19	6	25
Lakewood	Wildwood	111	646	955	1601
Lakewood	College Park	111	497	510	1007
Lakewood	Lakeview	44	127	96	223
Lakewood	College Park East	9	29	16	45
Lakewood	S.E. Development Area	3	12	2	14
University Heights	Sutherland Industrial	159	1068	530	1598
University Heights	University Heights Suburban Ctr	28	184	318	502
University Heights	Sutherland	35	167	251	418
University Heights	Forest Grove	11	32	34	66
University Heights	N.E. Development Area	2	1	12	13
University Heights	Erindale	1	3	3	6
University Heights	Silverspring	1	2	0	2
Lawson	Lawson Heights Suburban Ctr	160	626	742	1368
Lawson	Kelsey - Woodlawn	184	1041	313	1354
Lawson	Central Industrial	19	553	164	717
Lawson	Mayfair	59	311	290	601
Lawson	River Heights	16	81	116	197
Lawson	North Park	7	25	28	53
Lawson	Richmond Heights	8	14	7	21
Lawson	Silverwood Heights	2	3	11	14
Northwest Industrial	North Industrial	680	6094	1563	7656
Northwest Industrial	Hudson Bay Industrial	375	3715	918	4633
Northwest Industrial	Airport Business Area	345	3374	841	4215
Northwest Industrial	Marquis Industrial	17	1092	24	1116
Northwest Industrial	Agriplace	48	780	221	1001
Northwest Industrial	Airport MA	31	395	139	534
Northwest Industrial	Silverwood Industrial	2	258	5	263

2.2.5 STUDENTS

University and College Students: An extremely important market is the post-secondary student market, especially the University of Saskatchewan and the SIAST-Kelsey campus. The following shows a summary of the residential locations of students for both institutions.

University of Saskatchewan – Student Residential Distribution

Postal Code	Representative Neighbourhoods	Students
S7N	University, Sutherland, University Heights	2798
S7H	8th Street, College Park, Wildwood	2623
S7J	Avalon, Eastview, Lakeview	1287
S7K	River Heights, Lawson Heights	1667
S7L	Mount Royal, Westview, Confederation Heights	720
S7M	Riversdale, Pleasant Hill, Fairhaven	601

Source: University of Saskatoon

SIAST-Kelsey – Student Residential Distribution

Postal Code	Representative Neighbourhoods	Students
S7N	University, Sutherland, University Heights	453
S7H	8th Street, College Park, Wildwood	549
S7J	Avalon, Eastview, Lakeview	358
S7K	River Heights, Lawson Heights	578
S7L	Mount Royal, Westview, Confederation Heights	667
S7M	Riversdale, Pleasant Hill, Fairhaven	356

Source: SIAST-Kelsey Campus

Although there is a fairly widespread distributions of students of both campuses across the City, the University students are far more prevalent on the east side, while Kelsey students tend to be more on the west side, in keeping with the locations of the respective institutions.

High School Students: Another key market for transit is the high school student market. Interestingly, the high schools on the west side are concentrated along Rusholme Road, while several of the east side schools are on Taylor. Other important schools are in Lawson Heights, College Park and University Heights.

Also, because of there now being no public high school in the northeast sector (Sutherland, Forest Grove, Erindale), students in these areas now have to go to Evan Hardy in College Park, many of

whom use transit (school specials). This situation will only be short lived, however, as a new high school is planned to open within the year in the University Heights Suburban Centre.

The following tables summarize the enrolments at the City's public and Catholic high schools.

Public High Schools	**Location**	**Enrolment**
Mount Royal	West side – Rusholme and Avenue W	1584
Evan Hardy	East side – Acadia and 14th St.	1278
Walter Murray	East side – Taylor and Prescott	1265
Bedford Road	West side – Rusholme and Avenue H	1021
Aden Bowman	East side – Taylor and Clarence	966
Marion M. Graham	North end – Lenore Drive	921
Nutana	East side – 11th Street east of Broadway	714
City Park	North of Downtown – 9th Avenue and Princess	320

Source: Saskatoon Public Board of Education

Catholic High Schools	**Location**	**Enrolment**
E.D. Feehan	West side – Rusholme and Avenue M	1255
Holy Cross	East side – Taylor and McEown	1190
St. Joseph	University Heights SC – Attridge and Nelson	974
Bishop J. Mahoney	North end – Lenore and Primrose	861
Joe Duquette	East side – Broadway and 9th Street	275
Bishop Murray	East side – 12th Street east of Clarence	176
Sion Middle School	East side – 7th Street west of Preston	37 (plus grades 6-8)

Source: Saskatoon Catholic Board of Education

2.2.6 TRAFFIC ANALYSIS

Information on congested road segments was provide by City of Saskatoon staff based on output from the City's Transportation Planning Model (T-Model)

Currently, five road segments in Saskatoon are considered congested. By 2021 another three areas will also be congested.

Currently congested:

- Circle Drive: Airport Drive to Attridge
- Idylwyld Dr: 33rd to 20th
- 25th St: 2nd Avenue to University Bridge
- College Dr: University Bridge to Cumberland
- Warman Rd : 33rd St.to 25th St.

Additional congested road segments in 2021:

- Attridge Dr: Circle Dr. to Nelson Rd.
- College Dr: Preston to McKercher Dr
- Boychuk Dr: Hwy 16 to Taylor St.

2.2.7 POLICY FRAMEWORK

Currently there are two key documents that guide urban growth and transportation decisions in Saskatoon:

- *The City of Saskatoon Development Plan* guides urban development. It promotes contiguous growth and discourages low-density, auto-dominated development, also called sprawl. It calls for efficient development and promotes relatively compact development.

- *Future Growth of Saskatoon, 2000* – This report of the future land-use options for Saskatoon recommends efficient, controlled compact development. Environmental goals are also included as are discussions of Smart Growth, infill and land use near higher-order transit.

2.2.8 POPULATION AND EMPLOYMENT GROWTH FORECASTS

Population growth in Saskatoon is expected to grow between three and twelve percent between 2006 and 2016. This will increase the City's population from about 205,900 in 2005, to between 211,000 and 231,000 persons. Growth projections for the five quadrants are as follows:

	Current	2015
Confederation (west)	52,732	60,832
University Hts.(northeast)	30,000	62,152
Lakewood (southeast)	29,456	43,188
Nutana (south)	37,650	51,150
Lawson (north)	26,395	26,395

2.2.9 DEVELOPMENT PLANS AND TIMING

Several neighbourhoods that have been growing over the last 15 years, such as Silverspring and Briarwood, are now completed or nearing completion. Additional new neighbourhoods are being planned to accommodate the anticipated population growth. These new residential areas will each be underway in 2006. These are:

- Willowgrove

- Springfield

- Hampton Village

- West Sector neighbourhood
- Stonebridge
- Rosewood
- East Sector neighbourhood

Each of these new neighbourhoods is expected to be largely complete between 2012 and 2020.

2.3 Existing Transit Service

The findings of the services assessment are organized into several categories. Key findings, both strengths and weaknesses, for each category are discussed in the sections that follow.

2.3.1 OVERALL RIDERSHIP PATTERNS

Perhaps not surprisingly, the boarding patterns learned from the ride checks show a clear relationship between transit use and land use, especially residential population density and key destinations.

The most prevalent ridership patterns overall continue to be radial, focusing on both the downtown and the University, with these two being far and away the most important destinations. Other key destinations, especially in peak periods are the SIAST-Kelsey campus, the various high schools in the City and non-downtown commercial centres, especially the designated suburban centres.

By far the busiest stops in residential areas are those adjacent to apartments and other forms of higher density housing, including seniors' buildings and subsidized housing. As noted above, these are particularly prevalent in and around the suburban centres and along the traditional radial main streets.

2.3.2 ROUTES

For many years the Saskatoon transit network has been focused on the downtown transfer facility. This focus derives from a time when downtown was the major centre for jobs, shopping, community activities sand transfers between routes. A focus on downtown with transit lines radiating outward is common is most cities similar to Saskatoon. The general network pattern is illustrated in Exhibit 2-14

Not surprisingly, the routes that directly serve downtown or the University are well used, as are express routes and some cross-town routes, such as Route 27 between Lawson and the University. However there are significant limitations with the current network. Only a few routes serve the University directly, forcing transfers and increasing travel time for many students. Some routes continue through downtown allowing more convenient cross-town travel, but other routes terminate and force transfers. This increases travel times for longer trips and makes transit less appealing.

During public consultation, travel time was identified as being too long for some routes, especially routes that transverse the city. Many longer trips require transfers between routes, which increases reliance on timed transfers and the downtown terminal. There is insufficient coverage and service to major jobs areas such as the airport and the northern industrial area. Many newly developed areas of Saskatoon have limited service and routings that require transfers to reach primary destinations.

Route-specific assessments are discussed in more detail in the next section.

2.3.3 EVENING, SUNDAY AND SATURDAY MORNING ROUTINGS

In most areas, routings during evenings, Sundays and Saturday mornings are considerably different than those during the day Monday to Saturday. This not only leads to passenger confusion, but also adds considerable circuitousness to many routes and results in some areas, especially suburban areas, with no service at all during these times. This is also discussed in more detail in the route-by-route assessments in the next section.

2.3.4 HOURS OF SERVICE

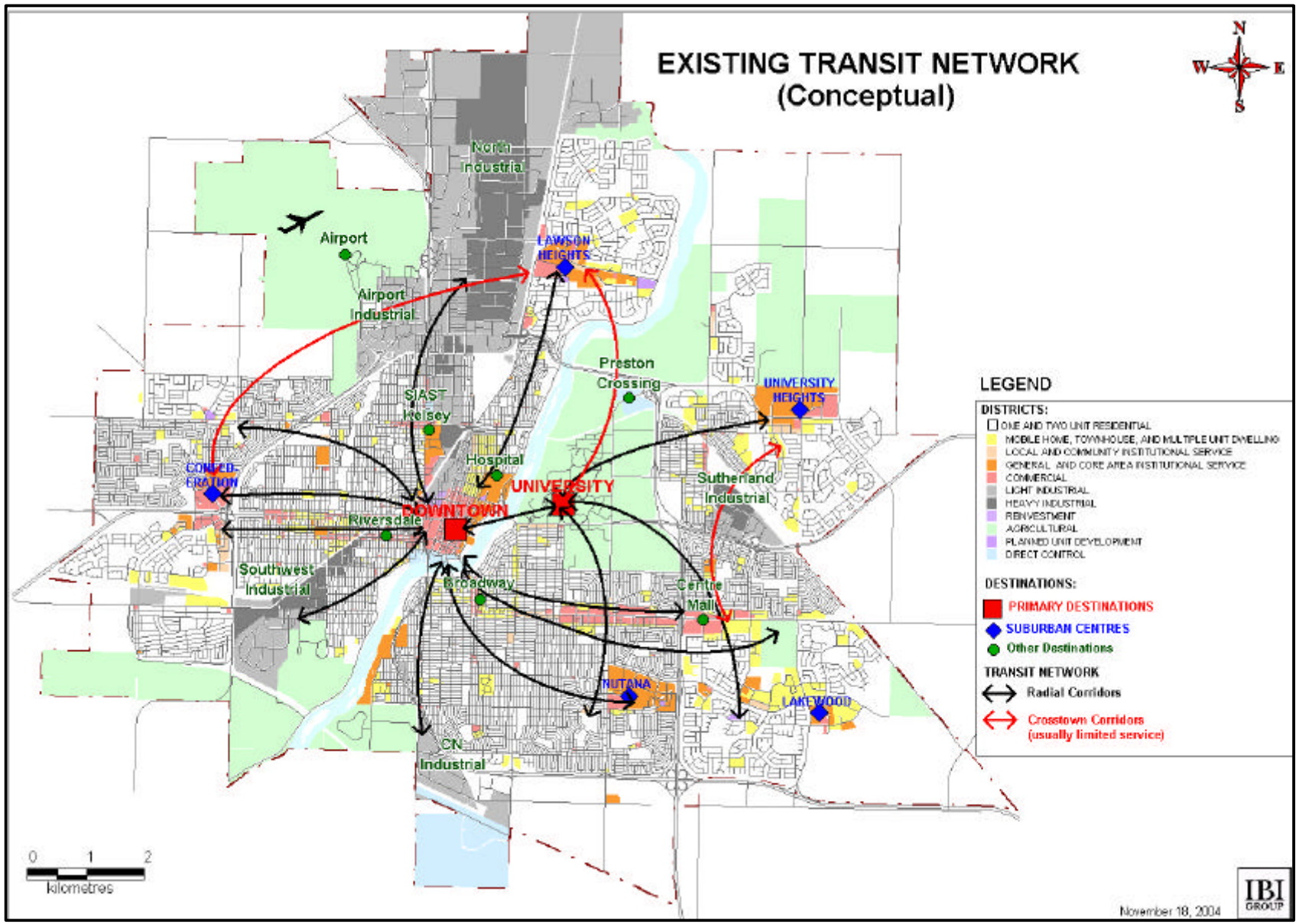
The public consultation also raised concerns about the daily hours of service, start times and finish times not being adequate, especially in the early mornings for those starting early shift times. Earlier morning service was added in recent months and some was fairly well used while the earliest runs tended to not be well used (this is discussed later in the proposed Short Term Service Plan).

Similar concerns were expressed regarding routes that have limited service and typically do not operate at all times. The need for expanded hours of service is geared toward meeting the needs of shift workers and students who often have schedules that are not the same as the standard 9 a.m. to 5 p.m. workday. Students and entry levels works often do not have access to a car and therefore need transit to meet travel needs that are not work or school related. Students often have jobs or training away from campus at non-standard hours.

2.3.5 FREQUENCY OF SERVICE

Service frequencies generally match the level of demand during the weekdays. However, frequencies during evenings and weekends were considered unattractive by many in the public consultations. Again, specific concerns related to service frequencies are addressed in the route-specific assessments below.

Exhibit 2-14: Current Routing and Major Destinations



2.3.6 OVERALL PERFORMANCE

Ridership is Saskatoon is fairly good for a mid-sized city. Student ridership (primarily to the University campus) is the primary reason for this. As seen in Exhibit 2-15 many of Saskatoon's vital transit performance statistics compare favourably when seen alongside peer cities. This table presents data from 2003, the most recent comparative data currently available. Also, the revenue-to-cost ratio includes only direct operating costs, so that Saskatoon shows a ratio of 49%, rather than 43.4%, which it would be if all costs were included.

Exhibit 2-15: Municipal Performance Comparison

System	Population	Rev/Cost	Cost/Pass	Pass/Hr	Pass/Cap
London	344,000	64%	$2.06	34.7	49.7
Victoria	331,955	51%	$2.28	34.6	58.6
Halifax	300,000	69%	$2.06	36.6	52.1
SASKATOON	**213,607**	**49%**	**$2.46**	**26.7**	**34.5**
Windsor	209,000	63%	$3.13	26.1	29.0
REGINA	168,660	35%	$2.51	24.7	34.9
St. Catharines	148,000	57%	$2.85	25.1	23.2
St. John's	140,000	48%	$3.17	27.7	25.2
Sudbury	127,913	50%	$3.04	27.2	28.5
Thunder Bay	112,000	37%	$3.90	17.6	25.1

Source: Canadian Urban Transit Association – Conventional Transit Statistics 2003

Probably the best potential for improvement would be the revenue-to-cost ratio (which should aim to exceed 50%), which would be best accomplished through ridership increases. In spite of the above comparison, ridership has declined in Saskatoon over several years and, with the strong downtown and the central location of the university, Saskatoon's ridership should be closer to the cities that are slightly larger and located in the upper part of the table (London, Victoria, Halifax).

2.3.7 ROUTE-BY-ROUTE SERVICE ASSESSMENT

Building on the general comments in the preceding section, this section provides more detailed assessments of the strengths and weaknesses of each route in the system, primarily from the perspective of service quality and the related impacts on current and potential ridership. These assessments include issues that have been raised through the consultation activities, the observations and analysis of the consulting team and the ridership patterns determined from the detailed ride checks, which are illustrated in the route-by-route ridership maps in Appendix A.

For the purposes of this analysis, and recognizing the interaction of routes serving common areas, the assessments are done by service area, specifically, the four sectors that make up the overall STS network.

Exhibit 2-16 illustrates the ridership performance for each route for weekday peak periods, midday and evenings. In the exhibit, resources expended on each route are compared with the boardings measured during the ride count process. This produces a focused cost/benefit analysis and provides a quantitative measure of bus route performance. To provide a more precise analysis of

the productivity of the network, routes were divided into segments for analysis where such a division made sense (e.g. routes that interline through the downtown or at suburban terminals). Input resources are:

- ***Service Hours –*** Service hours are the total hours of bus service on each segment. This includes all the hours for every bus operating on the route, but does not count the time the bus is not in service.

- ***Boardings –*** This measures the number of riders who boarded the bus along each segment. The segment with the largest number of boardings is the express section of route 11 between Confederation Terminal and downtown with 1,529 boardings.

Comparing *Service Hours* with *Boardings* produces a ratio of

- ***Boardings per Service Hour (B/Hr*)** - This is the chief measure of bus route productivity. The average of all weekday route segments is 68 boardings per service hour.

Exhibit 4.6 shows the productivity of weekday routes in the peak hours (6 a.m. – 9 a.m. and 3 p.m. – 6 p.m.), the mid-day period (9 a.m. – 3 p.m.) and evenings (6:00 p.m. – 12:00 midnight). Several points are clear from the table:

- ***Some route and route segments are more productive than others*** – The most productive route segment is the section of route 20 between the University and Centre Mall along Preston Avenue and 8th street in the midday. This high productivity comes from heavy off-peak student travel in the mid day when there are less hours of service being provided. Route 9 shows the lowest productivity with only 8 boardings per service hour.

- ***High ridership does not ensure high productivity*** – For example productivity on route 6A in the peak periods (42 B/Hr) is low even though ridership is strong (1,006 boardings). Midday productivity is higher (98 B/Hr) because ridership is somewhat stronger (1,178) but hours of service are much lower in the midday (12 hrs).

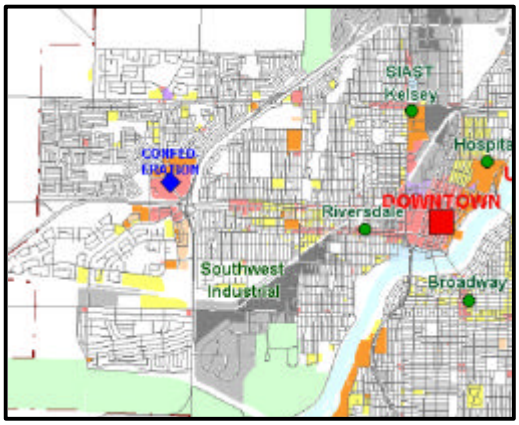
Full analyses of the ridership performance and patterns for each route are provided in the sections that follow.

Exhibit 2-16: Week Day Quantitative Route Performance Analysis

Route	Route Segments	Frequencies			Boardings			Boardings Per Service Hour		
		Pk	Mid	Eve	Pk	Mid	Eve	Pk	Mid	Eve
20	University	15	20		788	954		*66*	***106***	
6A	Eastview	15	30	30	**1,006**	**1,178**	**305**	***42***	***98***	25
25	Sutherland	30	30	30	1,123	1,074	237	*94*	*90*	28
23	Erindale	30	30		469	556		*65*	*77*	
8-16	Wildwood	15	30	30	788	913	331	*33*	*76*	28
2	Confederation	30	30	30	564	832	624	*50*	*74*	27
11	Confed Express	15	15		**1,529**	1,106		*102*	*74*	
18	8 St Express	15	30		666	585		*42*	*73*	
18	Lawson Express	15	30		487	400		*43*	*71*	
7	33d St	30	30	30	625	811	194	*55*	*71*	16
2	Meadowgreen	30	30		606	605		*67*	*67*	
8	Lawson Hts	30	30	30	472	706	220	*39*	*59*	18
18	Lawson Loop	15	30		313	316		*29*	*59*	
20	Lakeview	15	20	30	571	498	55	*48*	*55*	14
22	Sutherland Express	30	30		395	397		*55*	*55*	
6	Taylor	30	30	30	719	647	202	*60*	*54*	25
19	Westview	30	30		458	483		*51*	*54*	
27	Univ Lawson H	30	30		466	352		*71*	*53*	
27	Univ Broadway	15	30		351	302		*29*	*50*	
17	Sutherland South	30	30		273	301		*46*	*50*	
2	Confed Loop	30	30		126	189		*33*	*50*	
18	College Park	15	30		394	244		*39*	*49*	
5	8th St E	30	30	60	310	432	52	*34*	*48*	17
1	Exhibition	30	30	60	443	423	71	*49*	*47*	24
12	Fairhaven	30	30	60	331	278	182	*55*	*46*	30
11	Confed Loop	15	15		511	271		*85*	*45*	
17	Sutherland North	30	30		326	252		*54*	*42*	
18-27	Lawson Loop	30	30		306	223		*57*	*41*	
16	North Industrial	30	60		378	229		*32*	*38*	
5	Mount Royal	30	30	60	580	331	89	*64*	*37*	30
1	Mayfair	30	30	60	490	323	83	*54*	*36*	28
7	Confed Loop	30	30		116	121		*32*	*34*	
4	Bwy S	30	30		301	286		*33*	*32*	
3	Riversdale	30	30	60	322	281	73	*36*	*31*	24
22	Silverspring	30	30	60	188	137	26	*39*	*29*	14
24	Lakeridge	30	30		219	163		*37*	*27*	
4	Clarence	30	30	60	340	240	72	*38*	*27*	24
23	Kerr Loop	30	30	60	169	120	20	*35*	*25*	11
15	Dundonald	30	60		192	60		*32*	*20*	
14	Montgomery Pl	30	60		72	26		*12*	*9*	
21	Fairhaven	30			115			*19*		
13	Westmount	30			99			*17*		
10	Circle Dr	30			89			*15*		
9	S Industrial	2 trips			48			***8***		
26	Taylor			60			25			13

Western Sector Routes

This sector comprises the primarily residential area west of the downtown, from the river and the CN rail line in the south to 37th Street and Circle Drive in the north.



The routes in the inner part of this sector are generally of a traditional radial orientation, centred on downtown, and work fairly well for downtown trips. The routes in the outer part of the sector are centred on the Confederation suburban terminal. Some are interlined with routes serving downtown (2, 7, 11), but most require transfers at the terminal to access downtown and other central destinations.

Of particular note is that most routes serving downtown terminate downtown and force transfers to reach destinations further east, the most important of which is the University. The one exception is Routes 7/19, which interlines with Route 25, but this is not noted in route maps or schedules.

SIAST-Kelsey is well served from downtown and the west (via 33rd St.) but not from other areas, most of which need to transfer downtown.

Route 1 – Mayfair

This is a traditional radial route with average ridership, which generally follows the historic streetcar routing in this area. The result is much of its routing being on narrow, local, slow-moving streets. Specific shortcomings include its serving SIAST-Kelsey northbound but not southbound, its missing Bedford Road high school by a couple of blocks and, most of all, its routing being quite close, but not all the way to the Airport.

Route 1 – Mayfair (evenings and Sundays)

The main routing change during evenings and Sundays is its truncation at 39th Street, leaving the Circle Drive, Airport Drive and, most of all, the low-income McNabb Park residential area with no service during these times.

Route 2 – Confederation/Meadowgreen

Ridership is among the highest in the entire system, due primarily to the fairly high densities and relatively low income levels in residential areas along the corridor. The routing in the Fairhaven area is very circuitous, as a result of the 20th Street crossing of Circle Drive being closed and the routing not being streamlined following the closure.

Route 2 – Confederation/Meadowgreen (evenings and Sundays)

During evenings and Sundays, the two branches (Confederation and Meadowgreen) are combined into one route, which makes the service very circuitous for some riders, especially those in the Meadowgreen area, who must travel to Fairhaven and Confederation Terminal before being able to go downtown.

Route 3 – Riversdale

The route follows a historical radial routing with average ridership and serves the area as well as can be expected. Some trips loop further south to Wellington and Avenue N, but little ridership is generated from this diversion.

Route 3 – Riversdale (evenings and Sundays)

During evenings and Sundays, the route is truncated at Avenue P, leaving the west industrial area without service, even though daytime ridership to this area is quite low.

Routes – 5/13 Mount Royal/Westmount
The route is essentially a large one-way loop, which results in long diversions for many riders. Some relief is provided during peaks, with Route 13 adding a westbound service on Rusholme, but not at other times. This route is most valuable to, and gets a significant portion of its ridership from, the three high schools on Rusholme.

Route 5 – Mount Royal (evenings and Sundays)
The evening and Sunday routing is also a large one-way loop, but is somewhat shorter without the additional daytime diversion north of 33rd Street.

Routes 7/19 – Confederation/Westview
Ridership is very good on these two integrated routes. They also provide the western connection to SIAST-Kelsey. Of note is that although the routes serve the corridor quite well, the direct service does not get as far west as the higher-density node at Confederation and 33rd. Also, with Route 19 serving the Westview area, the diversion of Route 7 to Richardson Road does not attract much ridership and is a detour for through riders.

Route 7 – Confederation/Westview (evenings and Sundays)
Similar to the branches of Route 2, these two routes are combined into one during evenings and Sundays, which results in a considerable diversion for riders travelling to or from Northumberland Avenue or Confederation Drive.

Route 11 – Confederation Express
Ridership is among the highest in the entire system, due primarily to the higher-speed express mode, the high frequency and its connectivity with the various local routes in the Confederation Park and Fairhaven areas. Several extra runs are needed in peak periods to meet demand.

Routes 2/7/11 – local loops in Confederation Park and Pacific Heights
This area, via three loop routings, is served by all three of the above routes, including two separate routings of Route 11. The result is that the area is significantly overserviced, particularly compared with other suburban routes, and ridership does not match the high level of service. The Route 11 loops also have less running time that the other routes, which affects the schedule reliability of the entire route.

Routes 12/21 – Fairhaven
Ridership is quite good for a suburban route, but transfers are required to get to downtown or other central destinations. The large one-way loop results in a circuitous routing in one direction for most passengers, except during peak periods, where the counter-clockwise looping of Route 12 is supplemented by Route 21, which runs clockwise.

Route 12 – Fairhaven/Confederation/Dundonald (evenings and Sundays)
During evenings and Sundays, the local suburban routes in all areas west of Confederation Mall are replaced by a single version of Route 12 (which bears little resemblance to the daytime version) that roams into all areas and only connects to the trunk route (Route 2) once per half-hour. This results in extremely circuitous service for many riders and very fairly low ridership (with some exceptions) as a result.

Route 14 – Montgomery Place
Ridership is very low, due primarily to the low density and small area that it serves, and because transfers are required to access most destinations.

Route 15 – Dundonald
Ridership is below average, even for a suburban route, primarily because of the need to transfer to get to most destinations (in contrast to the nearby Routes 2, 7 and 11).

Northern Sector Routes

This sector includes the residential areas between Warman Road and the river and north of the Lawson Suburban Centre, along with the major industrial areas north of Circle Drive, including the Airport.

The main routes in the inner part of the sector are radial, using a variety of main streets and local streets. The residential routes in the outer part of the sector focus on the Lawson suburban terminal and include a direct link to the University. The industrial area is served by a single local route. The airport is not served.

Route 8 – 7th Avenue N.

This is a radial route that follows historical routings, but much of it is on narrow local streets and has many turns. In spite of that, ridership is quite good, including significant ridership to the hospital. At the outer end, the route acts as a feeder to Lawson Terminal for the high-density residences of east Lawson Suburban Centre. This part of the route includes a diversion on Red River Road that attracts no additional ridership and was likely a historical turning loop.

Route 8 – 7th Avenue N./Lawson Heights (evenings and Sundays)

During evenings and Sundays, Route 8 covers the Lawson-Silverwood loop normally done by Routes 18 and 27. It is a very large one-way loop, which results in long diversions for many passengers, especially those going to the high-density residential areas along Pinehouse and La Ronge. This also results in a longer connection between Lawson Terminal and downtown.

Route 10 – Circle Drive Express (peak only)

Ridership is very low, except for one morning trip that serves a high school in the Lawson Heights area (which could be served by an individual school special).

Route 16 – North Industrial

This is the only route in the system that operates at 60-minute frequencies throughout the day (except in peak periods). The routing is also long and winding, as a result of a single route having to cover a large geographical area. As a result, ridership is quite low, although somewhat better during peak periods.

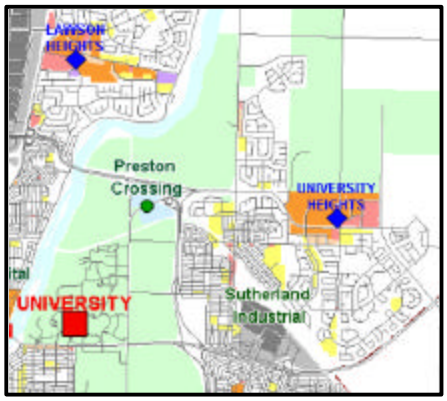
Route 18 – Lawson Heights Express

The express portion provides a quick link between downtown and Lawson Terminal and attracts fairly good ridership, especially during peak periods. The outer portion works in tandem with Route 27 to provide an effective two-way loop through the Lawson Heights and Silverwood Heights areas. One drawback to this arrangement, however, is that Route 27 does not operate Saturdays or outside of peak periods on weekdays when the University is not in regular session (April to September and holiday periods). This, again, results in long diversions for many passengers, especially those going to the high-density residential areas along Pinehouse and La Ronge and those heading inbound on Russell Road. Also, the routing in the eastern Lawson Suburban Centre area is fairly circuitous and could be streamlined.

Route 27 – University/Lawson Heights

This route provides a quick link between Lawson Terminal and the University, with good ridership during peak hours. As noted above, the outer portion combines with Route 27 to provide a two-way loop through the Lawson Heights and Silverwood Heights areas, but the route does not operate Saturdays or outside of peak periods on weekdays when the University is not in regular session.

Eastern Sector Routes



This sector includes the primarily suburban residential and industrial areas east of the University and north of College Drive.

The routes in this sector have recently been restructured, with the notable addition of the Route 22 express. All but Route 17 serve the University. Route 23 serves the University but not downtown.

A major concern (one expressed in the public consultation) is that the route structure is different for most time periods (weekdays, evenings, Saturdays, Sundays, plus other changes when the University is not in full session), which has been confusing to passengers and likely responsible for at least some of the negative public reaction when the recent changes were made.

Route 17 – Sutherland

This is a cross-radial route that does not serve the University or downtown but connects this sector with the Southern sector at Centre Mall. Effectively, this route acts as two routes, with a large percentage of riders transferring to Route 25 at Egbert and 108th Street or to Route 23 elsewhere in the Sutherland area. Thus, its prime role is that of a Sutherland area feeder route that attracts average or better ridership. With the exception of certain trips taking students to or from Evan Hardy High School on Acadia, there are not many riders making the cross-town connection between Sutherland and Wildwood.

Route 22 – Sutherland Express

Ridership is considerably less than other Sutherland routes, primarily because the route does not serve the high demand residential areas (115th Street in Forest Grove, the Sutherland neighbourhood). Its value to the newer outer suburbs is compromised by the forced transfer. Also, the route continues to serve the Silverspring area, but the diversion to the Sutherland transfer point results in a circuitous trip for residents in that area.

Route 23 – University/Sutherland

Ridership is very good, especially in peak periods when the University is in full session, because of the focus on the University and the quick routing from Central Avenue along College Drive. Unfortunately, this route does not serve downtown and those destined to downtown must use other routes. Also, except for the outer portion, this route only operates weekdays when the University is in full session, leaving the south Sutherland area (Central and 104th Street) with only the cross-town Route 17 serving this area.

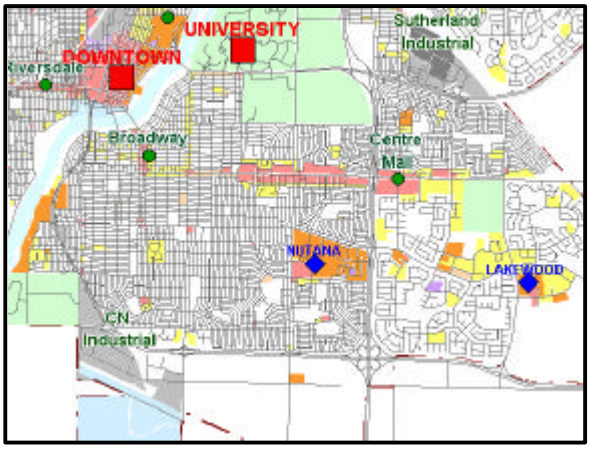
Route 25 – Sutherland

Ridership is also very good on this route, which serves both the University and downtown. Much of this ridership includes the connection between the University and the downtown terminal, where transfers are made with west side routes.

Routes 22/25 – Sutherland (evenings, Saturdays and Sundays)

As noted above, these routes vary considerably by time period. On Saturdays, Route 23 does not operate and Route 25 is altered to operate in one direction only on Egbert and Central, resulting in those near Central and 104th Street needing to ride around all the way to the Sutherland transfer point before being able to travel towards downtown (their only alternative is to use Route 17 and transfer). The same arrangement is also in place evenings and Sundays, combined with changed (and circuitous) branch routings to Silverspring and Erindale. As a result, ridership is low during these times with the exception of a few weekday evening trips from the University.

Southern Sector Routes



This sector comprises the primarily residential area south of downtown, the University and College Drive and east of the river.

Most of the routes in the inner part of this sector are radial and focused on downtown, but are generally of an east-west orientation (especially in the eastern part) and, as a result, do not serve the University a short distance away. These routes are supplemented by a few north-south routes that do serve the University but essentially duplicate the east-west downtown-oriented routes. The general result of this is that the University routes are well used but ridership on many of the downtown-oriented routes is fairly light, even during peak periods.

The routes in the outer part of the sector are focused on the terminal at Centre Mall. Most are interlined with other routes that connect with either downtown or the University.

Route 1 – Exhibition
This is a traditional radial route with average ridership. The diversion along Saskatchewan Crescent and Poplar Crescent attracts very few riders, although the routing in the 11th and Victoria area attracts riders from nearby apartments. The outer loop is fairly large, such that those in the Lorne and Ruth area do not get a direct outbound service (buses have a short layover at Hillard and St. Henry).

Route 1 – Exhibition (evenings and Sundays)
The evening and Sunday routing is essentially the same, except the diversion to Saskatchewan Crescent is eliminated, including service to the apartments around 11th and Victoria.

Route 4 – Broadway
This is a radial route that operates in a straight north-south orientation. It is only one of several routes on the commercial part of Broadway north of 8th Street. Ridership is about average.

Route 4 – Clarence
This also operates in a straight north-south orientation with average ridership. This is a route, however, that could be performing much better, in that its routing takes it close to the University but it does not serve the University. As a result, it is left to the southern portion of Route 27 to provide the University connection, which effectively duplicates both the Clarence and Broadway legs of Route 4.

Route 4 – Clarence/Broadway (evenings and Sundays)
During evenings and Sundays, these two routes are combined into a huge one-way loop. Thus, riders destined to Broadway must ride around on Clarence and those on Clarence destined to downtown must ride all the way to the south end of the route and back on Broadway (although some have east-west Routes 5, 6 and 8 as alternatives). As a result, ridership is low.

Route 5 – 8th Street E.
This is a traditional radial route that operates along the primary east-west commercial corridor in the Southern sector. Ridership, however, is barely average, mostly because Route 18 provides a semi-express service along this corridor. Also, the routing along 7th Street between Grosvenor and Arlington takes the route one block away from other routes and transfer opportunities on 8th Street.

Route 5 – 8th Street E. (evenings and Sundays)
The evening and Sunday routing is essentially the same, except the portion on Early Drive is eliminated. During these times, this is the only service on 8th Street, as Routes 18 and 20 (the University portion) do not operate.

Route 6 – Taylor
This is an east-west radial route with barely average ridership because of its not serving the University. It does get better ridership, however, in the Nutana Suburban Centre area, including the connection to Centre Mall, and on certain trips that serve the high schools along the route.

Route 6A – Eastview
Because it serves the University, this is one of the highest ridership routes in this sector. This is in spite of its very circuitous and confusing routing at its outer end, including uni-directional operation on Louise (southbound) and Preston (northbound), as a result of a single route trying to cover a large and well-populated area.

Route 6A – Eastview
During evenings and Sundays, the circuitousness at the outer end is made worse by an additional diversion on Estey Drive, Wilson and Preston.

Routes 8/16 – Main Street
This is another east-west radial route that has only average ridership because of its not serving the University. Interestingly, the trips with the highest ridership are the few special runs that divert at Cumberland and do route to the University while, at other times, a large portion of riders on this route transfer at Cumberland, again to get to the University. The peak period addition of Route 16 results in relatively low ridership per trip. Regarding the routing itself, the small westbound diversion to McGill is likely left over from an earlier terminus looping and no longer serves any useful purpose.

Route 8 – Main Street/College Park (evenings and Sundays)
During evenings and Sundays, the outer portion of the route also absorbs the outer portion of Route 18, resulting in a double one-way loop that is very circuitous and results in considerable diversion for many riders (e.g. inbound passengers from Centre Mall must go all the way to Boychuk before being able to travel inbound to downtown).

Route 9 – South Industrial Express (peak only)
Ridership is very low, as are service levels. It suggests that service to the South Industrial area could revert back to being a peak-period branch of Route 1

Route 18 – College Park Express
The express portion provides a quick link between downtown and Centre Mall and attracts fairly good ridership, especially during peak periods. This, however, results in the parallel Route 5 having below-average ridership, as noted above. The outer portion has a fairly large one-way loop, but it does not seem too large and provides reasonable coverage in College Park.

Route 20 – University/Lakeview
Because of its focus on the University and its coverage through the high density Wildwood and Lakeview residential areas, this route has very good ridership, especially when the University is in full session. The high rider demand results in the need for several extra runs to the University during full session peak periods. When the University is not in full session (April to September), all but a few peak trips terminate at Centre Mall and transfers are required.

Route 24 – Briarwood/Lakeridge
This is the only local suburban route in this sector that does not run to either downtown or the University at any time. Also, its routing is a very large one way loop, which results in considerable diversions for many passengers. In spite of this, however, ridership is fairly good, no doubt because it serves a number of suburban developments with fairly high densities (e.g. east 8th Street, Lakewood Suburban Centre and Heritage Crescent). No service is provided in these areas evenings, Saturdays or Sundays.

Route 26 – Taylor/Lakeview (evenings and Sundays)
This is a combining of Route 6 and the local part of Route 20 and only operates late evenings and all day Sundays. The Route 6 portion, however, only goes as far as Broadway where there is a forced transfer. Ridership is quite low.

Route 27 – University/Broadway
This route provides a link to the University from the western part of the sector, but it essentially duplicates the two legs of Route 4 because of their not serving the University. The higher level of service in peak periods is more than what is needed, as the per-trip ridership is relatively low.

2.4 Transit Vehicles and Facilities

2.4.1 FLEET CHARACTERISTICS

The current STS fleet totals 113 full-sized 40‘ buses, all of which are diesel-powered with the latest (2002) vehicles incorporating “clean-diesel” technology to minimize emissions. The City is also experimenting with the use of bio-diesel in four vehicles to test the benefits of this renewal energy source for reducing emissions levels further. Twenty-six of the 113 buses are low-floor and the City has adopted a policy of acquiring only low-floor accessible buses in future. Exhibit 2-17 summarizes the Saskatoon Transit fleet list as of August 2005.

Exhibit 2-17: Saskatoon Transit Fleet List – August 2005

Fleet #	Qty	Manuf.	Model	Lngth	Floor Design	Seats	Year	Remarks
201 – 209	9	New Flyer	D40LF	12.2m	Lw-Flr	39	2002	
371 – 372	2	GMC	T6H-5307N	12.2m	S	50	1977	
375 – 384	9	GMC	T6H-5307N	12.2m	S	50	1978	
385 – 394	9	GMC	T6H-5307N	12.2m	S	51	1980	
395 – 399	3	GMC	T6H-5307N	12.2m	S	51	1981	
400 – 403	4	GMC	T6H-5307N	12.2m	S	51	1982	
404 – 409	6	GMC	TC40102N	12.2m	S	50	1984	
410 – 416	7	GMC	TC40102N	12.2m	S	50	1987	
417 – 422	6	MCI	TC40102N	12.2m	S	50	1989	
423 – 432	10	MCI	TC40102N	12.2m	S	50	1990	
433 – 440	8	MCI	TC40102N	12.2m	S	50	1992	
441 – 448	8	MCI	TC40102N	12.2m	S	50	1993	
449 – 454	6	Nova Bus	TC40102N	12.2m	S	50	1995	
731 – 734	4	New Flyer	D40	12.2m	S	47	1991	
821	1	GMC	T6H-5307N	12.2m	S	49	1977	Acq’d 1997
822, 824	2	GMC	T6H-5307N	12.2m	S	49	1979	Acq’d 1997
825, 826	2	GMC	T6H-5307N	12.2m	S	49	1980	Acq’d 1997
9501 – 10	10	New Flyer	D40LF	12.2m	Lw-Flr	39	1995	
9701 – 07	7	New Flyer	D40LF	12.2m	Lw-Flr	39	1997	
	(13)	New Flyer	D40LF	12.2m	Lw-Flr		2006	On order
	(4)	New Flyer	DE40LF	12.2m	Lw-Flr		2006	On order. Hybrid
Total	**113**							

S – standard floor Lw-Flr – Low-Floor

The transit fleet ranges in age from two to 28 years old with the 2004 average age being 15.56 years, an increase from the 2002 average age of 13.56 years. Thirty-eight buses, or 34% of the fleet, are over 20 years of age. This age profile is one of the highest is Canada. To address this situation, the City has adopted an 18-year replacement guideline for its transit fleet and has 17 buses on order for delivery in early 2006. All future vehicles will be low-floor design that provide all transit users with easier access through the absence of steps at the doors. In addition, Saskatoon Transit is also deploying bike racks on some buses with plans to install racks on all full size buses within the next few years as funding permits.

A total of 90 buses are required for peak hour service commitments leaving 23 units as “spares” for maintenance and operations back-up purposes, a ratio of 20.4%. This “spare ratio” is consistent

with industry practice. However, considering the large percentage of vehicles over 20 years of age this ratio is low. A more appropriate ratio Saskatoon fleet would be 25%.

All of Saskatoon's transit buses are diesel powered. Thirteen of the 17 buses now on order will feature "clean diesel" technology that meets the most recent Transport Canada emissions standards for heavy-duty transit buses effective October 2004. For the other four vehicles, the City has taken the progressive step to specify "hybrid drive" as a demonstration test for this emerging technology in keeping with its commitment to reducing emissions levels. The hybrid drive system produces fewer emissions and will meet the next round of emission level standards in 2007.

2.4.2 FACILITIES

The downtown Transit Mall is a major issue and perhaps the most controversial aspect of the current transit service. The primary reasons for a downtown transit facility are convenient access to and from downtown destinations and transfers between routes. Because of large numbers of riders heading downtown and the need for a "hub" to allow easy transfers, a downtown terminal will remain important to the effectiveness and efficiency of the entire system.

During the consultation phase, safety issues, negative impacts on nearby business and an obsolete design that causes inconvenience for pedestrians and denies access to automobiles were all identified as serious shortcomings of the current Mall.

In spite of the problems with the current facility, some form of a downtown terminal is needed in Saskatoon but it must be significantly improved, redesigned or relocated, preferably within the immediate area of the existing Transit Mall or at least close to the centre of downtown. Because the transit service design drives the requirements of a downtown terminal, the approach of this study has been to focus on the service design and its resulting requirements for a downtown facility. This will provide a more precise understanding of the need for a terminal.

The Transit Mall requires passengers to cross the street and is not enclosed. The street is closed to auto traffic and loitering causes security concerns.

The second major facility to be considered is the terminal at Place Riel on the University of Saskatchewan campus. The current terminal operations are currently over capacity with too little space to accommodate the large numbers of buses needed to carry the students who use transit to get to the campus. On campus, buses vie with automobiles and pedestrians for space creating chaotic, congested and potentially unsafe conditions. Several bus routes no long enter the campus because there is not enough space, instead stopping to pick up or drop off students along both sides of College Drive. This forces students to cross College Drive on foot, which many students felt was unsafe.

Lack of space and conflicts with traffic and pedestrians hinder operations at Place Riel.

Facilities at suburban centres appear to work well and can accommodate the number of buses required. However, some newer suburban centres do not have a focal point for transit service.

2.5 Summary of Existing Conditions and Needs

Travel patterns in Saskatoon are always changing and the transit system must occasionally make adjustments to keep pace. By tailoring the service to meet demand the system can achieve its maximum effectiveness and efficiency. In Saskatoon, the existing system has responded to changing travel patterns in a piecemeal manner resulting in small, sometimes less efficient changes. There has not been a comprehensive assessment of the system in many years. Over time failure to comprehensively adapt to changing travel patterns has led to a network of routes that has become less effective at meeting the needs of the community and a less-efficient allocation of resources. Effectively Saskatoon has outgrown the previous transit network and now needs a redesigned system that responds more effectively and efficiently to today's needs. Key conclusions of the service assessment are:

- ***Transit in Saskatoon works reasonably well but with room for improvement.*** Overall performance measures indicate transit in Saskatoon is reasonable effective and efficient. However, service has not evolved to meet new travel demands and ridership is declining.

- ***The current network of routes is not fully meeting the needs of Saskatoon.*** The University is a major destination on par with downtown; however, it is poorly served by the existing network. Routes directly serving downtown or the University report strong ridership but some others do not. Kelsey SIAST is underserved as are important employment areas and newly developing suburban areas. Riders are forced to transfer too often and travel time is too long on some routes. Service frequencies are sufficient except in evenings and on weekends.

- ***Service does not start early enough or run late enough.*** Many workers and students need to travel to jobs or classes that start early in the morning or end late in the evening. Current hours of service do not meet many of these needs.

- ***Terminal facilities at Place Riel and downtown must be redesigned.*** Terminal facilities at both major destinations are obsolete and do not meet current needs.

3. POLICY FRAMEWORK FOR FUTURE ACTIONS

3.1 New Vision for Transit

While Saskatoon is experiencing population and employment growth rates that are amongst the highest in Saskatchewan, in most cases, the growth is in areas where there is high car ownership and a high degree of adult "choice" riders. Considering that most transit riders are "captive" to the transit system and consist primarily of students who are a declining market (because of the aging population), Transit will need to place more emphasis on providing the right kind of services for the non-captive "general markets", if it wants to stop the decline in ridership and lessen the public's dependency on the automobile so as to reduce GHG emissions.

The long-term vision for the transit system is one that emphasizes service quality, sustainability and economic development, and environmental management.

STS needs to provide a basic high quality service for all citizens focussing on the needs of youth, seniors, adult workers, and persons who do not have a choice. STS needs to be a cost-effective alternative to the automobile with services tailored much closer to the non-student demand with a more community-based route system focussed on the City's main activity centres, and higher frequency straight-line route structures in the City's main travel corridors. STS needs to build its services so that it can attract people away from the automobile and start growing its ridership to reduce automobile use and GHG emissions. STS needs to position itself as the "economic engine" for community growth and prosperity, with services and costs reflective of the City's economic development initiatives and consistent the growth in its residential and commercial tax base.

To achieve this long-term vision for transit, the following policy strategies were reviewed and a mission statement, goals, objectives, and service standards were developed as discussed in Section 3.3 to 3.5.

3.2 Policy Strategies

As shown in Exhibit 3-1, Saskatoon Transit services have not kept pace with the city's population growth over the past twenty years. In 1987, it served 182,000 people and provided 300,600 revenue hours of service or 1.65 hours per capita. In 2005, it served 214,000 people and provided 287,000 revenue hours of service or 1.34 hours per capita. As a result of the services provided and the changing demographic and economic conditions in Saskatoon, transit ridership has decreased from 12.4 million passengers in 1987 to 7.2 million passengers in 2005, and the modal split has dropped from a high of 9.7% in 1987 to 4.8% in 2005. There are indications that ridership and the modal split will continue to decline over the next decade, if nothing is done to improve the transit system.

Throughout this period, revenues from fares and City taxes have increased to offset rising transit operating costs, although the increases have been in line with inflation. The City transit subsidy is now about $58 per capita which is similar to the subsidy in 1987 when inflation is factored out.

Exhibit 3-1: Transit Trends in Saskatoon

	City Population	Annual Revenue Passengers	Pass. Per Capita	Modal Split	Annual Service Hours	Hours Per Capita	Annual Total Revenue	Revenue Per Passenger	Annual Operating Cost	Cost Per Hour	R/C	NET OPER. COST (Subsidy)	Taxes Per Capita
1987	182,200	12,872,200	70.6	10.1%	300,600	1.65	$ 6,373,500	$ 0.50	$ 12,167,600	$ 40.48	52%	$ 5,794,100	$ 31.80
1988	183,500	12,479,200	68.0	9.7%	307,300	1.67	$ 6,886,400	$ 0.55	$ 12,596,500	$ 40.99	55%	$ 5,710,100	$ 31.12
1989	183,900	12,700,500	69.1	9.9%	326,525	1.78	$ 7,088,600	$ 0.56	$ 13,267,200	$ 40.63	53%	$ 6,178,600	$ 33.60
1990	183,600	12,629,400	68.8	9.8%	327,600	1.78	$ 7,426,600	$ 0.59	$ 13,963,700	$ 42.62	53%	$ 6,537,100	$ 35.61
1991	185,300	12,672,000	68.4	9.8%	309,800	1.67	$ 8,071,400	$ 0.64	$ 14,550,000	$ 46.97	55%	$ 6,478,600	$ 34.96
1992	187,000	10,650,400	57.0	8.1%	293,270	1.57	$ 7,493,300	$ 0.70	$ 14,245,600	$ 48.58	53%	$ 6,752,300	$ 36.11
1993	189,000	10,652,800	56.4	8.1%	288,100	1.52	$ 7,621,300	$ 0.72	$ 14,372,500	$ 49.89	53%	$ 6,751,200	$ 35.72
1994	190,400	7,989,500	42.0	6.0%	221,800	1.16	$ 6,218,200	$ 0.78	$ 12,346,000	$ 55.66	50%	$ 6,127,908	$ 32.18
1995	192,100	9,566,000	49.8	7.1%	288,677	1.50	$ 8,040,300	$ 0.84	$ 15,447,700	$ 53.51	52%	$ 7,407,400	$ 38.56
1996	193,800	9,538,500	49.2	7.0%	288,080	1.49	$ 8,724,900	$ 0.91	$ 16,333,300	$ 56.70	53%	$ 7,608,400	$ 39.26
1997	195,500	8,962,200	45.8	6.5%	270,965	1.39	$ 9,384,700	$ 1.05	$ 16,591,400	$ 61.23	57%	$ 7,206,700	$ 36.86
1998	197,200	8,704,300	44.1	6.3%	278,570	1.41	$ 7,855,900	$ 0.90	$ 17,195,000	$ 61.73	46%	$ 9,339,100	$ 47.36
1999	198,900	8,840,800	44.4	6.3%	281,226	1.41	$ 7,885,900	$ 0.89	$ 17,526,400	$ 62.32	45%	$ 9,640,500	$ 48.47
2000	200,600	8,960,600	44.7	6.4%	277,771	1.38	$ 8,011,300	$ 0.89	$ 17,956,800	$ 64.65	45%	$ 9,945,500	$ 49.58
2001	202,300	8,831,500	43.7	6.2%	280,216	1.39	$ 8,395,100	$ 0.95	$ 18,796,000	$ 67.08	45%	$ 10,400,900	$ 51.41
2002	204,000	8,615,300	42.2	6.0%	286,500	1.40	$ 8,689,100	$ 1.01	$ 19,389,300	$ 67.68	45%	$ 10,700,200	$ 52.45
2003	205,000	8,444,208	41.2	5.9%	291,864	1.42	$ 8,859,100	$ 1.05	$ 20,195,600	$ 69.20	44%	$ 11,336,500	$ 55.30
2004	205,900	8,882,406	43.1	6.2%	303,046	1.47	$ 9,296,900	$ 1.05	$ 20,759,700	$ 68.50	45%	$ 11,462,800	$ 55.67
2005	206,800	8,700,000	42.1	6.0%	307,200	1.49	$ 9,550,100	$ 1.10	$ 22,014,800	$ 71.66	43%	$ 12,464,700	$ 60.27
1. Ten Year Projection Based on Constrained Policy Strategy													
2016	221,500	7,637,000	34.5	4.9%	287,000	1.30	$ 14,128,000	$ 1.85	$ 31,323,000	$109.13	45%	$ 17,195,000	$ 77.63
2. Ten Year Projection Based on Partially Constrained Policy Strategy													
2016	221,500	10,880,000	49.1	7.0%	400,000	1.81	$ 22,739,000	$ 2.09	$ 39,450,000	$ 98.63	58%	$ 16,711,000	$ 75.44
3. Ten Year Projection Based on Unconstrained Policy Strategy													
2016	221,500	20,412,000	92.2	13.2%	628,000	2.84	$ 37,762,000	$ 1.85	$ 66,870,000	$106.50	56%	$ 29,108,000	$131.41

Clearly, City Council must take steps either to limit the transit program to the provision of the essential services that are needed by people without access to a car, or to expand the transit program to provide services that can attract more riders and lessen the public's dependency on the automobile. There are three broad approaches for doing this:

- **Constrained Policy Strategy** – this is the present strategy for transit. It tries to be "everything to everybody" resulting in unproductive services and not enough service for the demand in some cases.
  - Rather than cutting unproductive services, existing services are "stretched" to serve the growth areas, causing circuitous routings, gaps in the service and duplicated services. While this has brought more people into the service area, the stretched services are making route structures and frequencies less attractive which is causing a loss of ridership among adults and seniors who have a choice of mode.
  - To compensate for the constrained route structures and frequencies, specialized extra services are provided to meet the demands of Transit's main rider group, the captive student market. As this has been a growing market, student ridership has increased over the years, which has helped to offset some of the ridership losses in the transit system.
  - Prospects are for a continued decline in ridership and the modal split, if the circuitous and specialized nature of the routes is not addressed, particularly in light of the aging population, which will cause student ridership to level-off over the next decade. It could result in the annual ridership and modal split dropping from 8.3 million passengers and 5.8% in 2005, to 7.6 million passengers and 4.7% by 2016.
  - The net cost of this strategy will be about $17 million in 2016 or $12 million in 2005 dollars, which is comparable to the present system.
  - The tax burden, on a per capita basis, could increase from $60 to $78 over the next ten years under a constrained policy framework. The increase is consistent with the expected inflation over the ten-year period. In constant 2005 dollars, the constrained policy framework would likely involve a tax burden of $60 per capita, similar to the present transit system.

- **Partially Constrained Policy Strategy –** this is a more balanced/coordinated approach to the delivery of transit services. It would make better use of limited funds by building on the strong points of the route system to increase ridership and the modal split:
  - Restructures routes into a "tiered" grid/feeder concept. Grid routes would operate on the main arterial roads connecting the City's community centres to the downtown and University; they would include base routes offering 30 minute daytime and 60 minute evening service, and core routes offering 15 minute peak and 30 minute off-peak service 18-7 in all city sectors. Feeder routes would include local routes feeding the grid routes at the community transit centres, and community routes feeding the high schools in the various communities.
  - Provides faster more direct service from the north, east, south and west sectors of the City to the main attractors; downtown, the Hospital, the University and SIAST, the four malls, the airport and north industrial area. The intent is to provide better service to the City's growing non-student and adult worker markets.
  - Prospects are for a modest growth in ridership and modal split from 8.7 million passengers and 6.0% in 2005, to 11.0 million passengers and 7.0% by 2016.
  - The net cost of this strategy will be about $17million in 2016 or $13million in 2005 dollars; this compares to the present system net cost of $12 million.

  - The tax burden, on a per capita basis, could increase from $60 in 2005 to $75 over the next ten years under a partially constrained policy framework depending on how the restructured services are to be staged. In constant 2005 dollars, the partially constrained policy framework would likely involve a tax burden of about $58 per capita which is less than the present service. implemented.

- **Unconstrained Policy Strategy** -this strategy has the City provide substantially increased levels of transit service in support of the environment and achievement of GHG reduction goals. It would build on the Grid/Feeder concept of the Partially Constrained Strategy:

  - Provides base routes offering 15 minute peak and 30 minute off-peak service to midnight seven days a week
  - Provides core routes offering 5 to 15 minute service all day and providing rapid bus services in the major corridors; these would be higher-order BRT services initially and LRT services in the future.
  - Provides transit priorities in the congested corridors so that bus reliability and operating speeds can be increased.
  - Goal is to almost triple the ridership to 21 million passengers and the modal split to 13% by 2016. This is the strategy that will cause a major shift to transit, which go a long way in helping the City to meet its goal of reducing GHG emissions by 35% over the next ten years (See Appendix E for detailed estimates of GHG Emissions).
  - The net cost of this strategy will be about $34 million in 2016 or $20 million in 2005 dollars; this compares to the present system net cost of $12 million.
  - Annual net cost and the tax burden will escalate under this strategy and could cause taxes to increase from $60 per capita in 2005 to $125 per capita in 2016. In constant 2005 dollars, the unconstrained policy framework would likely involve a tax burden of about $93 per capita or $35 more than the present service; a 60% increase in the City subsidy when fully implemented.
  - While the strategy addresses the need to reduce GHG emissions by increasing the transit modal split, because of the high costs, the strategy will need to evolve from a strong base so as to contain the costs and encourage market development and increased ridership and revenues. It cannot evolve from the present constrained strategy.

The partially constrained policy framework is the most likely strategy for starting a mode shift to transit over the next ten years, considering the fiscal realities and the difficulties that Transit has had in attracting and holding “choice” adult riders. The remainder of this chapter explains how this policy framework will be implemented and achieved.

3.3 Mission Statement

Considering the changing environment in Saskatoon and the City’s long-term vision for the transit system, the following mission statement should be adopted:

> *To provide cost-effective, safe and affordable public transit services using clean and environmentally friendly equipment that enables all residents to access work, education, health care, shopping, social and recreational opportunities.*

3.4 Goals and Objectives

To realize the mission, 10-year goals and objectives have been established, which will position Saskatoon Transit as a significant contributor to the City's vision of quality of life and sustainable development.

Goal 1: To Improve Service Levels and Ridership

Considering the City's vision for its transit services, STS must start growing and must attract new riders to the transit system, particularly the non-student market. It needs to improve its services to encourage people to leave their cars at home and increase the modal split to transit. There is significant potential for increasing ridership and the modal split as the current route structure is discouraging ridership in many service areas. Also, there are a number of areas of the City that do not have transit service within a reasonable walking distance, and bringing these up to standards should have a positive effect on ridership and the modal split. Accordingly, a relatively aggressive program of service improvements, fare strategies and marketing over the short and long terms is suggested. It would follow the partially constrained strategy outlined above, with the following objectives:

- ***Services*** *– increase annual vehicle hours from 287,000 to 294,000 over the short-term starting in 2006. Over the long-term, continue expanding the transit services until a level of 400,000 vehicle service hours is reached by 2016.* This translates to about a 3% per annum increase, which is needed to achieve the increased ridership levels.

- ***Ridership*** *– increase annual revenue passengers from 8.3 million to 8.8 million over the short-term by 2010. Over the long term, increase annual revenue passengers to a level of 11 million by 2016.* This represents about a 2.5% per annum increase consistent with the increase in service levels and population.

- ***Modal Split*** *– increase the overall modal split from 5.8% to 6.0% by 2010 and 7.0% by 2016*. This represents a conservative increase in the early years, and higher increases in later years (after 2010) as successful improvements provide momentum for further improvements.

The objectives are to be accomplished through improved route structures, faster more direct services in the main travel corridors including a network of BRT services, new services into un-served areas, higher frequencies and longer hours, the use of fare media that can encourage the greater use of transit (College tuition passes, corporate passes, smart cards).

Goal 2: To Improve Service Quality and Customer Satisfaction

In order to become more competitive with the convenience of the automobile, STS will need to continually improve the quality of the service it provides customers. This effort will enable it to retain and increase the frequency of use by current riders and attract new riders. The objectives of a service quality program will be focused on:

- ***Schedule Adherence*** *- improving schedule adherence so that buses are on-time 95% of the time.* Buses should never operate ahead of schedule or be more than 3 minutes behind schedule at identified time points.

- ***Service Reliability/Maintenance*** - improving operations so that 99.9% of the scheduled services are delivered as a minimum.

- ***Service Interruptions/Maintenance*** - improving maintenance so that on-road service interruptions due to vehicle breakdowns do not exceed a maximum of 20 per 100,000 vehicle kilometres.

- ***System Appeal and Accessibility*** – improving the appeal, cleanliness and accessibility of the transit system and its infrastructure, including the on-street facilities, the buses and their exteriors and interiors, and the information that is provided passengers.

The objectives are to be accomplished by improving the on-road monitoring of schedule adherence, maintaining the vehicles in a good state of repair and cleanliness, and providing more customer service training of front-line staff.

Goal 3: To Improve Productivity and Cost-Effectiveness

Maximizing the efficient use of resources including manpower, equipment and vehicles, facilities, and systems will enable STS to be functionally cost-effective. The objectives are focused on financial policies and the productivity of STS resources:

- ***System Financial Policy*** *– attain an overall cost recovery, inclusive of capital cost, of 45% over the short and 56% over the long term; the 2005 cost recovery rate is 45%.*

- ***Municipal Subsidy (Tax Burden)*** *– in the short term, freeze the municipal subsidy or tax burden at a net operating cost per capita of $60 which is the current subsidy rate. In the long term, allow the municipal subsidy to increase initially to $61 by 2011, and to $78 by 2016.* The higher municipal subsidy for transit is due to the significant service improvements and other cost increases in the short term. Over the long term after 2008, let the subsidy increase to $61 per capita by 2011 and $78 per capita by 2016, which is the equivalent of an annual increase of 4% per annum consistent with inflation and the significant service expansions that will be required.

- ***Fare Policy*** *– adjust the fare structure and rates to increase the average fare by 6 cents a ride staring in 2006, which is consistent with the significant improvements that are to be made to the services.* In the short and long terms adjust the fare structure and rates according to the inflationary increase in operating costs and consistent with the 45% and 56% financial policy.

- ***Service Utilization*** *– maintain a minimum service utilization of 35 boarding passengers per vehicle service hour or 30 revenue passengers per vehicle service hour over the short and long terms.* If the transit services are successfully tailored to the demands, an overall service utilization of 35 revenue passengers per vehicle service hour should be possible and should occur after 2016.

The objectives are to be accomplished by reducing unproductive services, improving the scheduling of the operators, better utilizing the available capacities of the buses on the routes (including better integration of regular and tripper services), tailoring transit services closer to the demand, and improving the monitoring, control and operation of the routes through transit priorities and route supervision.

3.5 Service Standards

Service standards are policies that define how, when and where transit services will operate and how they expected to perform. They are designed to help STS achieve its mission and reach its

goals and objectives. Deviation from the standards is an indicator that further investigation and possible remedial action may be warranted.

This section documents existing service standards for STS and, where appropriate, suggests new and updated standards that reflect long-standing expectations for transit as well a new performance expectations for the re-design of the services in the short and long-terms. It also suggests a regular system of performance review to assess how well the transit system is meeting its goals. This review process ensures that transit services remain up-to-date and continue to meet the needs of the community in an efficient manner.

Route Coverage

Routes will be located so that 95% of all residences, places of work, secondary and post secondary schools, shopping centres, and public facilities in the urban area are within a walking distance of

- *450 metres or less* to a bus stop during the daytime Monday through Saturday
- *800 metres or less to* a bus stop during the evening and on Sundays and holidays.
- 250m of medium and high density multiple unit dwellings, and
- 150m of special-needs housing, and other uses that generate a high demand for transit services (e.g. high schools, shopping centres, and hospitals), and
- 600m of industrial areas.

Route Structure

A network of base and local fixed routes will accomplish the route coverage standard.

- *Base routes* will operate in a straight-line structure on the main arterial roads in the urban transit service area. They will be oriented as much as possible to the main travel corridors and major destinations including the downtown core, the University of Saskatchewan and the Kelsey Institute, the four Malls, and the local hospitals. Base routes will form a one kilometre grid network that is accessible to over 85% of the population.
- *Local routes* will supplement the base routes by serving the various neighbourhoods and developing corridors in the City. They include the school specials and overload routes, and routes circulating the various neighbourhoods and industrial areas. Together the base and local routes should bring transit to 90% of the residences, schools and businesses in the City.

Bus Stops

Bus stops should be placed at most intersections, passenger generators and transfer points.

- *Spacing* – the spacing of bus stops should be no greater than 250 metres in high density developed areas, and 450 metres in low density developing areas. Higher-order transit services that utilize limited stop operations should have stop spacing of 700 to 1000 metres.
- *Location* **-** as a general rule, bus stops should be located within a walking distance of 450 metres to one-unit dwellings and town houses, 250 metres to medium and high density

multiple unit dwellings, 150 metres to special-needs housing and other uses that generate a high demand for transit services (i.e. high schools, universities and colleges, shopping centres, hospitals), and 600 metres to industrial establishments

Span of Service (Daily Hours of Operation)

The transit routes should have the following minimum hours of service:

Monday –Friday	Base Routes	6:30am – Midnight
	Local Routes	Peak and/or evening periods
Saturdays	Base Routes	7:00am – Midnight
	Local Routes	No service
Sundays/Holidays	Base Routes	9:00am – 9:00pm
	Local Routes	No service

Headways (Frequency of Service)

The transit routes should have the following maximum headways:

Peak Periods	15 min. base routes, 30 min local routes
Base Periods	30 minutes to 7:00pm weekdays and Saturdays
Evening Periods	30 min. to 11:pm weekdays, 60 min to 11:pm Saturdays
Sundays/Holidays	60 minutes on all base routes

Vehicle Loadings

Vehicle loading standards prevent crowding by limiting the maximum number of people on a bus. The maximum passenger loads per bus should not exceed

- *Large bus* - 150% of the seating capacity (70 passengers for a standard 40 foot bus, 60 passengers for a low floor 40 foot bus)

- *Small bus* - 125% of the seating capacity (30 passengers for a 30 foot bus).

When the vehicle loading exceeds these standards, headways will be reduced or extra buses will be inserted into the route to supplement the service.

Transfer Wait Times

Buses at transfer points, where timed connections are in place, should wait no longer than 3 minutes for connecting buses.

Service Reliability

No bus should leave from any scheduled stop or time-point before the scheduled departure time or more than 3 minutes after the scheduled departure time. Target for reliability is 95% compliance from all buses.

Ridership Performance

Transit routes are expected to equal or exceed the following passenger utilization levels. If they cannot meet these levels, possible remedies could include route changes, lower frequencies, or cancellation.

Monday –Saturday Daytime	Base Routes: 35 boardings per service hour
	Local Routes: 25 boardings per service hour
Evenings and Sundays	All Routes: 15 boardings per service hour

Cost Recovery (Revenue/Cost Ratio)

To achieve a 50% financial target for the transit system as a whole, each transit route will need to recover the following percentages of operating costs from the operating revenues attributed to the route.

Monday –Saturday Daytime	Base Routes 60% R/C Local Routes 35% R/C
Evenings and Sundays	20% Revenue/Cost

Routes which fall below 20% on average should be discontinued, and routes which are between 20% and 30% on weekdays should be modified or restructured

New Service Warrants

A new route or route extension will be introduced when the following conditions are met:

- *Distance to Existing Service* – the new service area should be greater than 450m from existing services and must be adjacent to areas served by transit.
- *Residential Area Density* - for each kilometre of route being considered in a residential area, at least 2,000 people should live within a 450m walk of a proposed route
- *Employment Area Density* - for each kilometre of route being considered in an employment area, at least 750 people should work within 450m walk of a proposed route
- *Passenger Revenues and Costs*- when forecasting passenger ridership, revenues and operating costs, the demand and location of the development, socio-economic characteristics of the population, physical (geographic and road) constraints, accessibility, and transit dependency shall be taken into account.
- *Resource Allocation* - New services can be introduced provided that resources are available and the allocation of resources will not negatively impact other transit services.

Review of Service Changes and Additions

All new services and changes will be operated for a six-month trial period before being confirmed. At the end of the trial period, the route's operation will be reassessed based on its ridership performance; a minimum performance of 15 boardings per service hour is expected. Where the new service does not meet expectations, the service can be redesigned. Where the new service cannot meet or is not expected to meet the minimum performance levels, the route would be recommended for discontinuance.

Annual Review of Routes and Services

A formal review of the existing routes and services will be undertaken annually. For the review, ridechecks will be taken on all routes to determine route performance, boardings and loadings. The review will evaluate each route against the above standards, and will develop recommendations for improvement and changes, if any.

Of particular interest will be the extent that the routes have increased ridership over last year, and the degree that they have met the goals established for the transit system. The review should identify the factors that have contributed to goal adherence and that could be applied to poor performing routes; for example, to what extent will higher frequencies attract more riders.

3.6 Conceptual Service Strategy

From the results of the public consultation and the assessment of the existing system, it is clear that significant changes to the transit system are needed in order to more effectively meet the community's needs in an efficient manner, both in the short term and in the long term.

In the following chapter, based on the analysis and consultation documented above, a new service strategy is proposed to effectively address service deficiencies, tap into new transit markets and improve the efficiency and effectiveness of the transit system overall. *This conceptual strategy is designed to provide the structure for a new short-term service plan and lay the foundation for longer-term improvements* as further urban development and ridership growth take place. The overriding objective of this strategy is to maximize ridership growth, both in the short term and the long term, but to do so in an efficient manner and generally work within the City's financial resources.

The essential components for this service strategy are:

- Increased trip speed, route directness, higher frequency and service efficiency by introducing higher-order service on major core corridors;
- Major re-orientation of routes that better serves the University including more direct service from both the east and west sides of the City;
- Expansion of service into newer suburban developments, especially designated suburban centres and higher-density developments;
- Improved service to the North Industrial Area, including the airport, that is consistent with shift start/stop times;
- Terminal improvements downtown and at the University that are needed to meet current demands and support higher-order service.

The implementation of the strategy can be seen as having two distinct elements. The first element is the re-orientation of the current service network to better serve the University and other key destinations (Kelsey-SIAST, suburban centres, the airport, industrial areas) and to provide more direct, no-transfer (including cross town) connections, especially to key destinations. Exhibit 3-1 on the following page illustrates this element referred to as the Base Potential Future Transit Network.

The second element, seen as the Full Potential Future Transit Network in Exhibit 3-3, includes the implementation of higher-order Bus-Rapid-Transit (BRT) service on four corridors interlined into two

routes; the first providing a connection between Confederation Park, downtown, the University, and Nutana and Lakewood suburban centres; and the second connecting Lawson Heights, Kelsey SIAST, downtown, the University, Preston Crossing and the new University Heights suburban centre.

Exhibit 3-2: Base Potential Future Transit Network

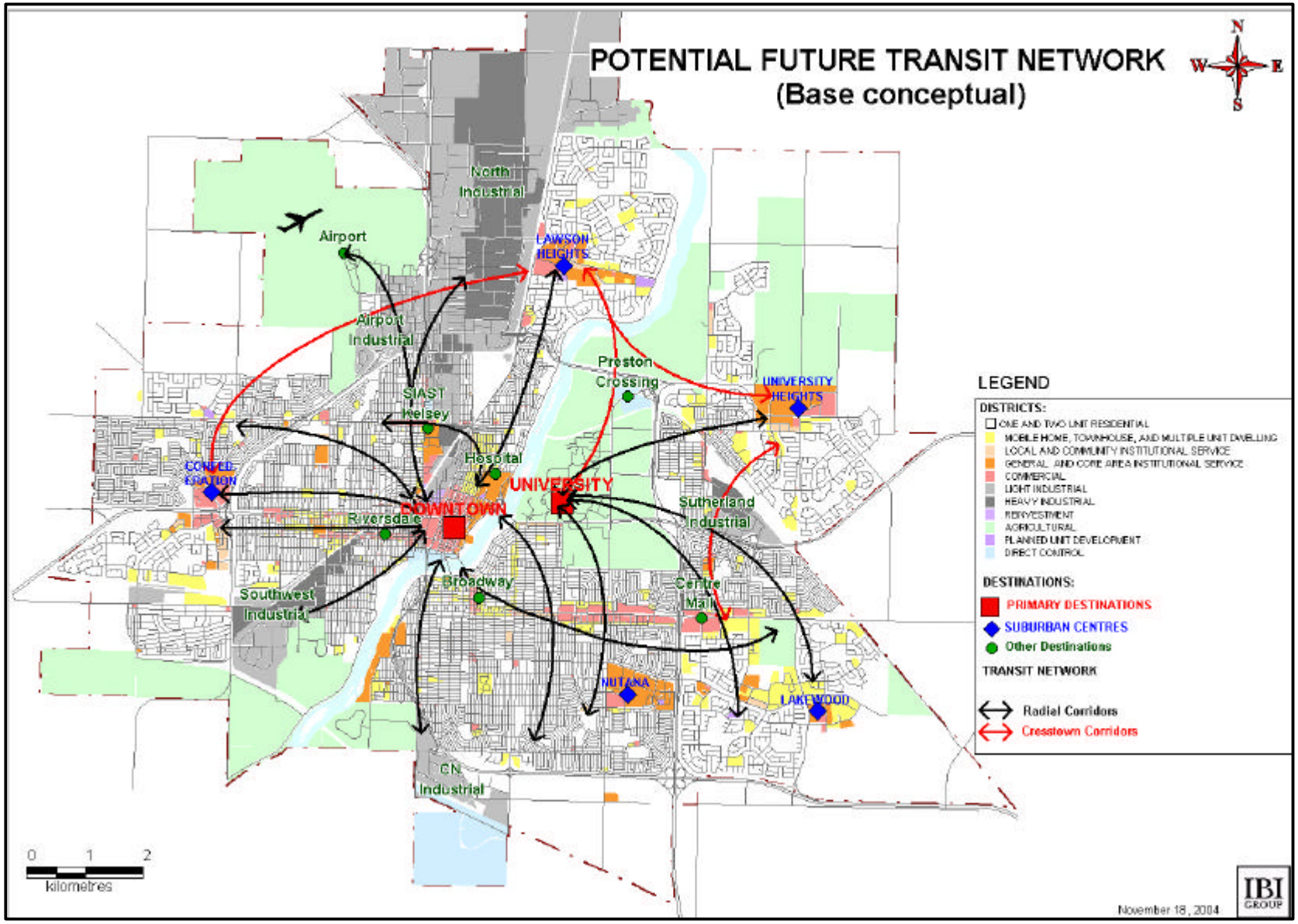
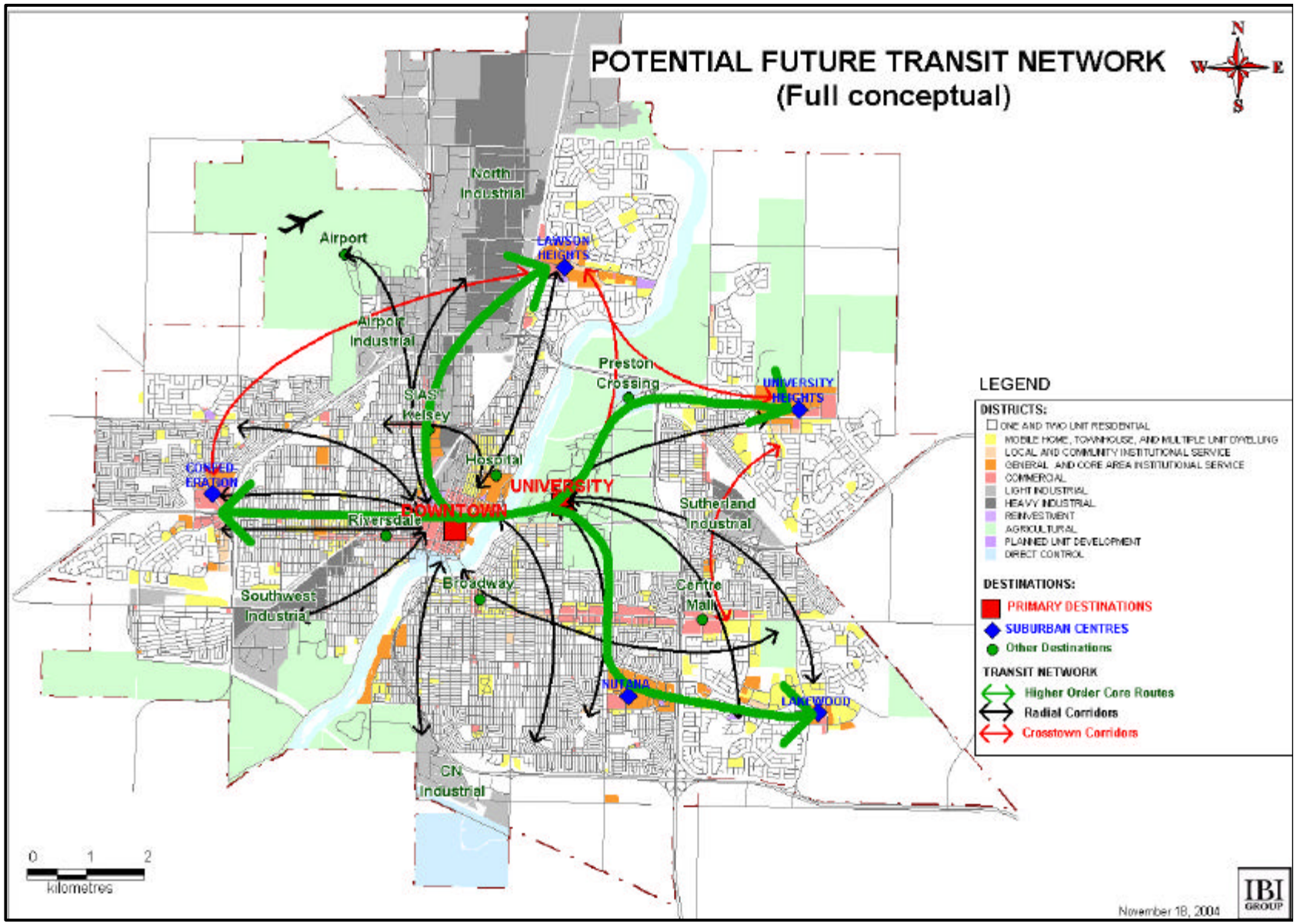


Exhibit 3-3: Full Potential Future Transit Network



4. 10-YEAR STRATEGIC PLAN AND BUSINESS PLAN

This section outlines improvement strategies for the transit system for the next ten years, and provides short-term plans for STS services, operations, capital and financial resources in accordance with the policy framework that has been established.

4.1 Short Term Service Strategy

From the results of the public consultation and the assessment of the existing system, it is clear that significant changes to the transit system are needed to stop the decline in ridership and meet the community's needs more effectively over the short and long term. New and modified services are proposed to effectively address service deficiencies, tap into new markets, and improve the efficiency and effectiveness of the transit system within the City's financial capability. The intent is to have a short term service strategy that supports the City's long term vision for the transit system and is in accordance with its service, ridership, and financial goals outlined in Section Three.

The short-term service strategy concentrates on defining a basic structure for STS routes and services that can meet the City's short and long term goals for the transit system and are the foundation for a future transit network that can accommodate the City's growth and development and promote ridership growth cost-effectively. The main components of the strategy are:

- *Improved Grid System* – restructuring the current transit network to provide straight-line through services in the major corridors, particularly in the east and west sides of the City, and more direct service to the University and other key destinations (Kelsey-SIAST, suburban centres, airport, industrial areas). Exhibit 4.1 illustrates this component of the future transit network.

- *Bus Rapid Transit* – replacing the current semi-express services with Bus-Rapid-Transit (BRT) services that would become the "backbone" of the transit system in the north, west, east and south sectors of the City. The BRT routes in the four sectors would be interlined into two routes; the first route connecting Confederation Park, downtown, the University, Centre Mall and Lakewood suburban centre; the second route connecting Lawson Heights, Kelsey SIAST, downtown, the University, and the new University Heights suburban centre. Exhibit 4.1 illustrates this component of the future transit network.

- *Expansion of Services to Developing Areas* – expanding services into the newer suburban developments, particularly the developments north and east of the University Heights suburban centre, and the developments around the Lakewood suburban centre. Improving service to the North Industrial Area, including the airport, consistent with shift start/stop times.

A detailed service plan for these strategies is illustrated in Exhibit 4.1 and described below in Section 4.3. The service and operating characteristics of the proposed routes in the Short Term Service Plan are shown in Exhibit 4-2. The intent is to implement the proposed services in 2006 and to leave them in place until 2007.

Exhibit 4-1: Proposed Short Term Service Plan

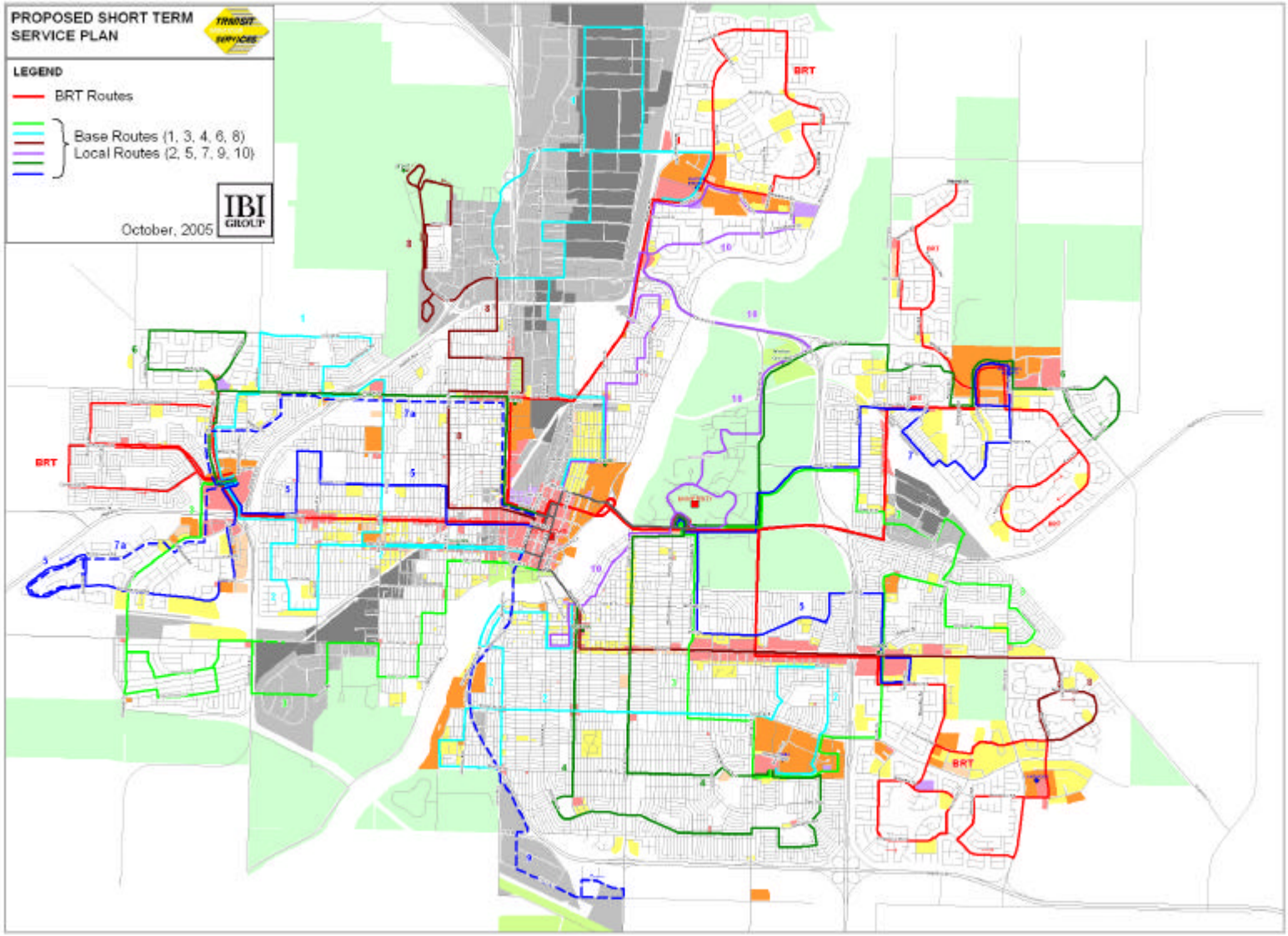


Exhibit 4-2: Saskatoon Transit Short Term 2006 Service Plan – Proposed Route Characteristics

Revised October 13, 2005

ROUTES BY AREA	ROUTE SECTION	HEADWAY (min)			ROUND TRIP DISTANCE (km)			ROUND TRIP TIME (min)			AVE. SPEED (kph)			BUSES			WKDY REV.	SAT REV.	SUN REV.	ANNUAL REV
		Pk	Day	Eve	Pk	Day	Eve	Pk	Day	Eve	Pk	Day	Eve	Pk	Day	Eve	HRS.	HRS.	HRS.	HRS
CONFEDERATION AREA (West Sector 52,700 people)																				
1 20th-WESTVIEW	Downtown-Confederation Term.	30	30	60	23.6	23.6	23.6	75	75	75	18.9	18.9	18.9	2.5	2.5	1.3	35.8	32.9	16.6	11,833
2 20th-MEADOWGREEN	Downtown-Confederation Term.	30	30	60	15.4	15.4	15.4	60	60	60	15.4	15.4	15.4	2.0	2.0	1.0	28.7	26.3	13.3	9,483
3 RIVERSDALE	Downtown-Confederation Term.	30	30	60	26.3	26.3	26.3	90	90	90	17.5	17.5	17.5	3.0	3.0	1.5	43.0	39.4	19.9	14,216
5 RUSHOLME	Downtown-Confederation Term.	30	30	60	13.4	13.4	13.4	45	45	45	17.9	17.9	17.9	1.5	1.5	0.8	21.5	19.7	9.9	7,117
FAIRHAVEN	Confederation Term.-Fairhaven	30	30	60	9.2	9.2	9.2	30	30	30	18.4	18.4	18.4	1.0	1.0	0.5	14.3	13.1	6.6	4,750
6 33rd-DUNDONALD	Downtown-Confederation Term.	30	30	60	21.6	21.6	21.6	60	60	60	21.6	21.6	21.6	2.0	2.0	1.0	28.7	26.3	13.3	9,483
7A 33rd-NORTHUMBERLAND	Downtown-Confederation Term.	30			14.2			40			21.3			1.3			7.1			1,858
McCORMACK	Confederation Term.-McCormack	30			7.0			20			21.0			0.7			3.6			937
8 AIRPORT	Downtown-Airport Terminal	30	30	60	18.9	18.9	21.7	60	60	60	18.9	18.9	21.7	2.0	2.0	1.0	28.7	26.3	13.3	9,483
BRT WEST	Downtown-Confederation Term.	10	15	30	10.0	10.0	10.0	30	30	30	20.0	20.0	20.0	3.0	2.0	1.0	34.0	26.3	13.3	10,864
	Conf.Term.- Confederation Branch	20	30	60	5.1	5.1	5.1	20	15	15	15.3	20.4	20.4	1.0	0.5	0.3	9.8	6.6	3.3	3,074
	Conf.Term.- Centennial Branch	20	30	60	5.1	5.1	5.1	20	15	15	15.3	20.4	20.4	1.0	0.5	0.3	9.8	6.6	3.3	3,074
														21.0	17.0	8.5	264.9	223.4	112.7	86,172
LAWSON AREA (North Sector 26,400 people)																				-
1 NORTH INDUSTRIAL	Downtown-Circle Dr. & Quebec	30	30		8.3	8.3		25	30		19.9	16.6		0.8	1.0		10.4	8.6		3,153
	Circle Dr/Quebec-Lawson Term.NorthBr.	30	60		17.6	17.6		50	60		21.1	17.6		1.7	1.0		14.9	8.6		4,304
	Circle Dr/Quebec-Lawson Term.South B	30	60		10.8	10.8		30	30		21.6	21.6		1.0	0.5		8.3	4.3		2,390
10 RIVERHEIGHTS	Downtown-Lawson Terminal	30	30	60	19.4	19.4	19.4	60	60	60	19.4	19.4	19.4	2.0	2.0	1.0	28.7	26.3	13.3	9,483
BRT NORTH	Downtown-Lawson Terminal	10	15	30	11.9	11.9	11.9	30	30	30	23.8	23.8	23.8	3.0	2.0	1.0	34.0	26.3	13.3	10,864
	Lawson Terminal-Silverwood Hts (CC)	20	30	60	8.5	8.5	8.5	30	30	30	17.0	17.0	17.0	1.5	1.0	0.5	17.0	13.1	6.6	5,440
	Lawson Terminal-Silverwood Hts (CCW)	20	30	60	8.5	8.5	8.5	30	30	30	17.0	17.0	17.0	1.5	1.0	0.5	17.0	13.1	6.6	5,440
														11.5	8.5	3.00	130.3	100.4	39.8	41,075
UNIVERSITY HEIGHTS AREA (East Sector 30,000 people)																				-
6 WILLOWGROVE	Willowgrove-Downtown	30	30	60	23.2	23.2	23.2	60	60	60	23.2	23.2	23.2	2.0	2.0	1.0	28.7	26.3	13.3	9,483
7 FOREST GROVE	Univ. Hts.Term-Downtown	30	30	60	19.6	19.6	19.6	60	60	60	19.6	19.6	19.6	2.0	2.0	1.0	28.7	26.3	13.3	9,483
10 LAWSON-UNIVERSITY	Place Riel Terminal-LawsonTerm.	30	30		21.2	21.2		60	60		21.2	21.2		2.0	2.0		16.0	17.3		5,025
BRT EAST	Downtown-University Heights Terminal	10	15	30	15.6	15.6	15.6	40	40	45	23.4	23.4	20.8	4.0	2.7	1.5	46.3	34.4	32.5	15,523
	Univ.Hts.Term.-Kenderdine Branch	20	30	60	5.2	5.2	5.2	20	20	15	15.6	15.6	20.8	1.0	0.7	0.3	10.8	8.1	8.1	3,674
	Univ.Hts.Term.-Silverspring Branch	20	30	60	7.2	7.2	6.4	20	20	15	21.6	21.6	25.6	1.0	0.7	0.3	10.8	8.1	8.1	3,674
														12.0	10.0	4.0	141.3	120.4	75.3	46,863
LAKEWOOD/NUTANA AREA (South Sector 67,100 people)																				
2 LORNE	Downtown-Ruth&Henry	30	30	60	12.2	12.2	9.8	45	45	30	16.3	16.3	19.6	1.5	1.5	0.5	20.0	17.5	6.6	6,433
TAYLOR	Ruth & Henry-Nutana Terminal	30	30	60	15.8	15.8	15.8	45	45	45	21.1	21.1	21.1	1.5	1.5	0.8	21.5	19.7	9.9	7,117
3 CUMBERLAND	Downtown-Nutana Terminal	30	30	60	19.6	19.6	19.6	60	60	60	19.6	19.6	19.6	2.0	2.0	1.0	28.7	26.3	13.3	9,483
3 McKERCHER	Downtown-Lakeview	30	30	60	28.6	28.6	28.6	90	90	90	19.1	19.1	19.1	3.0	3.0	1.5	43.0	39.4	19.9	14,216
4 CLARENCE	Downtown-Nutana Term. Via UofS	30	30	60	19.7	19.7	19.7	60	60	60	19.7	19.7	19.7	2.0	2.0	1.0	28.7	26.3	13.3	9,483
4 BROADWAY	Downtown-Nutana Terminal	30	30	60	19.9	19.9	19.9	60	60	60	19.9	19.9	19.9	2.0	2.0	1.0	28.7	26.3	13.3	9,483
5 COLLEGE PARK	Downtown-College Park	30	30	60	14.8	14.8	14.8	45	45	45	19.7	19.7	19.7	1.5	1.5	0.8	21.5	19.7	9.9	7,117
8 8th STREET	Downtown-Boychuk/Laurentian	30	30	60	20.5	20.5	20.5	60	60	60	20.5	20.5	20.5	2.0	2.0	1.0	28.7	26.3	13.3	9,483
9 CN INDUSTRIAL	Downtown - CN Indusrial	30			14.0			30			28.0			1.0			5.3	0.0	0.0	1,397
BRT SOUTH	Downtown-Centre Mall Terminal	10	15	30	13.6	13.6	13.6	40	45	45	20.4	18.1	18.1	4.0	3.0	1.5	48.3	38.0	18.3	15,436
	Centre Mall - Lakeview Branch	20	30	60	6.4	6.4	6.4	20	20	20	19.2	19.2	19.2	1.0	0.7	0.3	11.3	8.4	4.1	3,597
	Centre Mall - Lakeridge Branch	20	30	60	11.6	11.6	11.6	40	40	40	17.4	17.4	17.4	2.0	1.3	0.7	22.7	16.9	8.1	7,177
														23.5	20.5	10.0	308.3	264.7	130.0	100,423
TOTAL REGULAR SERVICE														68.0	56.0	25.5	844.8	708.9	357.8	274,533
EXTRA SERVICE														22.0			88.0			19,840
TOTAL REGULAR AND EXTRA SERVICE (176200 people served in suburban area in 2006)														90.0	56.0	25.5	932.8	708.9	357.8	294,373

Revised October 13, 2005. Revisions include corrected running times and interlines on the routes, standardized 10 minute peak frequencies on all BRT routes and fewer BRT branches at the suburban terminals, extension of Route 8 Airport into the Woodlawn area at night, and taking Route 2 Lorne out of the Saskatchewan /11 St. corridor at night to improve the running times.
The Service Plan will require a total of 90 buses including 65 conventional buses for the regular routes and 25 special buses for the peak regular and extra services; 3 special buses will be used for the regular routes operating in the peak period (Routes 7A, 9), and 22 special buses will be used for the extra services required for school purposes (this compares to 23 special buses required for school purposes now).
The Service Plan is expected to operate 294,300 revenue hours when implemented in 2006, plus an estimated 19,700 revenue hours on charter services for a total of 314,000 revenue hours.

The present system in 2005 required a total of 90 buses including 59 conventional buses for the regular routes and 31 special buses for the peak regular and extra services; 8 special buses are used for the regular routes operating in the peak period, and 23 special buses are used for school tripper and charter purposes. The present system will operate an estimated 287,700 revenue hours on the regular and extra services, plus an estimated 19,500 trevenue hours on charter services for a total of 307,200 revenue hours in 2005.

4.2 Long Term Service Strategy

The long-term service strategy concentrates on improving the short-term routes and services to accommodate the population growth and to realize substantial increases in ridership and the modal split over the next ten years, in support of the City's desire to reduce GHG emissions while keeping transit cost increases to a minimum. The long term strategy would build on the transit network developed as a part of the short-term strategy, namely the grid system and BRT service, as this network was designed to achieve the established vision, goals and objectives for the transit system. The Long Term Service Strategy would be implemented after the short-term plan has been operating for at least three years, and would include the following main components:

Stage 1 By 2011

The first stage of the long term strategy would concentrate on extending the short-term transit routes into the growing neighbourhoods throughout the city as follows:

- *West Transit Route Extensions* - extending Routes 1 and 6 into Hampton Village in the northwest with a population of about 4,000 by 2013;

- *East Transit Route Extensions* – extending Route 7 into the Springfield neighbourhood and Route 6 into the Willowgrove neighbourhood in the northeast with a population of about 4,000 by 2012;

- *South Transit Route Extensions* – extending the Lakeridge branches of the BRT South into the Rosewood neighbourhood, and Route 2 into the Stonebridge neighbourhood in the southeast with a population of about 7,000 by 2018.

These are relatively modest changes to the basic route structure set out in the Short Term Service Strategy and Service Plan. They could be implemented starting in 2007 depending on the extent that the various neighbourhoods have been developed.

Stage 2 By 2015

This stage of the long term strategy would concentrate on improving service frequencies and crosstown services as follows:

- *Improved peak frequencies* – peak frequencies would be increased to 15-minutes on all branches of the BRT which would give 7.5-minute service on the west, south, north and east trunks of the BRT service during peak periods. Frequencies would be increased on several routes so that all main corridors receive 15-minute or better service during peak periods; Route 8 in the 8th Street corridor, and Route 4 in the Broadway and Clarence corridors. After 2015 depending on the funding, all services should have a standardized maximum headway of 15 minutes.

- *Improved off peak frequencies* - off peak frequencies would be standardized at 30-minutes or better on all services, including weekday evening services, and weekend services. The strategy would have no 60-minute services. .

- *New Crosstown Service* – when the bridge is built over the CPR tracks in the northeast, a new crosstown route (Route 11) should be introduced to connect the Nutana, Centre Mall and University Heights suburban centres. This will give residents direct access to northeast and southwest destinations without going through the University or downtown terminals.

These are relatively aggressive changes to the basic route frequencies set out in the Short Term Service Strategy and Service Plan. When combined with the Stage 1 route changes, Stage 2 should cause significant increases in ridership and the modal split consistent with the City's long-term goals for the transit system.

A preliminary long term service plan for these strategies is illustrated in Exhibit 4.3. The service and operating characteristics of the preliminary routes in the Long Term Service Plan are shown in Exhibit 4.4 for Stage 1 and Exhibit 4.5 for Stage 2 of the service plan. The intent is to start implementing the Stage 1 route extensions over the 2007 – 2011 period and the Stage 2 frequency changes over the 2012 – 2016 period.

Exhibit 4-3: Preliminary Long Term Service Plan

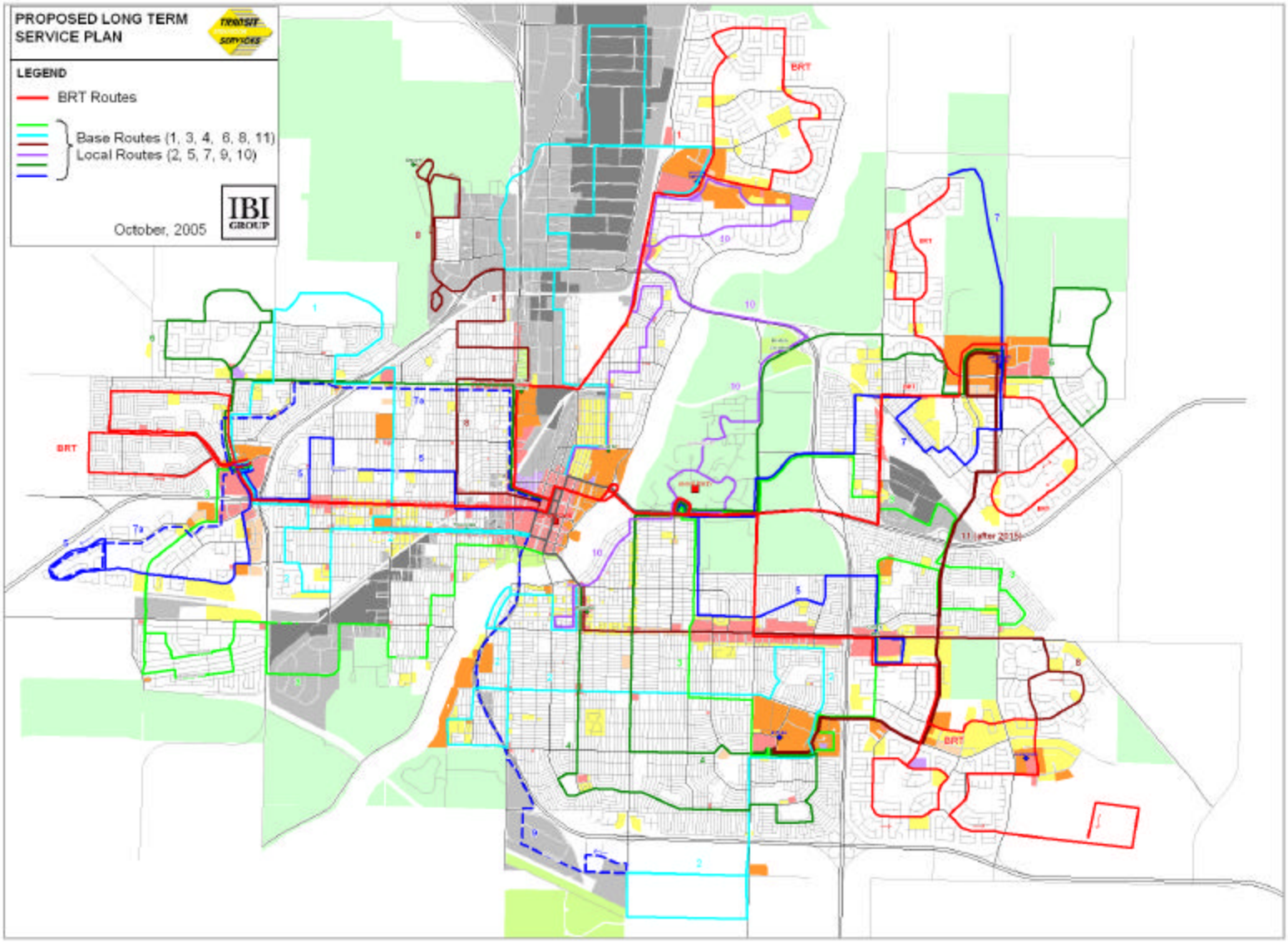


Exhibit 4-4: Saskatoon Transit Preliminary Long Term Service Plan – Stage 1 Route Characteristics (By 2011)

Revised October 13, 2005

ROUTES BY AREA	ROUTE SECTION	HEADWAY (min)			ROUND TRIP DISTANCE (km)			ROUND TRIP TIME (min)			AVE. SPEED (kph)			BUSES			WKDY REV.	SAT REV.	SUN REV.	ANNUAL REV
		Pk	Day	Eve	Pk	Day	Eve	Pk	Day	Eve	Pk	Day	Eve	Pk	Day	Eve	HRS.	HRS.	HRS.	HRS
CONFEDERATION AREA (West Sector 52,700 to 55,000 people)																				
1 20th-WESTVIEW	Downtown-Confederation Term.	30	30	60	**28.4**	**28.4**	**28.4**	90	90	90	18.9	18.9	18.9	3.0	3.0	1.5	43.0	39.4	19.9	14,199
2 20th-MEADOWGREEN	Downtown-Confederation Term.	30	30	60	15.4	15.4	15.4	60	60	60	15.4	15.4	15.4	2.0	2.0	1.0	28.7	26.3	13.3	9,483
3 RIVERSDALE	Downtown-Confederation Term.	30	30	60	26.3	26.3	26.3	90	90	90	17.5	17.5	17.5	3.0	3.0	1.5	43.0	39.4	19.9	14,216
5 RUSHOLME	Downtown-Confederation Term.	30	30	60	13.4	13.4	13.4	45	45	60	17.9	17.9	13.4	1.5	1.5	1.0	23.0	22.0	13.3	7,800
FAIRHAVEN	Confederation Term.-Fairhaven	30	30	60	9.2	9.2	9.2	30	30	30	18.4	18.4	18.4	1.0	1.0	0.5	14.3	13.1	6.6	4,750
6 33rd-DUNDONALD	Downtown-Confederation Term.	30	30	60	**24.8**	**24.8**	**24.8**	75	75	75	19.8	19.8	19.8	2.5	2.5	1.3	35.8	32.9	16.6	11,850
7A 33rd-NORTHUMBERLAND	Downtown-Confederation Term.	30			14.2			40			21.3			1.3			7.1			1,858
McCORMACK	Confederation Term.-McCormack	30			7.0			20			21.0			0.7			3.6			937
8 AIRPORT	Downtown-Airport Terminal	30	30	60	18.9	18.9	21.7	60	60	60	18.9	18.9	21.7	2.0	2.0	1.0	28.7	26.3	13.3	9,483
BRT WEST	Downtown-Confederation Term.	10	15	30	10.0	10.0	10.0	30	30	30	20.0	20.0	20.0	3.0	2.0	1.0	34.0	26.3	13.3	10,864
	Conf.Term.- Confederation Branch	20	30	60	5.1	5.1	5.1	20	15	15	15.3	20.4	20.4	1.0	0.5	0.3	9.8	6.6	3.3	3,074
	Conf.Term.- Centennial Branch	20	30	60	5.1	5.1	5.1	20	15	15	15.3	20.4	20.4	1.0	0.5	0.3	9.8	6.6	3.3	3,074
														22.0	18.0	9.3	280.8	238.8	122.7	91,588
LAWSON AREA (North Sector 26,400 to 26,400 people																				-
1 NORTH INDUSTRIAL	Downtown-Circle Dr. & Quebec	30	30		8.3	8.3		30	30		16.6	16.6		1.0	1.0		11.3	8.6		3,383
	Circle Dr/Quebec-Lawson Term.(North	30	60		17.6	17.6		60	60		17.6	17.6		2.0	1.0		16.7	8.6		4,764
	Circle Dr/Quebec-Lawson Term.(South	30	60		10.8	10.8		30	60		21.6	10.8		1.0	1.0		11.3	8.6		3,383
10 RIVERHEIGHTS	Downtown-Lawson Terminal	30	30	60	19.4	19.4	19.4	60	60	60	19.4	19.4	19.4	2.0	2.0	1.0	28.7	26.3	13.3	9,483
BRT NORTH	Downtown-Lawson Terminal	10	15	30	11.9	11.9	11.9	30	30	30	23.8	23.8	23.8	3.0	2.0	1.0	34.0	26.3	13.3	10,864
	Lawson Terminal-Silverwood Hts (CC)	20	30	60	8.5	8.5	8.5	30	30	30	17.0	17.0	17.0	1.5	1.0	0.5	17.0	13.1	6.6	5,440
	Lawson Terminal-Silverwood Hts (CCW	20	30	60	8.5	8.5	8.5	30	30	30	17.0	17.0	17.0	1.5	1.0	0.5	17.0	13.1	6.6	5,440
														12.0	9.0	3.0	136.0	104.8	39.8	42,759
UNIVERSITY HEIGHTS AREA (East Sector 30,000 to 32,200 people)																				-
6 WILLOWGROVE	Downtown-Willowgrove via UHT	30	30	60	**26.0**	**26.0**	**26.0**	75	75	75	20.8	20.8	20.8	2.5	2.5	1.3	35.8	32.9	16.6	11,850
7 FOREST GROVE	Downtown-University Heights Terminal	30	30	60	19.6	19.6	19.6	60	60	60	19.6	19.6	19.6	2.0	2.0	1.0	28.7	26.3	13.3	9,483
SPRINGFIELD	**UH Terminal-Springfield**	30	30		**10.0**	**10.0**		30	30	30	20.0	20.0	0.0	1.0	1.0		11.3	8.6	0.0	3,383
10 LAWSON-UNIVERSITY	Place Riel Terminal-LawsonTerm.	30	30		21.2	21.2		60	60		21.2	21.2		2.0	2.0		16.0	17.3		5,025
BRT EAST	Downtown-University Heights Terminal	10	15	30	15.6	15.6	15.6	40	40	45	23.4	23.4	20.8	4.0	2.7	1.5	46.3	34.4	32.5	15,523
	Univ.Hts.Term.-Kenderdine Branch	20	30	60	5.2	5.2	5.2	20	20	15	15.6	15.6	20.8	1.0	0.7	0.3	10.8	8.1	8.1	3,674
	Univ.Hts.Term.-Silverspring Branch	20	30	60	7.2	7.2	6.4	20	20	15	21.6	21.6	25.6	1.0	0.7	0.3	10.8	8.1	8.1	3,674
														13.5	11.5	4.3	159.8	135.7	78.6	52,613
LAKEWOOD/NUTANA AREA (South Sector 67,100 to 70,400 people)																				
2 LORNE	Downtown-Ruth&Henry	30	30	60	12.2	12.2	9.8	45	45	45	16.3	16.3	13.1	1.5	1.5	0.8	21.5	19.7	9.9	7,117
TAYLOR	Ruth & Henry-Nutana Terminal	30	30	60	15.8	15.8	15.8	45	45	45	21.1	21.1	21.1	1.5	1.5	0.8	21.5	19.7	9.9	7,117
STONEBRIDGE	**Nutana Terminal - Stonebridge**	30	30		9.6	9.6	9.6	30	30	30	19.2	19.2	19.2	1.0	1.0		11.3	8.6	0.0	3,383
3 McKERCHER	Downtown-Lakeview	30	30	60	28.6	28.6	28.6	90	90	90	19.1	19.1	19.1	3.0	3.0	1.5	43.0	39.4	19.9	14,216
3 CUMBERLAND	Downtown-Nutana Terminal	30	30	60	19.6	19.6	19.6	60	60	60	19.6	19.6	19.6	2.0	2.0	1.0	28.7	26.3	13.3	9,483
4 CLARENCE	Downtown-Nutana Term. Via UofS	30	30	60	19.7	19.7	19.7	60	60	60	19.7	19.7	19.7	2.0	2.0	1.0	28.7	26.3	13.3	9,483
4 BROADWAY	Downtown-Nutana Terminal	30	30	60	19.9	19.9	19.9	60	60	60	19.9	19.9	19.9	2.0	2.0	1.0	28.7	26.3	13.3	9,483
5 COLLEGE PARK	Downtown-College Park	30	30	60	14.8	14.8	14.8	45	45	60	19.7	19.7	14.8	1.5	1.5	1.0	23.0	22.0	13.3	7,800
8 8th STREET	Downtown-Boychuk/Laurentian	30	30	60	20.5	20.5	20.5	60	60	60	20.5	20.5	20.5	2.0	2.0	1.0	28.7	26.3	13.3	9,483
9 CN INDUSTRIAL	Downtown - CN Indusrial	30			14.0			30			28.0			1.0			5.3	0.0	0.0	1,397
BRT SOUTH	Downtown-Centre Mall Terminal	10	15	30	13.6	13.6	13.6	50	45	35	16.3	18.1	23.3	5.0	3.0	1.2	51.7	36.6	14.2	16,008
	Centre Mall Terminal - Lakeview Branch	20	30	60	6.4	6.4	6.4	20	30	20	19.2	12.8	19.2	1.0	1.0	0.3	13.3	12.0	4.1	4,292
	Centre Mall-Lakeridge/Rosewood Br.	20	30	60	**17.4**	**17.4**	**17.4**	60	60	60	17.4	17.4	17.4	3.0	2.0	1.0	34.0	25.3	12.2	10,756
														26.5	22.5	10.5	339.2	288.5	136.6	110,020
TOTAL REGULAR SERVICE														74.0	61.0	27.0	915.8	767.6	377.7	296,981
EXTRA SERVICE														18.0			72.0			16,320
TOTAL REGULAR AND EXTRA SERVICE (176200 to 184,000 people served in suburban area)														92.0	61.0	27.0	987.8	767.6	377.7	313,301

The highlighted items in the exhibit indicate the suggested changes to the short term routes implemented in 2006.
This Stage 1 Long Term Service Plan extends service into the growing subdivisions (Routes 1 and 6 into Hampton Village in the northwest, Routes 6 and 7 into Willowgrove and Springfield in the north east, Route 2 into Stonebridge in the south, and the BRT Lakeview branch into Rosewood in the southeast. The Plan could be implemented over the 2007-2010 period depending on bus availability. By 2011, the Plan will require 92 buses including 71 conventiomnal buses for ther regular routes and 21 special buses for the regular and extra services; 3 special buses will be required for the regular routes operating in the peak period (Routes 7A and 9), and 18 special buses will be used for the extra services required for school purposes (this compares to 19 special buses required for school purposes in the 2006 Service Plan). By 2011, the Service Plan is expected to operate 313,300 revenue hours, plus an estimated 16,700 revenue hours on charter services for a total of 330,000 revenue hours.

Exhibit 4-5: Saskatoon Transit Preliminary Long Term Service Plan – Stage 2 Route Characteristics (By 2016)

Revised October 13, 2005

ROUTES BY AREA	Inter Line	ROUTE SECTION	HEADWAY (min)			ROUND TRIP DISTANCE (km)			ROUND TRIP TIME (min)			AVE. SPEED (kph)			BUSES			WKDY REV. HRS.	SAT REV. HRS.	SUN REV. HRS.	ANNUAL REV HRS
			Pk	Day	Eve	Pk	Day	Eve	Pk	Day	Eve	Pk	Day	Eve	Pk	Day	Eve				
CONFEDERATION AREA (West Sector 55,700 to 57,000 people)																					
1 20th-WESTVIEW		Downtown-Confederation Term.	30	30	**30**	28.4	28.4	28.4	90	90	90	18.9	18.9	18.9	3.0	3.0	3.0	52.0	52.9	39.8	18,299
2 20th-MEADOWGREEN		Downtown-Confederation Term.	30	30	**30**	15.4	15.4	15.4	60	60	60	15.4	15.4	15.4	2.0	2.0	2.0	34.7	35.3	26.5	12,217
3 RIVERSDALE		Downtown-Confederation Term.	30	30	**30**	26.3	26.3	26.3	90	90	90	17.5	17.5	17.5	3.0	3.0	3.0	52.0	52.9	39.8	18,316
5 RUSHOLME		Downtown-Confederation Term.	30	30	**30**	13.4	13.4	13.4	45	45	45	17.9	17.9	17.9	1.5	1.5	1.5	26.0	26.5	19.9	9,167
FAIRHAVEN		Confederation Term.-Fairhaven	30	30	**30**	9.2	9.2	9.2	30	30	30	18.4	18.4	18.4	1.0	1.0	1.0	17.3	17.6	13.3	6,117
6 33rd-DUNDONALD		Downtown-Confederation Term.	30	30	**30**	24.8	24.8	24.8	75	75	75	19.8	19.8	19.8	2.5	2.5	2.5	43.3	44.1	33.2	15,266
7A 33rd-NORTHUMBERLAND		Downtown-Confederation Term.	30			14.2			40			21.3			1.3			7.1			1,858
7A McCORMACK		Confederation Term.-McCormack	30			7.0			20			21.0			0.7			3.6			937
8 AIRPORT		Downtown-Airport Terminal	30	30	60	18.9	18.9	21.7	60	60	60	18.9	18.9	21.7	2.0	2.0	1.0	28.7	26.3		8,754
BRT WEST		Downtown-Confederation Term.	**7.5**	15	30	10.0	10.0	10.0	30	30	30	20.0	20.0	20.0	4.0	2.0	1.0	39.3	26.3	13.3	12,244
		Conf.Term.- Confederation Branch	**15**	30	**30**	5.1	5.1	5.1	15	15	15	20.4	20.4	20.4	1.0	0.5	0.5	11.3	8.8	6.6	3,757
		Conf.Term.- Centennial Branch	**15**	30	**30**	5.1	5.1	5.1	15	15	15	20.4	20.4	20.4	1.0	0.5	0.5	11.3	8.8	6.6	3,757
															23.0	18.0	16.0	326.6	299.5	198.9	110,689
LAWSON AREA (North Sector 26,400 to 26,400 people																					-
1 NORTH INDUSTRIAL		Downtown-Circle Dr. & Quebec	30	30		8.3	8.3		30	30		16.6	16.6		1.0	1.0		11.3	8.6		3,383
		Circle Dr/Quebec-Lawson Term.(North	30	60		17.6	17.6		60	60		17.6	17.6		2.0	1.0		16.7	8.6		4,764
		Circle Dr/Quebec-Lawson Term.(South	30	60		10.8	10.8		30	60		21.6	10.8		1.0	1.0		11.3	8.6		3,383
10 RIVERHEIGHTS		Downtown-Lawson Terminal	30	30	60	19.4	19.4	19.4	60	60	60	19.4	19.4	19.4	2.0	2.0	1.0	28.7	26.3	13.3	9,483
BRT NORTH		Downtown-Lawson Terminal	10	15	30	11.9	11.9	11.9	30	30	30	23.8	23.8	23.8	3.0	2.0	1.0	34.0	26.3	13.3	10,864
		Lawson Terminal-Silverwood Hts (CC)	20	30	**30**	8.5	8.5	8.5	30	30	30	17.0	17.0	17.0	1.5	1.0	1.0	20.0	17.6	13.3	6,807
		Lawson Terminal-Silverwood Hts (CCW	20	30	**30**	8.5	8.5	8.5	30	30	30	17.0	17.0	17.0	1.5	1.0	1.0	20.0	17.6	13.3	6,807
															12.0	9.0	4.0	142.0	113.8	53.0	45,492
UNIVERSITY HEIGHTS AREA (East Sector 32,200 to 34,400 people)																					-
6 WILLOWGROVE		Downtown-Willowgrove via UHT	30	30	**30**	23.2	23.2	23.2	75	75	60	18.6	18.6	23.2	2.5	2.5	2.0	40.3	39.6	26.5	13,900
7 FOREST GROVE		Downtown-University Heights Terminal	30	30	**30**	19.6	19.6	19.6	60	60	60	19.6	19.6	19.6	2.0	2.0	2.0	34.7	35.3	26.5	12,217
SPRINGFIELD		University Heights Terminal-Springfield	30	30	60	10.0	10.0	10.0	30	30	30	20.0	20.0	20.0	1.0	1.0	0.5	14.3	13.1	6.6	4,750
10 LAWSON-UNIVERSITY		Place Riel Terminal-LawsonTerm.	30	30		21.2	21.2		60	60		21.2	21.2		2.0	2.0		16.0	17.3	0.0	5,025
11 N-S CROSSTOWN		**UH Terminal-Nuntana Terminal**	30	30		20.0	20.0		45	60		26.7	20.0		1.5	2.0		20.0	17.3	0.0	6,060
BRT EAST		Downtown-University Heights Terminal	10	15	30	15.6	15.6	15.6	40	40	45	23.4	23.4	20.8	4.0	2.7	1.5	46.3	34.4	32.5	15,523
		Univ.Hts.Term.-Kenderdine Branch	20	30	**30**	5.2	5.2	5.2	20	20	15	15.6	15.6	20.8	1.0	0.7	0.5	12.3	9.1	8.1	4,113
		Univ.Hts.Term.-Silverspring Branch	20	30	**30**	7.2	7.2	6.7	20	20	15	21.6	21.6	26.8	1.0	0.7	0.5	12.3	9.1	8.1	4,113
															15.0	13.5	7.0	196.3	175.2	108.5	65,700
LAKEWOOD/NUTANA AREA (South Sector 70,400 to 73,700 people)																					
2 LORNE		Downtown-Ruth&Henry	30	30	**30**	12.2	12.2	9.8	45	45	30	16.3	16.3	19.6	1.5	1.5	1.0	23.0	22.0	13.3	7,800
TAYLOR		Ruth & Henry-Nutana Terminal	30	30	**30**	15.8	15.8	15.8	45	45	60	21.1	21.1	15.8	1.5	1.5	2.0	29.0	31.0	26.5	10,533
STONEBRIDGE		Nutana Terminal - Stonebridge	30	30	60	9.8	9.8	9.8	30	30	30	19.6	19.6	19.6	1.0	1.0	0.5	14.3	13.1	6.6	4,750
3 McKERCHER		Downtown-Lakeview	30	30	**30**	28.6	28.6	28.6	90	90	90	19.1	19.1	19.1	3.0	3.0	3.0	52.0	52.9	39.8	18,316
3 CUMBERLAND		Downtown-Nutana Terminal	30	30	**30**	19.6	19.6	19.6	60	60	60	19.6	19.6	19.6	2.0	2.0	2.0	34.7	35.3	26.5	12,217
4 CLARENCE		Downtown-Nutana Term. Via UofS	30	30	**30**	19.7	19.7	19.7	60	60	60	19.7	19.7	19.7	2.0	2.0	2.0	34.7	35.3	26.5	12,217
4 BROADWAY		Downtown-Nutana Terminal	**15**	30	**30**	19.9	19.9	19.9	60	60	60	19.9	19.9	19.9	4.0	2.0	2.0	45.3	35.3	26.5	14,977
5 COLLEGE PARK		Downtown-College Park	30	30	**30**	14.8	14.8	14.8	45	45	45	19.7	19.7	19.7	1.5	1.5	1.5	26.0	26.5	19.9	9,167
8 8th STREET		Downtown-Boychuk/Laurentian	**15**	30	**30**	20.5	20.5	20.5	60	60	60	20.5	20.5	20.5	4.0	2.0	2.0	45.3	35.3	26.5	14,977
9 CN INDUSTRIAL		Downtown - CN Indusrial	30			14.0			30			28.0			1.0			5.3	0.0	0.0	1,397
BRT SOUTH		Downtown-Centre Mall Terminal	**7.5**	15	30	13.6	13.6	13.6	45	45	40	18.1	18.1	20.4	6.0	3.0	1.3	58.0	37.3	16.3	17,793
		Centre Mall-Terminal-Lakeview Branch	**15**	30	**30**	6.4	6.4	6.4	30	30	20	12.8	12.8	19.2	2.0	1.0	0.7	20.7	13.3	8.1	6,481
		Centre Mall - Lakeridge/Rosewood Brar	**15**	30	**30**	17.4	17.4	17.4	60	60	60	17.4	17.4	17.4	4.0	2.0	2.0	45.3	29.3	24.4	14,562
															33.5	22.5	20.0	433.6	366.5	261.0	145,188
TOTAL REGULAR SERVICE															83.5	63.0	47.0	1,098.4	954.9	621.4	367,069
EXTRA SERVICE															16.5			66.0			14,520
TOTAL REGULAR AND EXTRA SERVICE (184,000 to 191,500 people served in suburban area)															100.0	63.0	47.0	1,164.4	954.9	621.4	381,589

The highlighted figures indicate the suggested route and frequency changes in Stage 2 after the Stage 1 routes are implemented by 2011. Before Route 11 can be implemented, the planned bridge over the CPR tracks will need to be built. This Stage 2 Plan provides 15 minute peak service on the major routes and BRT branches (including 7.5 minute peak service on the major BRT trunks), and a basic 30 minute service to midnight on all routes except the industrial routes. The Plan could be implemented by 2016 depending on the demand and bridge construction. It should require 100 buses including 80 conventional buses for the regular routes and 20 special buses for regular and extra services; 3 special buses will be required for the regular routes in the peak period (Routes, 7A and 9), and 17 special buses will be required for school purposes as compared to 18 in the Stage 1 Service Plan. The Stage 2 Service Plan is expected to operate 381,500 revenue hours in 2016, plus an estimated 18,500 revenue hours on charter services for a total of 400,000 revenue hours.

4.3 Proposed Short-Term Service Plan

4.3.1 GENERAL SERVICE STRUCTURE

In this and the following sections, a major transit service restructuring is proposed to address the various service deficiencies identified in the service assessments and to implement the service concepts discussed above.

Bus-Rapid-Transit Routes

The primary recommendation is the replacement of the current semi-express services (with their limited time spans and limited connectivity) with a comprehensive, frequent, full service Bus-Rapid-Transit network that would become the "backbone" of the entire transit system.

In the short term, the BRT services would be of a relatively low level, with the potential to add features in the future as ridership builds and services can be further improved. The initial form of BRT would include the following:

- Limited stop operation at designated locations, with stop spacing typically being in the order of 0.7 to 1.0 km., and with special identification features at the designated stops;
- Operation in mixed traffic, but with transit priority measures (e.g. transit signal priority, bus-only "queue-jump" lanes) where they can be justified (e.g. arriving and leaving the University, approaches to University Bridge);
- The use of the highest-quality buses in the fleet, especially low-floor buses (including dedicating future new bus additions to the BRT fleet);
- A unique identification in terms of bus livery, logo and route naming.

The BRT network would be designed to achieve several key benefits:

- All BRT routes and all trips would provide direct service to both downtown and the University, thus providing citywide coverage to both of these two most important destinations.
- The four routes would provide fast and direct connections from downtown and the University to all five of the City's designated suburban centres (Confederation, Lawson Heights, University Heights, Nutana/Centre Mall and Lakewood), each of which would also become a focal point for local transit routes.
- BRT routes would also provide quick connections to several other secondary destinations and transfer points for local routes, including SIAST-Kelsey, Lakewood Civic Centre, Westgate Shopping Centre and Grosvenor Park Centre.
- BRT routes would be interlined with local branches at their outer ends to minimize the need for transfers and to extend the BRT service into key suburban areas, especially those with above average densities that can support the higher quality service.
- The BRT services would operate all days and at all time periods, thus providing a high degree of passenger confidence in the consistency, continuity and reliability of the overall transit service.

- The BRT services would be of a sufficiently high frequency (10 minutes in peak periods in the short-term and 7.5 minutes in peak periods in the long term, 15 minutes throughout the rest of the day and 30 minutes evenings and Sundays) to lessen the need for timed transfers downtown and reduce the size requirements for the downtown terminal.

Base and Local Routes

Base and local routes would be restructured to complement the BRT services and would be designed to achieve the following:

- Routings would be more direct and streamlined than many of the current routes, with most diversions eliminated (especially those not supported with significant ridership).

- Routings in the outer portions of the network would connect with BRT, usually at the suburban centres. Suburban routings would also combine with inner city routings wherever possible to maximize the trip possibilities and minimize the need to transfer.

- Routings in the South sector would generally be restructured from an east-west orientation to a north-south orientation, so that all areas have direct connections to both downtown and the University.

- All routings would interline through the downtown terminal (e.g. west-side routes interlined with east-side routes), which would *provide direct service to the University* for most routes, *further lessen the need to accommodate transfers at the downtown termin**al*** and moderate the differences in running speeds and improve schedule reliability among the various routes.

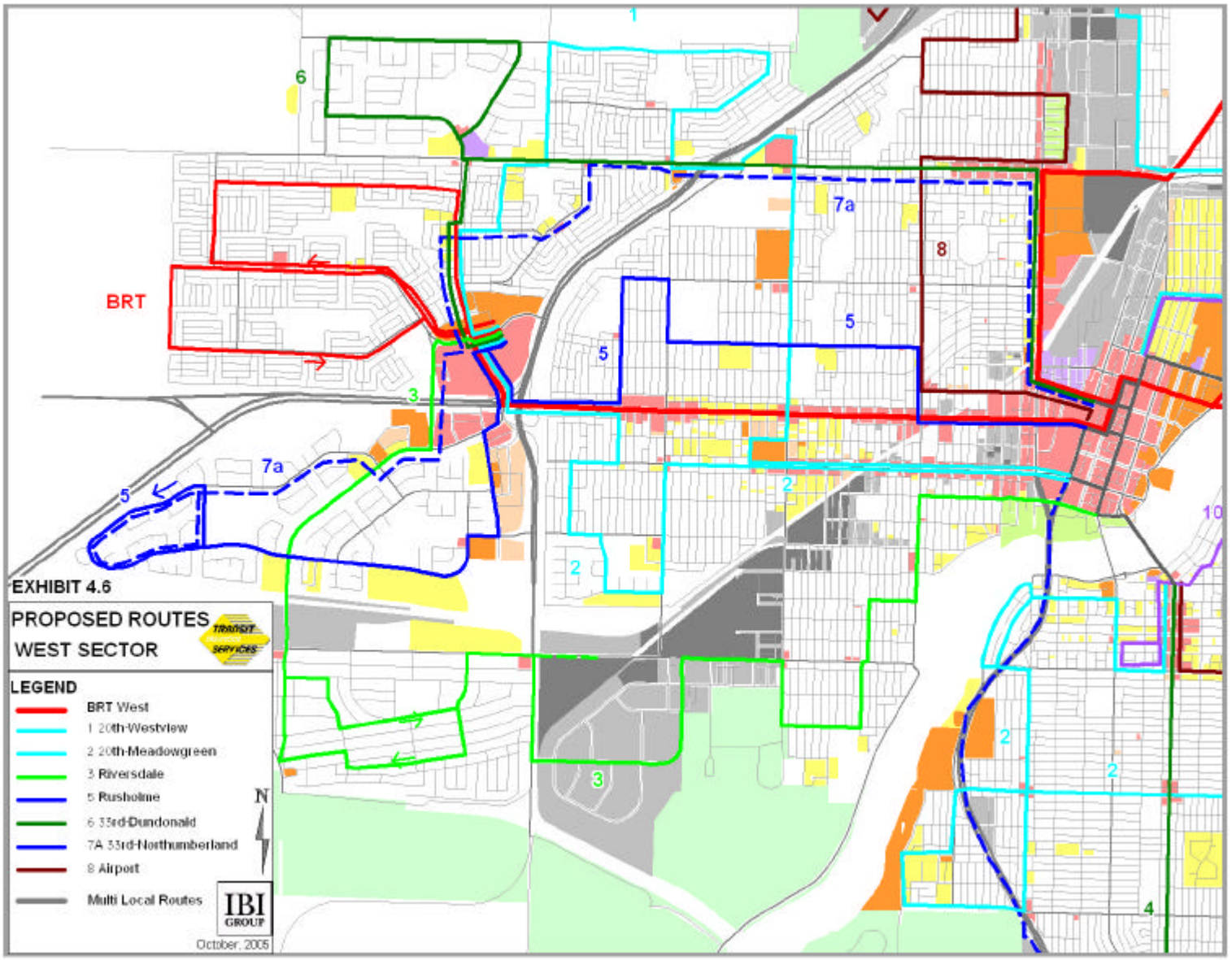
- Certain routings would be designed to extend direct service coverage to key destinations points (e.g. SIAST-Kelsey, the Airport).

- To the greatest extent possible, routes would maintain their routings throughout the day and the week, rather than reverting to a different structure at low demand times as most of them do now (recognizing that service frequencies would normally be reduced during low demand times).

4.3.2 ROUTE DESCRIPTIONS

The proposed new BRT and local transit routes are shown in Exhibits 4-6 to 4-9 and are described below for each sector of the city. For local routes, a new numbering system is proposed that reflects the route interlining described in the next section and, where possible, maintains existing route numbers where new routes are similar to current routes.

Exhibit 4-6: Proposed Western Sector Routes



BRT Routes – Western Sector

BRT West – from the Downtown Terminal via 2nd Avenue, 22nd Street, Confederation, Laurier to Confederation Terminal; then via either of two branches:

- Confederation branch – from Confederation Terminal to Laurier, Confederation, John A. MacDonald, and Steeves, and returning via Diefenbaker and Laurier;
- Centennial branch – from Confederation Terminal to Diefenbaker and Lisgar returning via Centennial and Laurier.

Stops on this route would be as follows:

- Downtown – all local stops up to and including 22nd and Idylwyld;
- Between Downtown and Confederation Terminal – Avenue H, Avenue P, Avenue T, Avenue W, Witney, Confederation Terminal;
- Local branches – all local stops.

Base and Local Routes – Western Sector

2 – 20th-Meadowgreen – from the Downtown Terminal via 2nd Avenue, 23rd Street, 1st Avenue, 20th Street, Avenue W, Appleby, Wardlow, 18th Street, Winnipeg, 20th Street, Witney, 22nd Street, Confederation and Laurier to Confederation Terminal; return via same route in reverse (downtown inbound routing via 20th Street, 1st Avenue, 22nd Street, 3rd Avenue).

This re-routing covers both the current Confederation branch and the Meadowgreen branch of current Route 2. This routing will combine with the new Route 1 (below) to maintain the higher level of service at St. Paul's Hospital (the busiest trip generator on this route) and all points to the east. Higher service levels to the west will be provided by additional peak trips. The new Route 2 also goes directly to Confederation Terminal. The existing Confederation Park loop will be covered by the BRT line.

1 – 20th-Westview – from the Downtown Terminal via 2nd Avenue, 23rd Street, 1st Avenue, 20th Street, Avenue R, 21st Street, Avenue P, Edmonton, 33rd Street, Avenue W, Richardson, 37th Street, Junor, 33rd Street, Matheson, Massey, Confederation and Laurier to Confederation Terminal; return via same route in reverse (downtown inbound routing via 20th Street, 1st Avenue, 22nd Street, 3rd Avenue).

As noted above, this route works as the other branch of the service on 20th Street providing the more frequent combined service to Avenue R. The continuation to the north serves the rest of the Mount Royal area north of Rusholme (two-way service instead of the current one-way loop) and connects the Avenue P corridor with the BRT line on 22nd. It then covers the Westview routing currently served by Route 19 but also links this area (via Northumberland and Massey) with Confederation Terminal and the BRT service.

3 – Riversdale – from the Downtown Terminal via 2nd Avenue, 23rd Street, 3rd Avenue, 19th Street, Avenue H, 15th Street, Avenue K, 11th Street, Avenue K, Schuyler, Avenue P, 11th Street, Avenue W, Fletcher, Dundonald, 11th Street, Lancaster, Mountbatten, Haida, Ortona, Elevator, Fairlight, Diefenbaker and Laurier to Confederation Terminal; return via same route in reverse, except routing in Montgomery Place stays on Ortona instead of Mountbatten.

Certain trips divert to Mitchell's Foods on 11th Street east of Dundonald to meet shift start and finish times.

This is essentially the current Route 3 (minus the Wellington diversion) combined with Route 14. The through-routing of these services will improve the travel options for riders and the routing on Fairlight will allow for a two-way service on Pendygrasse at all times, instead of the current one-way loop of Route 12.

5 – Rusholme – from the Downtown Terminal via 24th Street, 3rd Avenue, 22nd Street, Avenue H, Rusholme, Avenue W, 29th Street, Witney, 22nd Street, Confederation and Laurier to Confederation Terminal; then to Fairhaven via Laurier, Confederation, Fairmont, Clancy, Pendygrasse, McCormack, and Smith back to Confederation Terminal; then return to downtown via the above route in reverse.

This re-working of the current Route 5 (along with the new Route 1 above) provides two-way service on Rusholme at all times and streamlines the transit service in the Mount Royal area. The extended outer portion of the route links the Fairhaven and Rusholme corridor with the BRT, the commercial centre at 22nd and Avenue W and Confederation Terminal and the surrounding retail areas. The moving of the inner part of the route from 23rd to 22nd connects directly to the BRT and provides a better link to the commercial destinations on 22nd. The moving of the route from Avenue I to Avenue H better serves Bedford Road High School and moves the route from a local road to a collector. Both changes align the route with the new Route 8 (below) to provide a better combined service.

6 – 33rd-Dundonald – from the Downtown Terminal via 2nd Avenue, 23rd Street, Idylwyld, 33rd Street, Wedge, George, 37th Street, Latrace, Wedge, Confederation and Laurier to Confederation Terminal; return via same route in reverse.

This new alignment of the current Route 7 extends the service on 33rd to the commercial and high-density residential node at 33rd and Confederation (the Northumberland area is covered by Route 1 above). The continuation into the Dundonald area provides direct service to this area from both the 33rd Street corridor and Confederation Terminal (and the BRT). The existing Confederation Park loop will be covered by the BRT line and the new Route 5.

7A – 33rd-Northumberland (peak period only) – from the Downtown Terminal via 2nd Avenue, 23rd Street, Idylwyld, 33rd Street, Northumberland, Massey, Confederation and Laurier to Confederation Terminal, then to Fairhaven via Laurier, Diefenbaker, Fairlight, McCormack, Smith back to Confederation Terminal and then return to downtown via the above route in reverse.

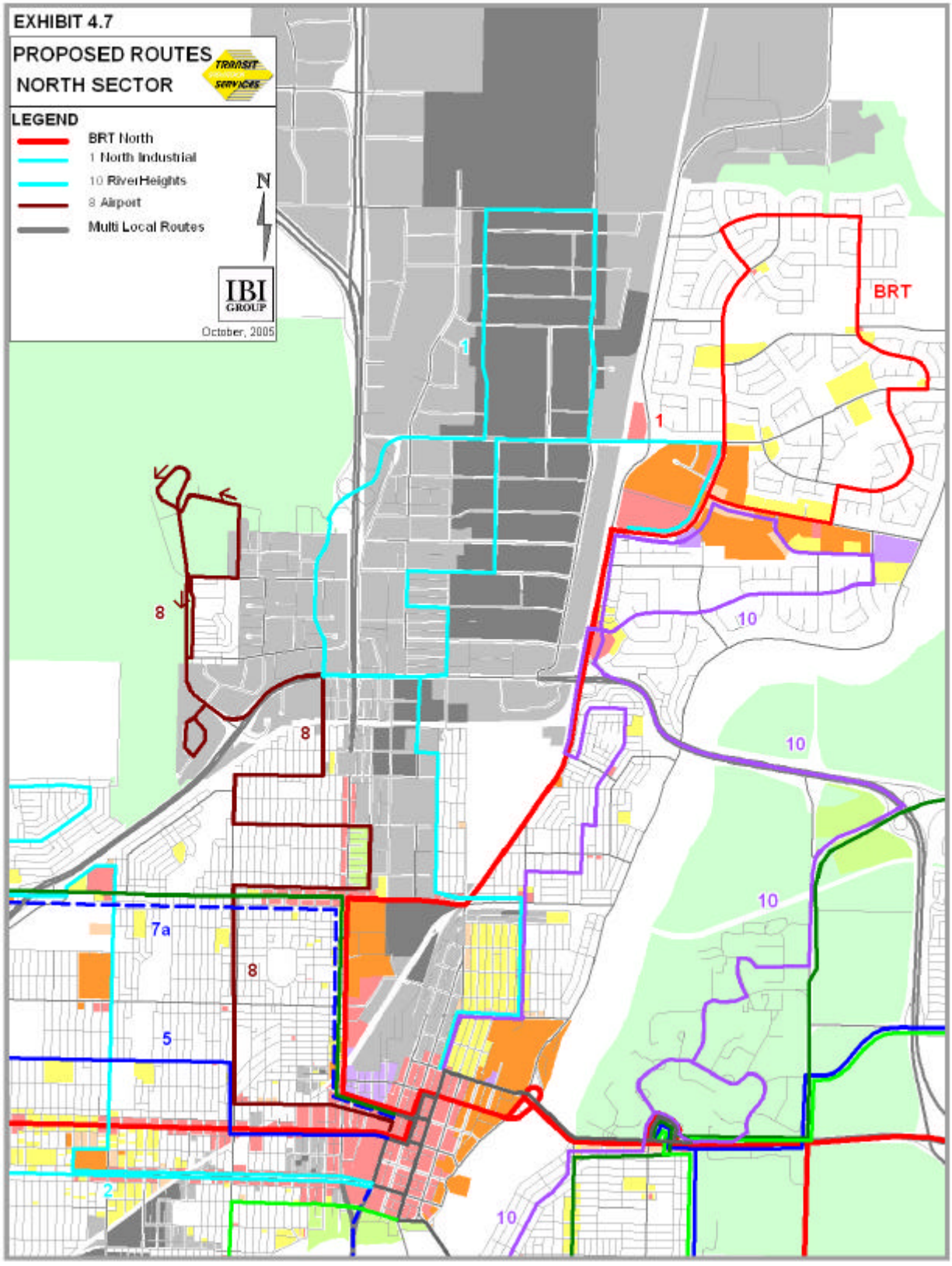
This would be a peak-only route that would supplement Route 6 and maintain a 15-minute peak service along 33rd Street and keep the direct routing to and from Northumberland during peak periods. It would also be interlined with new Route 7 Forest Grove in the east end to provide direct service to the University from the 33rd Street corridor.

8 – Airport – from the Downtown Terminal via 24th Street, 3rd Avenue, 23rd, Avenue H, 33rd Street, Alberta, Idylwyld, 36th Street, Avenue I, 38th Street, Avenue C, Circle Drive, Airport Drive and looping via Jeremy, 45th Street, Thayer, Wayne Hicks to the Airport Terminal, then return to downtown via Airport Drive, Cardinal Cr. Loop, Airport Dr. to Circle Drive and the above route in reverse.

This new route covers much of the area now served by the Mayfair leg of Route 1. The routing on Avenue H moves the service to a direct main road (instead of the current minor roads and turns) that more centrally penetrates the Westmount area (all in the area are within a quarter-mile of Avenue H or Idylwyld), allows the other services in the Mount Royal area to be streamlined (Routes

5 and 1 above) and connects the area to the Bedford Road High School. The two-way service on Airport Drive and the connection to the Airport, in addition to providing service in this area (and 1st Avenue) at all times, should increase ridership considerably (the part of the current loop at 45th and Avenue C will be covered by the North Industrial route as described below).

Exhibit 4-7: Proposed Northern Sector Routes



BRT Routes – Northern Sector

BRT North – from the Downtown Terminal via 2nd Avenue, 23rd Street, Idylwyd, 33rd Street, Warman, Primrose to Lawson Terminal; then via either of two directions on a two-way loop:

- Clockwise Loop – via Primrose, Russell, Rowles, Adilman, Silverwood, Lenore, Redberry, Reindeer, Pinehouse, Primrose to Lawson Terminal
- Counter-clockwise Loop – via Primrose, Pinehouse, Reindeer, Redberry, Lenore, Silverwood, Adilman, Rowles, Russell, Primrose to Lawson Terminal

Then return from Lawson Terminal to downtown via reverse of the outbound routing as described above.

Stops on this route would be as follows:

- Downtown – all local stops up to and including 23rd and Idylwyld
- Between Downtown and Lawson Terminal – 29th Street, 33rd Street, Assiniboine, Lawson Terminal
- Local branches – all local stops

Base and Local Routes – Northern Sector

1 – North Industrial – from the Downtown Terminal via 24th Street, 3rd Avenue, Queen St., 7th Avenue, 33rd Street, 1st., Quebec, 39th, Ontario, then via either of two branches:

- Southern Branch – via Circle Drive, 1st Avenue, 45th Street, Faithfull, 46th St., Weintz, Lenore and Primrose to Lawson Terminal.
- Northern Branch – via Circle Drive, Avenue C, 51st Street, Miners, 60th Street, Millar, Lenore and Primrose to Lawson Terminal.

Return via the reverse of either of the two branches and then the reverse of the remainder of the outbound route.

During peak periods, an additional vehicle should be added on the branches between Lawson Terminal and Circle Drive to provide a 30-minute peak service on each of the branches. This bus would connect with the regular bus at Ontario and Circle Drive to cover the branch not covered by the through bus.

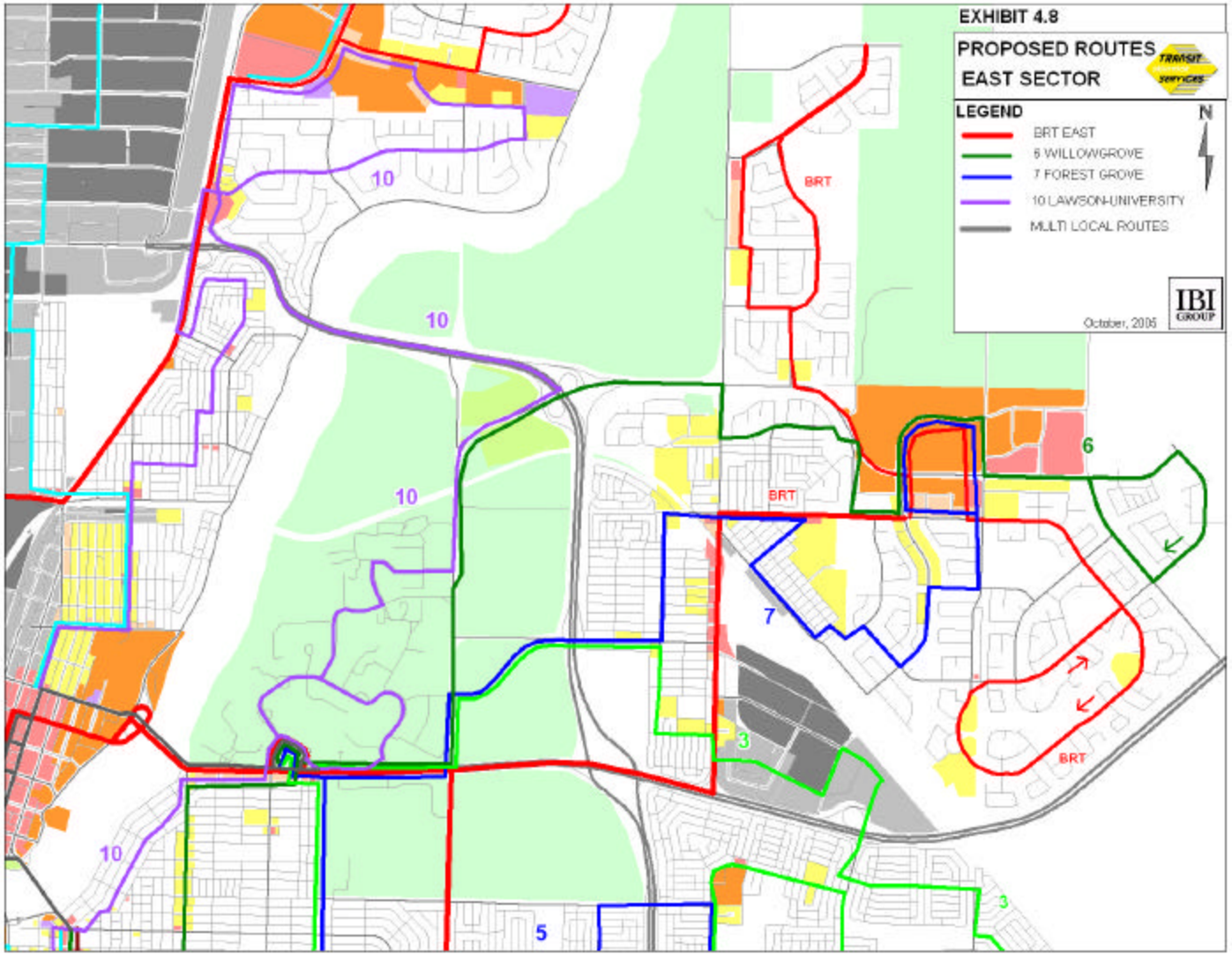
The branches through the industrial area are designed to be more direct and provide important connections to the BRT line and the northern residential areas at Lawson Terminal (a major deficiency of the current North Industrial route). As noted above, the crossover to Idylwyld provides connections to SIAST-Kelsey and the BRT line. The consistent two-way routing through the Mayfair area improves service to Idylwyld north of 33rd Street and avoids some of the narrow local streets (Avenue D).

10 – River Heights – from the Downtown Terminal via 24th Street, 3rd Avenue, Queen, 7th Avenue, Osborne, Edward, Windsor, Alexandra, Rupert, Hazen, Warman, Assiniboine, Saguenay, La Ronge, Pinehouse and Primrose to Lawson Terminal; return via same route in reverse.

This is essentially the same as the northern leg of the current Route 8, but without the Red River Drive diversion. The extension to Saguenay allows the Lawson Heights BRT loops to not have to make this diversion.

The River Heights route would be interlined with Route 10 Lawson serving Broadway and the University in the Southern section. This would be similar to the current Route 27 that connects Lawson Terminal with the University. The Silverwood and Lawson Heights loop is covered by the new BRT route but the loop to Saguenay on Route 10 maintains the direct University connection into this high-density area.

Exhibit 4-8: Proposed Eastern Sector Routes



BRT Routes – Eastern Sector

BRT East – from the Downtown Terminal via 24th Street, 3rd Avenue, 25th Street, University Bridge, College to Place Riel Terminal, then via College, Central, 115th St. Berini to the University Heights transfer point at Attridge, then via either of two branches:

- Kenderdine branch – via Nelson, Lowe, Kenderdine east, Kenderdine south, then return via Kerr, Kenderdine east, Lowe and Nelson.

- Silverspring branch – via Attridge, Rever, Konihowski, Garvie, Kristjanson, Somers, Konihowski, to Bourgonje; then return via Konihowski, Rever and Attridge.

Then return from Nelson and Attridge to downtown via reverse of the outbound routing as described above.

Stops on this route would be as follows:

- Downtown – Downtown Terminal, 24th at 6th Avenue;

- Between Downtown and University Heights – Monroe (Hospital), Place Riel Terminal, Central and 105th, local stops between 105th and 115th, Spruce, and local stops through University Heights;

- Local branches – all local stops.

Base and Local Routes – Eastern Sector

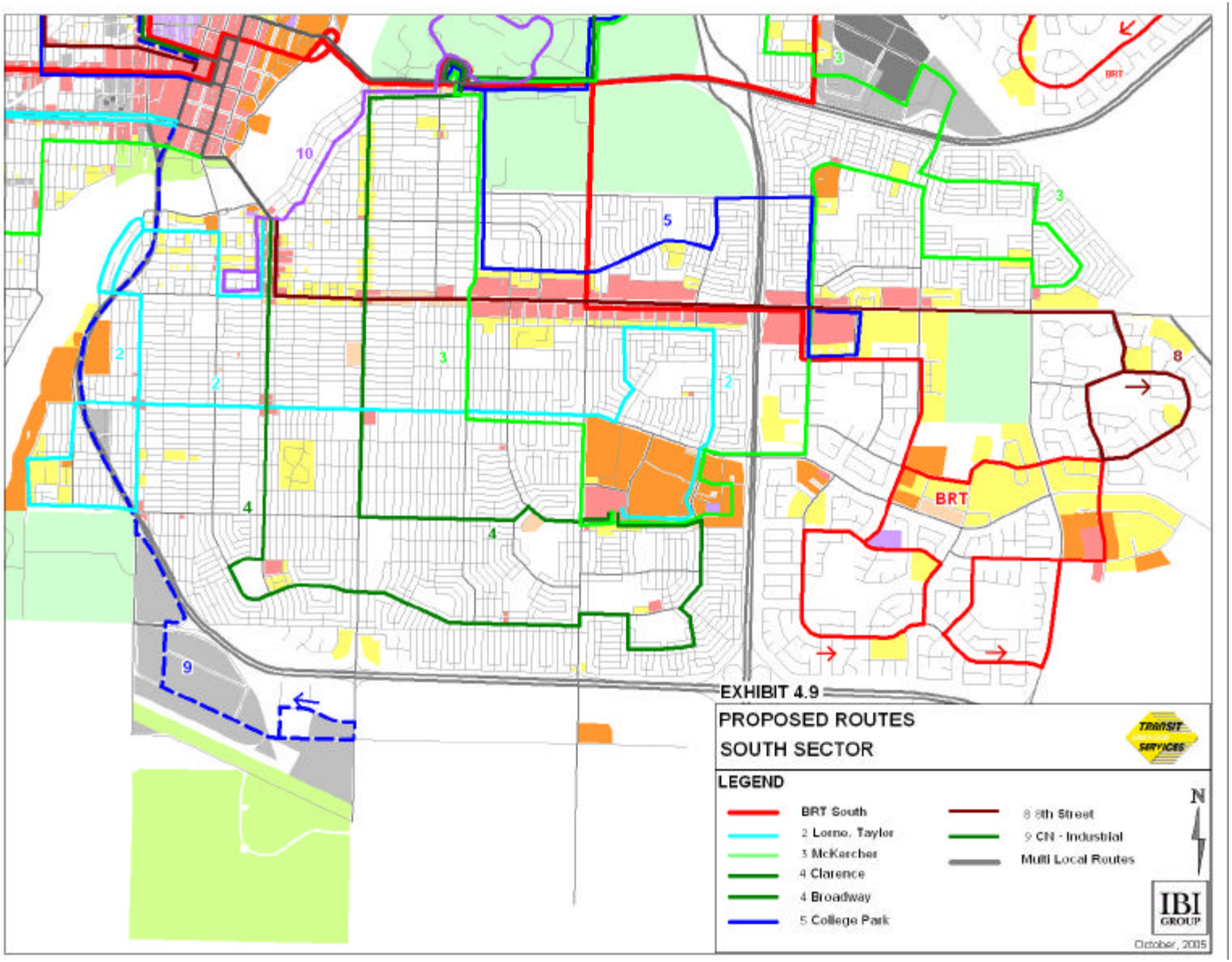
6 – Willowgrove – from the Downtown Terminal via 24th Street, 3rd Avenue, 25th Street, University Bridge, College to Place Riel Terminal, then via College, Preston, Attridge, Rossmo, Forest, 115th Street, Berini to the University Heights transfer point at Attridge, then looping through Willowgrove via Nelson, McOrmend, Willowgrove, Stensrud, McOrmend and Nelson; returning to downtown via the above route in reverse.

This route continues to provide local service in the Rossmo corridor not covered by the Silverspring branch of the new BRT line, and all day service to Preston Crossing.

7 – Forest Grove – from the Downtown Terminal via 24th Street, 3rd Avenue, 25th Street, University Bridge, College to Place Riel Terminal, then via College, Preston, 108th St., Egbert, 115th Street, Dunlop, Gray, James, Sparks, Kellough, Kerr, Bernini, Rogers, Kenderdine, Lowe, Nelson to the University Heights transfer point at Berini, then return to downtown via Berini, 115th, Kenderdine and the above route in reverse.

10 – Lawson-University – from South Broadway (Broadway and 8th) via Broadway, 12th, Lansdowne, Temperance, Clarence, College to Place Riel Terminal, then from the terminal via local campus roads (same as existing Route 27), Innovation Blvd., Preston, Attridge, Circle, Warman and Primrose to Lawson Terminal; then return via the reverse of the above routing. The route is interlined with the River Heights route so as to provide direct service to the university from the high-density area in the Saguenay area of River Heights.

Exhibit 4-9: Proposed Southern Sector Routes



BRT Routes – Southern Sector

BRT South – from the Downtown Terminal via 24th Street, Spadina, University Bridge, College to Place Riel Terminal, then via College, Preston, 8th and Acadia to the Centre Mall Terminal, then via either of two branches:

- Lakeridge branch – via Parkdale, McKercher, Heritage, Briarwood, Briarvale, Herold, Slimmon, Nemelbon, Weyakwin, Kingsmere, Boychuk, Slimmon and return to Centre Mall terminal via the same route.

- Lakeview branch – via Parkdale, McKercher, Stillwater, Kingsmere, Weyakwin, Stillwater McKercher, and Parkdale to Acadia and the Centre Mall terminal

Then return from the Centre Mall Terminal to downtown via the reverse routing as described above,

Stops on this route would be as follows:

- Downtown – Downtown Terminal, 24th at 6th Avenue;

- Between Downtown and Centre Mall Terminal – Monroe (Hospital), Place Riel Terminal, College and Preston, Preston and 14th Street, Preston and 8th Street, 8th and Arlington, 8th and Acadia, Centre Mall Terminal;

- Local branches - all local stops

Base and Local Routes – Southern Sector

This sector has the greatest amount of transit route restructuring, with local routes generally being re-oriented north-south instead of east-west. The result is most routes provide service to the downtown and to the University either directly or through interlining. Virtually all parts of this sector are within 450 metres of a transit route serving the University. The new route structure also focuses most local routes on the Nutana Suburban Centre.

2 – Lorne-Taylor – from the Downtown Terminal via 2nd Avenue, 23rd Street, 3rd Avenue, 19th Street, Broadway Bridge, Broadway, 8th, Victoria, 11th Street, Saskatchewan, 8th, Lorne, then loop through the Exhibition area via Taylor, Herman, Hilliard, St. Henry, Ruth and Lorne, and then to the the Nutana Suburban Centre via Taylor, Salibury Dr., Early Drive, 7th St., Arlington and Louise; then return to downtown via above route in reverse.

3 – Cumberland – from the Downtown Terminal via 24th Street, 3rd Avenue, 25th Street, University Bridge, College to Place Riel Terminal, then via College, Cumberland, Taylor and McEown to the Centre Mall Terminal; return via same route in reverse.

This route is similar to the current Route 6A, except it is considerably straightened and streamlined, with no large or double one-way loops. The current southern loops on Route 6A are covered much more efficiently by the new routings of Route 4 (below).

3 – McKercher – from the Downtown Terminal via 24th Street, 3rd Avenue, 25th Street, University Bridge, College to Place Riel Terminal, then via College, Preston, 108th Street, Egbert, 104th Street, Central, 103rd Street, Packham, 105th Street, McKercher, Boychuk, Laurentian, Boychuk, DeGeer, McKercher, Acadia to Centre Mall, then via Acadia, Taylor, Arlington, and Louise to the Market Mall in the Nutana Suburban Centre; then return to downtown via above route in reverse.

This new route provides a north-south service for this heavily populated corridor. The route would be interlined with the Cumberland route above, which would provide a direct connection to the University and downtown from the Nutana Suburban area. It links with the South BRT route at the Centre Mall Terminal. The routing along 108th Street in Sutherland provides a link with the new Forest Grove route (Route 7 above) that essentially replaces the existing Route 17 (which transfers most of its passengers to routes serving downtown and the University).

4 – Clarence – from the Downtown Terminal via 24th Street, 3rd Avenue, 25th Street, University Bridge, College to Place Riel Terminal, then via College (westbound), Clarence, Ruth and Louise to the new Nutana Terminal; return via same route in reverse.

A major improvement to the Clarence route is a diversion to Place Riel Terminal, so that this route can be an effective connector to the University for this corridor. This, along with the interlining of the Broadway route to the University (as explained in the next section), also eliminates the need for the overlaid southern leg of Route 27. The extension of the route to the Nutana Terminal provides connections to other local routes and destinations in the Suburban Centre. The outer loop routing on Wilson is replaced by a two-way extension of the Broadway route (below).

4 – Broadway – from the Downtown Terminal via 2nd Avenue, 23rd Street, 3rd Avenue, 19th Street, Broadway Bridge, Broadway, Cascade, Wilson, Preston, Arlington, Eastview, Easthill, Arlington and Louise to the new Nutana Terminal; return via same route in reverse.

This route, essentially the existing Broadway route, is extended easterly along Wilson. This includes the Eastview neighbourhood along Arlington, now served rather poorly (double one-way loops) by Route 6A. The extension of the route to the Nutana Terminal provides connections to other local routes and destinations in the Suburban Centre. Unlike the present, this route will operate on its regular two-way routing at all times, instead of the current one-way loop combination with Clarence that now is the evening and Sunday routing. As described in the next section, this route will continue to be interlined with the Clarence route, but the diversion of the Clarence route will mean that the Broadway route will be connected directly with the University via downtown.

5 – College Park – from the Downtown Terminal via 24th Street, 3rd Avenue, 25th Street, University Bridge, College to Place Riel Terminal, then via College, Cumberland, Main, Arlington, 14th Street, Acadia to the Centre Mall; then return to the downtown via the same route in reverse (inbound to the Downtown Terminal via 2nd Avenue, rather than 3rd Avenue).

This route covers much of the current Route 8, except it diverts to the University at Cumberland. As noted earlier, the most popular trips of Route 8 are the specials that divert to the University and, at other times, a large portion of Route 8 passengers transfer at Cumberland.

8 – 8th Street – from the Downtown Terminal via 24th Street, 3rd Avenue, 19th Street, Broadway Bridge, Broadway, 8th Street, Acadia to the Centre Mall, then via Acadia, 8th Street to Briargate where it loops the Briarwood area via Briarwood, Briarvale and Briarwood (clockwise),and then returns to downtown via above route in reverse.

This maintains the east-west service on this most important commercial corridor. It extends further east, however, so the full corridor is covered. It is the one route in this sector that does not serve the University, but the sector is fully covered by the other routes that do serve the University and that intersect with the 8th Street route. Also, the South BRT provides high frequency service from the downtown and University to the high-density central section of the 8th Street corridor between Preston and Acadia.

9 – South Industrial (peak period only) – from the Downtown Terminal via 2nd Avenue, 23rd Street, Idylwyld, Senator Sid Buckwold, Idlwyld Bridge, Idylwyld Freeway, to Circle Drive, Jasper, Melville and Clarence in the CN Industrial area; returning to downtown via the same.

Specials for School and Overload Purposes

Because of the significantly higher level of service proposed for the BRT corridors, it is expected that the need for specials for overload purposes will be reduced, likely by one-third to one-half. Specifically, most of the current overloads on busy routes like Routes 11, 20, 23 and 25 will not be needed. Also, the new proposed route structure will eliminate the need for Routes 13 and 21, most of which are done as specials.

Most school specials will likely remain, since many of them operate on special (non-regular) routes and/or accommodate high peak student demands that cannot be met with regular services.

4.3.3 ROUTE INTERLINING

The interlining of routes through the downtown and the University, including the new BRT services, is an integral part of this Service Plan. The main benefits of this approach are

- To provide direct service to downtown for all routes and the University for most routes;
- Lessen the need to accommodate transfers at the downtown terminal and, as a result, reduce the size and bay requirements at the downtown terminal;
- Moderate the differences in running speeds and improve schedule reliability among the various routes.

The choice of routes to interline is determined by the following criteria:

- Ensure the proper meshing of routes that follow common routings (e.g. 20th Street, 33rd Street, 7th Avenue, Broadway, Cumberland, 108th Street);
- Maintain clock-face headways and round trip times that can be properly scheduled;
- Maximize the service coverage and routing efficiency of each set of interlined routes within the downtown;
- Provide direct connections to the University for those areas where student demand is the highest.

The proposed interlining for the new services is as follows:

BRT Services

- West BRT interlined with South BRT in the downtown
- North BRT interlined with East BRT in the downtown

The reason for this interlining arrangement is that the West and South BRT lines will be serving considerably larger areas and may need higher peak-period service levels in the future.

Base and Local Services

- 1 – 20th-Westview interlined with 1 – North Industrial in the downtown;
- 2 – 20th-Meadowgreen interlined with 2 – Lorne-Taylor in the downtown;
- 3 - Riversdale interlined with 3 - McKercher in the downtown. Also 3 - McKercher interlined with 3 - Cumberland at the Nutana Terminal;
- 4 – Broadway interlined with 4 – Clarence at both Downtown and Nutana Terminal, resulting in half of the runs operating in a clockwise direction (inbound Broadway and outbound Clarence) and the other half of the runs operating in a counter-clockwise direction (inbound Clarence and outbound Broadway).
- 5 – Rusholme-Fairhaven interlined with 5 – College Park in the downtown.
- 6 - 33rd-Dundonald interlined with 6 – Willowgrove in the downtown;
- 7 – Forest Grove interlined with 7A - 33rd-Northumberland in the downtown (peak periods only);
- 8 – 8th Street interlined with 8 – Airport in the downtown
- 10 - River Heights interlined with 10 – Lawson-University at the Lawson Terminal.

The round trip times and scheduling implications for these interlinings are detailed in the later section on resource requirements.

4.3.4 SERVICE FREQUENCIES

Proposed service frequencies are as follows:

Route Category	Mon.-Fri. Peak Periods (School Months)	Mon.-Fri. Peak Periods (July, August)	Mon.-Sat. Day Base	Evenings and Sundays
BRT – West and South trunk lines	10 minutes	15 minutes	15 minutes	30 minutes
BRT – North and East trunk lines	10 minutes	15 minutes	15 minutes	30 minutes
BRT – branches	20 minutes	30 minutes	30 minutes	60 minutes
Base and Local routes	30 minutes	30 minutes	30 minutes	60 minutes

In general, it is anticipated that the high quality, frequency and connectivity of the BRT services will attract most of the additional peak-period ridership, such that most local routes will not have to operate additional peak trips. This is also supported by the current pattern of high peak demands, namely Route 11 between downtown and Confederation Park, which will be replaced by BRT, and Route 20 between the University and Wildwood-Lakeview, where much of the ridership comes from

the high-density residential areas that will be served by the South BRT line. Other areas where peak service is currently more frequent than 30 minutes are as follows:

- *Route 2 – 20th Street* – The current 15-minute service is provided by the two branches of Route 2. This will be continued by the two new services (Route 1 and 2) on 20th Street as far as Avenue P and St. Paul's Hospital, although select additional peak trips may need to be added (to meet key downtown start and finish times) to maintain a better service to Avenue W. Also, the BRT on 22nd Street is expected to attract some ridership from 20th Street.

- *Routes 7/19 – 33rd Street* – Additional service will be provided in this corridor by the new Routes 1, 6 and 7A.

- *Route 6A* – The northern part of Cumberland will have a combined 15-minute service from the new 5-College Park and 3-Cumberland routes. Much of the current ridership on Route 6A comes from the Nutana Park suburban centre, which will be served by new Routes 3 and 4.

- *Routes 8/16 – 7th Street* – The 15-minute combined service south of 33rd will be continued by the combination of the River Heights route (Route 10) and the new 33rd Street route (Route 6).

- *Routes 8/16 – Wildwood* – As noted earlier, the 15-minute service on the current routing is not warranted. Parts of the current route will also be covered by other new routes, including the South BRT route.

- *Route 18* – Lawson Heights – This will be replaced by the new BRT North route.

- *Route 18* – Wildwood – this will effectively be replaced by the new BRT South route. The new service on 8th Street and other routes, including new Route3 through College Park and Wildwood, should be able to meet the demand in this area.

- *Routes 23 and 25* – Sutherland will be served by the new BRT East route, plus Route 6 and 7.

- *Route 27 – Broadway* – As noted earlier, the 15-minute service on the current routing is not warranted. The diversion of the new Clarence route and the interlined routing of the new Broadway route to the University should meet the demand in this area.

4.3.5 SPAN OF SERVICE

It is proposed that all services operate all days of the week and throughout the day, with the specific time periods defined as follows:

Day of the Week	Time Period	From	To
Monday-Friday	Early Morning (Day Base)	6:30	7:30
Monday-Friday	A.M. Peak	7:30	9:30
Monday-Friday	Mid-Day (Day Base)	9:30	15:30
Monday-Friday	P.M. Peak	15:30	17:30
Monday-Friday	Early Evening (Day Base)	17:30	18:30
Monday-Friday	Evening	18:30	24:00
Saturday	Early Morning (same as evening)	7:00	11:00
Saturday	(Day Base)	11:00	18:30
Saturday	Evening	18:30	24:00
Sunday	All Day	9:00	21:00

For the above, all times before 12:00 noon are based on arrivals at the downtown terminal and all times after 12:00 noon are based on departures from the downtown terminal. The time periods define the extent of the service frequencies defined in the previous section.

One exception to the above is that, when the University is in full session, additional trips on the BRT lines will likely be needed in the late morning and early afternoon, depending on the timing of class starts and finishes (and, perhaps, the day of the week).

Another exception is that routes to industrial areas should be timed so that their first outbound trip in the morning and last inbound trip at night connect with the first and last trips of the other routes that meet them at the downtown terminal.

For early morning service, additional early trips were recently added to better serve early morning shift times. Initial ridership response has been that the earliest trips have not been well used but later trips have been. At the very least, all services should have a first trip that arrives downtown by 6:15 or 6:30, depending on the schedule timing (which for some routes is better than what was in place before the recent additions), so that connections can be made for a 7:00 arrival in the industrial areas or other similar employment location. For the trips earlier than that, the new services should continue to be monitored and only made permanent if ridership improves.

The last trips at night should continue to depart from downtown at 11:45 or 12:15, depending on the schedule timing.

4.3.6 TIMINGS AND BUS VOLUMES AT TERMINALS

This section examines the central terminals as they relate to the proposed Service Plan, especially the critical downtown and Place Riel terminals. The analysis provides estimated bus volumes during peaks and other times, identifies the number of bays required and discusses schedule timings and related issues that would affect the efficient operation of the terminal.

Downtown Terminal

As described earlier, especially with respect to the public consultation, the current downtown terminal does not work well. In addition to the security issues and the lack of proper indoor waiting areas, the terminal is spread along two block-long curbs with additional bays on the west side of 2nd Avenue and the west and east side of 3rd Avenue. Many transfer movements involve crossing the street (twice in some cases) and walking the equivalent of up to a block and a half.

Because of these problems, one of the objectives of the proposed Service Plan has been to minimize the downtown transfer requirements and the terminal space requirements. The proposed Plan has achieved this as a result of several key features:

- The significantly increased role of Place Riel as a major terminal and as a focal point for direct service from a much higher portion of the transit system's routes;
- The introduction of frequent Bus-Rapid-Transit, providing additional opportunities to make convenient transfers at other locations;
- The interlining of all routes through downtown, which lessens the need for downtown layovers and further lessens the need to transfer by providing more direct service to the University.

The proposed Service Plan has been structured so that a new downtown terminal can accommodate the projected peak bus volumes and maintain the 15-minute meet cycle in the off-peak with 12 bays. The terminal analysis assumes a new terminal with 10 or 12 bays. If the terminal can only fit 10 bays, the remaining 2 bays would be off-street adjacent to the terminal (off-street bays can also be used for drop-offs and holding positions). As the new terminal location has not been determined as yet, all routing downtown may alter, depending in the location and structure of the downtown terminal.

The route-by-route bus volumes for the proposed location, along with a proposed bay allocation are in the table that follows. The position references are in order of the vehicle approach route (thus, "East side 1" is on the north-east corner, "East side 4" is on the south-east corner, "West side 1" is on the south-west corner and "West side 4" is on the north-west corner).

Downtown Terminal – Hourly Bus Volumes by Time Period

Bay Position	Routes	Peak	Mid-Day	Evening
East side – 1	BRT North	6	4	2
East side – 2	BRT West	6	4	2
East side – 3	1 – 20th-Westview 2 – 20th-Meadowgreen	5	4	2
East side – 4	3 – Riversdale 6 – 33rd-Dundonald 7A – 33rd-Northumberland (peak only)	6	4	2
North side – 1	1 – North Industrial 10 – River Heights	4	4	2
South side – 1	4 – Broadway 6 – Lorne-Taylor	4	4	2
West side – 1	5 – College Park 3 – Cumberland	6	4	2
West side – 2	3 – McKercher 7 – Forest Grove	6	4	2
West side – 3	BRT South	6	4	2
West side – 4	BRT East	6	4	2
On-street (positioned to allow for an approach from the north)	5 – Rusholme 8 – Airport	4	4	2
On-street	4 – Clarence 8 – 8th Street	4	4	2

In this proposal, the maximum number of buses per hour at any one bay is six, which only applies to the BRT routes, where the pattern of arrivals and departures would be consistent, with little layover time at the terminal. For the local routes, each bay would typically have two major routes that combine to provide a 15-minute service. Additional peak trips would then have to be scheduled to arrive and depart in the middle of each 15-minute cycle. Again, because all routes are interlined, none should spend more than a couple of minutes at the terminal.

Place Riel (University) Terminal

To accommodate the proposed increased level of service to the University, significant improvements are needed for the Place Riel Terminal. It is also assumed that to work as a proper terminal, all routes serving the University would come into the terminal (currently, Routes 6A and 22 do not come to Place Riel, which causes inconvenience that includes having to cross College Drive for eastbound trips).

The proposed routes serving Place Riel and their projected peak hourly volumes are shown in the following table. This assumes a north-side extended bay proposal that has been developed by City staff.

Place Riel Terminal – Hourly Bus Volumes by Time Period

Bay Position (east to west)	Routes	Peak	Day Base	Evening
1 (2-bus bay)	BRT East 3 – McKercher 6 – Willowgrove	10	8	4
2 (2-bus bay)	BRT South 3 – Cumberland 4 – Clarence 5 – College Park	12	10	5
3 (3-bus bay)	BRT West BRT North 2 – Riversdale 4 – Broadway 5 – Rusholme 6 – 33rd-Dundonald 7 – Forest Grove	22	18	9
4 (1-bus bay)	10 – Lawson	2	-	-

The total of 46 buses per peak hour is a significant increase from the 26 buses that currently arrive in the morning peak hour (including extras but not including the additional 11 trips on Routes 6A and 22 that only stop on College). Because of the quick arrival and departure patterns (little or no layover), this proposal (with additional drop-off and holding positions) should be able to accommodate the projected volumes.

Because of these high volumes, and in addition to the extended bay requirements, it is anticipated that some transit priority measures (signal priority, bus lanes, restrictions to auto access) will be needed to facilitate the bus entries and exits without undue delays. These should be considered in particular for the access and egress points at Bottomley and Wiggins and perhaps for the westbound approach to University Bridge. Also, the internal intersection at the west end of Place Riel should be designed to give priority to the bus movements (e.g. stop sign for traffic approaching from the northwest).

Nutana Suburban Centre

This designated suburban centre, including Market Mall, an arena, high schools and high-density residences, is proposed to be the primary suburban transit focal point for the South sector. To serve the local routes that would serve this centre, a new terminal is proposed at Market Mall off Louise Avenue, based on discussions and a tentative agreement with Market Mall. The initial requirements for this location would be:

- Two bays for the new Route 4 Broadway/Clarence (one for each direction);
- Two bays for the new Route 3 McKercher/Cumberland (one for each direction)

- One bay for the Lorne-Taylor route which would terminate and layover at the Mall. routes)

Depending on the schedule timings, the local routes may be able to share stop locations. Note that the Broadway and Clarence routes and the Mckercher and Cumberland routes are interlined at all times.

Other Terminal Requirements

The only other terminal need is a designated transfer point at the University Heights Suburban Centre (Attridge and Bernini/Nelson). Because of the relatively low number of routes serving this location, this could also be done initially with on-street stops, although a proper terminal should be considered at some point, as the area grows and new transit routes are added.

The terminals at Confederation, Lawson and Centre Mall are satisfactory and can accommodate the new Service Plan.

4.3.7 EXPECTED RIDERSHIP BENEFITS

The improvements proposed in the Short Term Service Plan are considerable, far reaching and expected to generate significant new ridership, especially because of:

- The higher service quality of the BRT lines (speed, frequency, all day service);
- The vastly improved direct service coverage to the University;
- More direct and less circuitous local routes (elimination of large one-way loops);
- Full service into all significant new suburban residential areas;
- Improved and more extensive service to the industrial areas;
- The consistent interlining of routes downtown with less need to transfer;
- The combining of suburban routings with trunk routes, again with less need to transfer.

The projected ridership for the Short Term Service Plan is shown in Exhibit 5.8.

4.4 Staffing Requirements

The expected impact of the Short Term Service Plan and Long Term Strategy on resources and costs are summarized in Exhibit 5.8. The exhibit shows multi-year projections for the bus fleet, staff resources, service levels, ridership, revenues and operating costs for the Short Term (2006-2010) and Long Term (2011-2015):

- **Short Term Staff Resources** - STS will need a staff complement of 274 for the Short Term Service Plan; 3 more than the present system.
  - *Operations* - 186 operators and 26 dispatchers and supervisors as compared to 184 operators and 26 dispatchers and supervisors now.
  - *Maintenance and Servicing* – 52 personnel for the maintenance and servicing of the bus fleet and plant; I more than now.

- *Administration* – 10 personnel to administer the service for the Short Term Service Plan as now.

- **Long Term Staff Resources** - STS will need an estimated staff complement of up to 351 for the Long Term Service Plan;

  - *Operations* - up to 56 additional operators will be required for the Long Term Service Plan; 14 more by 2011 and 42 more over the 2012 - 2016 period. Up to 7 additional inspectors will be required to supervise the service; 1 more by 2011 and 6 more over the 2012 – 2016 period
  - *Maintenance and Servicing* – up to 15 additional maintenance and servicing employees will be required for the Long Term Service Plan; 4 more by 2011 and 11 more over the 2012 – 2016 period.
  - *Administration* – an additional staff member will be required to market the service for the Long Term Strategy by 2011 giving transit administration a total of 11 staff.

4.5 Capital Improvements

4.5.1 VEHICLE REQUIREMENTS

The peak vehicle requirements should be essentially the same as at present, with 3 additional regularly scheduled peak vehicles (from 67 to 71) but an estimated 4 fewer extras. The vehicle reductions for the extras will not be as great as the service hour reductions, because the highest need for extras will still be school trips, most of which are needed at about the same time. The length of the extra runs, however, should be shorter on average.

Because of the Service Plan not needing additional vehicles, changes in the vehicle purchase and replacement program will not be needed in the short term. In the longer term, however, the BRT and other improvements are expected to generate significantly higher ridership growth than has been forecast in the past. Thus, a more aggressive fleet growth program will be needed to respond to this demand. The implications of this and other strategic vehicle issues will be addressed in the Long Term Plan.

When vehicles are purchased in the short term, however, consideration should be given to purchasing vehicles that will be specifically designed for allocation to the BRT service, with features that will help establish the BRT as a true higher-order, higher quality service.

In developing the Short-term Service Plan, consideration was given to the potential use of alternative vehicles and alternative service delivery methods. These include:

- *Articulated buses* – These would only be considered for the new BRT services, as they are the higher-order core services and will attract the highest ridership. Based on the existing ridership levels and anticipated short-term ridership growth, however, articulated buses could not be justified in the short term without reducing service frequencies, which would not be desirable in the initial stages of introducing a new BRT service.

- *Smaller buses* – These could potentially have application on true suburban feeder services. The proposed Service Plan, however, has purposely combined suburban routings with trunk routes (most notably, the branches on the BRT lines), both to eliminate forced transfers for suburban riders and to improve scheduling efficiency. Thus, all buses operating in the suburbs will also be used on trunk services where the capacity of full-size buses is required. In the longer term, there may be potential where

new feeder routes are introduced into new areas and these cannot effectively be done as part of trunk routes.

- *Demand-responsive Services During Low-Demand Periods* – For the same reasons as for smaller buses, this would not be feasible in the short term under the proposed Service Plan. Again, there may be potential in the longer term in newly developing outer suburban areas. These kinds of applications, though, are more typically applied in smaller cities where ridership demand is less overall. Saskatoon is a big enough city with sufficiently high existing and potential ridership that such an application, and the infrastructure that goes along with it (dynamic dispatching, etc.) may not be the most effective.

The City is moving towards the use of ultra-low sulphur fuel later in 2006 that will reduce emissions from all buses. STS also has a demonstration project underway, the "BioBus" project, to assess the benefits and impacts of using a canola-based bio-diesel product. This renewable energy source has the capability to reduce emissions levels in diesel engines.

One of Saskatoon's four canola-powered BioBuses.

Apart from these three emissions-reduction strategies, there are two other fuel technology options for reducing exhaust emissions for transit vehicles either available immediately or evolving within the industry. They are:

Natural Gas (CNG or LNG) - Natural gas engines set the standard for low, environmentally friendly exhaust levels in the late 1980's and early 1990's. Natural gas is most commonly available in compressed form (CNG) although it is also available as a liquid (LNG) but must be kept refrigerated to very low temperatures. CNG is readily available in Canada (west of Quebec) while LNG is not. Natural gas engines are generally modifications of diesel engines and are readily available. About 15% of all new bus purchases in the U.S. (none in Canada) are powered by natural gas. However, experience with natural gas vehicles has not been positive. They have proven to be more costly to purchase (+25%), more costly to maintain (15+%), require a separate and costly fuelling infrastructure and have lower reliability compared to clean diesel powered vehicles. Also, and more critically, recent studies have suggested that natural gas (NG) exhaust may not be as clean as once thought and that the "invisible" exhaust may, in fact, contain particulate matter that cannot be filtered by the human respiratory system thereby making NG exhaust potentially more harmful than clean diesel exhaust.


One of nine 1978 buses. Seats 50.

Fuel Cells - Extensive work is being done on the development of the hydrogen fuel cell for automotive applications. The fuel cell uses a chemical reaction between hydrogen and oxygen through a membrane to create electrical energy that in turn powers an electric motor to drive the vehicle. Ballard Systems of B.C. has pioneered the development of the fuel cell and demonstrated its use in transit buses over the past six years. It has proven to be a feasible power system. However, industry experts suggest that an affordable fuel cell powered bus is still between 8 and 10 years away from commercial production.


One of nine 2002 low floor buses. Seats 39.

4.5.2 VEHICLE ACQUISITION PLAN

This section reviews the City's transit vehicle requirements over the next 10 years and recommends an acquisition plan. The acquisition plan consists of two components: vehicles required for renewal of the fleet; and vehicles required to deliver the new services recommended in the Short and Long-Term Service Plans.

Vehicle Requirements for Fleet Renewal - Saskatoon Transit has adopted, as a matter of long term policy, a target of replacing buses based on a 18-year life. Under this policy, an average of 7 buses would need to be purchased each year to maintain a fleet average age target of 8.0 to 9.0 years once the program was fully matured. However, as noted in the fleet inventory, the fleet average age is currently twice this target which has negative implications on vehicle maintenance costs and reliability as well as corporate image. To reduce the fleet average age to the intended target, will require a significant investment in fleet renewal if it was to be achieved during the next ten years.

The transit vehicle replacement program recently adopted by the City is a five-year plan to purchase 30 buses based on an average of 6 buses per year. The first step is the delivery of 17 buses in 2006 that includes replacements originally identified for 2005. Over the period of the five-year plan, 30 of the oldest vehicles in the fleet would be retired. Since additional vehicles are not required for the short-term service plan, the spare ratio will be the same as previous years, which at 20% is low by industry standards. As a low spare ratio can constrain maintenance activities and limit the availability of vehicles for the operation, ***a reduction in the size of the transit bus fleet and the spare ratio is not recommended over the next 10 year period.***

While the 5-year acquisition plan is a major start towards fleet renewal, it will only reduce the average age marginally. For example, by 2010 following the delivery of the 30 new buses, the fleet age profile will be as follows:

Vehicles over age 18 years -	24
Vehicles age 16 to 18 years -	26
Vehicles age 11 to 15 years -	13
Vehicles age 6 to 10 years -	9
Vehicles 5 years or less -	41

Twenty-four vehicles would still be over 18 years of age .As a result, the fleet average age would be approximately 11.6 years, a marginal reduction from the current 13.7 years when the 17 buses are delivered in 2006, which means that the fleet average age will continue to be high by industry standards and far from the intended target of 8 – 9 years. This continuing high average age not only has implications on vehicle maintenance costs but will also require buses to be refurbished in order to be kept in service beyond their normal retirement date.

In consideration of these factors, a more aggressive fleet renewal program would be required if the fleet average age target of 8.0 to 9.0 years is to be achieved and maintenance costs contained within a reasonable period of time. The benefits of a more aggressive renewal program would be the avoidance of additional expenditures on vehicle refurbishing and providing relief to the maintenance and operations departments in view of the low spare ratio without having to increase it. By way of example, in order to retain the 24 vehicles that will be over 18 years of age in 2010 beyond that year will require each of them to be refurbished, over and above any normal refurbishing activity. At an estimated cost of $90,000 each, depending on individual condition, this expenditure would total approximately $2.1million. In order to permit this level of refurbishment, an increase in the number of spare vehicles will be required to replace these vehicles.

An analysis of the fleet age profile indicates that the number of replacement buses required to reduce the average age to 8.5 years would be an average of 6 buses per year to 2010, which is the current plan. Thereafter, the number of vehicles required annually for fleet renewal would be seven. This should bring the average age of the fleet to 8.5 years by 2016.

4.5.3 VEHICLES REQUIRED FOR SHORT AND LONG TERM SERVICE PLANS

Short Term Service Plan

The Short-Term Service Plan is designed to re-allocate the existing fleet so that there will be no increase in peak vehicle requirements which will remain at 90 plus spares for a total fleet requirement of 113.

For all new vehicles purchased in the short term, consideration should be given to specifying vehicle features designed for the BRT service and to help establish the BRT as a true higher-order, higher quality service. All new vehicles would be assigned first to the BRT service, then cascaded down to regular transit services as newer vehicles arrive each subsequent year. Typical customer-oriented features for the BRT vehicles could include: higher quality seating, variable message signs and voice-annunciator systems to provide customers with “next stop” announcements and other transit information inside the vehicle. Extra sound-absorption materials, particularly noise-suppression strategies for the engine area, should be specified to enhance the overall ride experience.

Long Term Service Plan

When fully implemented by 2016, the Long Term Service Plan will require a total fleet of 125 vehicles including a 20% spare ratio, for maintenance and operations purposes. This is an increase of 12 vehicles over the current fleet size.

4.5.4 10-YEAR FLEET ACQUISITION PLAN

Combining the current fleet renewal plan of 24 buses over the 2006 – 2010 period, and a recommended fleet renewal plan of 42 buses over the 2011 –2015 period, with the fleet expansion requirements of 12 vehicles for the Long Term Service Plan, produces a total requirement for 78 buses over the 10 year period 2006 to 2016 for renewal and expansion purposes. Exhibit 4-10 illustrates the recommended fleet acquisition plan.

Exhibit 4-10: Recommended Fleet Acquisition Plan: 2006-2016

Purpose	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Replacement	0	6	6	6	6	7	7	7	7	7	7	**66**
Expansion	0	0	0	1	1	1	1	2	2	2	2	**12**
Total Vehicles Acquired	0	6	6	7	7	8	8	9	9	9	9	**78**
Fleet Total	**113**	**113**	**113**	**114**	**115**	**116**	**117**	**119**	**121**	**123**	**125**	

All vehicles would be 40 foot (12.2 metre) diesel powered with generally standard specifications (except for the BRT vehicles) although consideration could be given to acquiring exclusively hybrid buses once the 4 vehicles currently on order have been fully evaluated.

Vehicle Costs

The total cost to acquire 78 buses over the 11 year period is estimated to be $35.0 million based on a projected $450,000 per vehicle for clean diesel vehicles in 2006 dollars, excluding applicable taxes. The purchase of hybrid-drive vehicles would increase this cost by approximately $200,000 per vehicle.

4.5.5 VEHICLE REFURBISHING

Saskatoon Transit has a program to refurbish 3 to 4 transit vehicles annually. Some additional funding for refurbishment is identified in the Vehicle Replacement Reserve whereby one vehicle would be refurbished in 2008, two in 2011 and another two in 2015. Good vehicle maintenance practice generally includes refurbishing of a vehicle at its mid-life point. This serves three purposes:

- To address any physical deterioration due to corrosion;
- To repair or correct any structural weaknesses; and,
- To refresh the physical appearance of the vehicle, both inside and outside, through repainting and any desired cosmetic changes

Depending on the extent of the work undertaken, the cost of refurbishing should normally be between $60,000 and $90,000 and take 2 to 3 months to complete. Less intensive refurbishing work may also be undertaken but would be dependent on the condition of an individual vehicle and could cost less than $40,000. The financial benefit of refurbishing is to avoid deterioration in the physical condition of the vehicle as a result of corrosion or wear which, if left uncorrected, could result in more expensive repairs in later years. The end product is a vehicle which is more appealing in appearance to transit users and which all but eliminates the need for periodic structural repair work. The vehicle should then be able to reach or exceed its life expectancy without further extensive physical repair work. Most transit system's have adopted a refurbishing program and believe that the cost is offset by the avoidance of more costly structural repairs in the future, as well as the improved physical condition and appearance of the vehicle.

Refurbishing is also an opportunity to enhance the transit system's image in the community by presenting a clean, refreshed vehicle appearance after its initial years of intense use. At this point, the vehicle's exterior and interior paint will have lost is lustre and will show visible signs of fading and wear. Interior flooring material and seat coverings are likely to also be visibly worn. (By way of comparison, few homes, hotels or businesses that cater to the public, seldom go longer than 10

years without refreshing their appearance.) The opportunity can also be taken to make changes in the appearance of the bus (paint scheme) and seating colours to emphasize the refurbishment.

It should be noted that refurbishing is not a replacement for regular physical or accident damage-related maintenance but, rather, augments the maintenance programme.

Refurbishing is a specialized maintenance activity requiring special tools, repair facilities and procedures including vehicle repainting. These resources and level of activity is not compatible with Saskatoon Transit's existing labour force and maintenance facilities and should be contracted out. There are several highly qualified companies who specialize in this work across Canada.

This work should be scheduled such that no vehicle goes more than 8 years before being refurbished. Where vehicles are kept for 18 to 20 years (past industry practice), refurbishing would be scheduled in year 9 or 10 of the vehicle's life. For a 15-year vehicle life, this would occur approximately at age 7.5 to 8. The number of vehicles refurbished annually should mirror the number of vehicles to be replaced each year, 7 in the case of Saskatoon. Considering the high average age of the Saskatoon fleet and subject to the adoption of a more aggressive replacement program recommended in this study, each of the vehicles that are over age 15 and which will be retained beyond 2010 (21 vehicles) would need to be refurbished within the next 5 years.

The annual cost for vehicle refurbishing would be approximately $525,000 based on an average of $75,000 for each of 7 vehicles.

The existing transit garage is too small.

4.5.6 FACILITIES

This section reviews and provides direction with respect to the future needs of the transit system's four facilities: the transit garage, the various transit terminals and the system's bus stops and shelters.

Transit Garage

The Saskatoon Transit garage is located just west of downtown close to the site of the original barn for the Saskatoon Municipal Railway streetcars. The facility accommodates vehicle maintenance, storage, servicing/washing/fuelling and cleaning as well as office space for all transit functions (administration, operations, maintenance) for the conventional bus fleet. The specialized *Access Transit* operations and vehicle requirements are not accommodated at this facility.
For conventional transit operations, the existing facility is now no longer adequate and cannot accommodate any further expansion of the fleet. As it is now, for overnight storage, 7 or 8 vehicles must be parked in the maintenance shop that can interfere with maintenance activities.

The maintenance area itself has 10 bays with hoists that is suitable for a bus fleet up to 100 vehicles although this number is at the upper limit. The stock room and vehicle servicing/ fuelling/washing areas are also limited in size and should be expanded.

In addition to capacity limitations, Saskatoon Transit's current garage is located among residential housing making any potential expansion highly undesirable. Nearby residents have previously requested that the City relocate its facilities away from the area.

With the long term service plan projecting an increase in the size of the transit fleet to 125, additional storage, servicing and employee space will be required over the next 5 to 10 years.

Further, in consideration of greater integration of services between the conventional and specialized transit services and to achieve economies-of-scale, the specialized transit operation and fleet it should be located at the transit facility. This should occur within the next 5 to 10 years as facility space permits. The specialized transit fleet is projected to double in size over the next 10 years from 14 to 28 units.

Together, the future conventional and specialized transit fleets will require a facility capable of servicing and storing approximately 150 to 160 vehicles.

Long Term Recommendation

Considering the capacity limitation today at the current garage and the inability to expand the existing facility, there are two strategy options:

1. Construct a new 150-160 bus facility within the next 5 years to replace the current facility; or,

2. Construct a satellite facility with capacity for up to 60 buses within the next 5 years with ultimate plans to phase out the existing facility and expand the satellite facility into a full 150-160 bus facility.

Of the two facility strategy options, the most effective option would be the second. This facility would initially handle storage, fuelling and light maintenance functions as well as provide some office space for operations and maintenance staff. If strategically located and designed, this facility could then be gradually expanded to replace the current facility. Optimally, the new facility should be located in a non-residential area that allows for minimal deadheading. While site selection is beyond the scope of this study, potential areas for a new transit garage based on future service expansion include the Northern Industrial Area and the Sutherland Industrial Area.

In order to preserve either facility strategy option, a site in the order of 9 to 10 acres should be acquired.

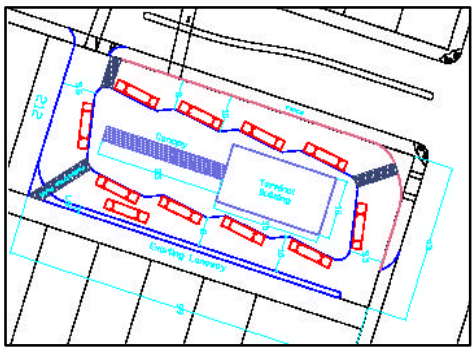
Facility Cost

The estimated cost to construct an initial 60 bus satellite facility would be $6.3 million (700 sq ft per bus x $150 per sq ft), depending on final design and construction costs. Land costs would be additional. A 150 -160 bus facility would cost approximately $32 million, plus land and depending on local construction costs.

Passenger Terminals

There are presently six designated transit terminals in Saskatoon – the downtown Transit Mall, Place Riel, Confederation Mall, Lawson Mall, Market Mall, and Centre Mall.

The Short Term Service Plan calls for the re-development of two off-street passenger terminals – the one in downtown and the other at Place Riel. The downtown terminal is anticipated to cost about $2.8 million. In addition, a $500,000 upgrade of the New Nutana (Market Mall) terminal is also required to handle additional routes and buses. STS is exploring the potential for joint development with the new owners of Market Mall that may defray some of the cost. Saskatoon Transit is working to advance all of these initiatives.



Potential layout of off-street downtown terminal, (Source: STS)

Stops and Shelters

Currently there are 1,387 bus stops in the City of Saskatoon. Of those 201(14%) have shelters. The City owns 150 (75%) of the shelters. Under contract, a private advertising firm has provided 51 new shelters in specific locations in exchange for exclusive rights to the advertising space. The City is to take ownership of these bus stops after 10 years. There are 25 benches in place of which the City controls 20 while the remaining five are privately owned.

Bus Stops - The Short Term Plan envisions significant changes to conventional bus routes. Although many streets that currently have bus stops will continue to have service, the location of bus stops on new routes may need to be adjusted. Obsolete bus stop signs will need to be removed and could potentially be reused on new sections of new routes. At the same time, the relocation of stops and installation of new ones can serve as an opportunity to up-grade bus stop amenities to include concrete pads suitable for use by persons with mobility devices.
All signs should be two-sided and readily visible from any direction for the benefit of passengers looking for the stop sign from different directions and either side of the street and could include route designations.

A program of replacing out-dated signs and repairing damaged signs should be adopted. On an ongoing basis, an annual budget to repair and/or replace 15% of the bus stop signs (a life-cycle of 10 years per sign plus damage repair) should be established. This would equal approximately $40,000 annually.

Decorative transit shelter on Broadway.

Shelters - The number and percentage of bus stops with shelters is low, by current industry standards. Many cities are now emphasizing customer amenities, such as shelters, benches, information signage and lighting (using solar power) at bus stops to encourage transit use. Shelters represent both a visible as well as a tangible demonstration of customer comfort and commitment towards encouraging transit use. The City does not have a target percentage for installing shelters at bus stops but typically installs 3 to 4 shelter per year based on funding availability and customer requests. For the Saskatoon climate, a 30% target should be adopted and implemented over the long term; this would require the installation about 215 shelters, or 22 per year. Annual costs would reach $220,000 and total costs, including the concrete pad and installation, would be approximately $2.15 million based on a per shelter cost of $10,000.

Shelters should be placed, as a matter of priority and based on evaluation criteria, at the main trip generators, transfer points, exposed locations (where there is no natural shelter from the weather) and, secondarily, at locations such as seniors residences, health care facilities and recreational facilities. The following would be suitable shelter installation criteria.

- *Number* – A shelter should be provided at 30% of all bus stops.
- *Location* – Benches and/or shelters should be located behind the sidewalk or on the boulevard between the sidewalk and curb where there is adequate width to accommodate the shelter pad at or close to the actual stop.
- *Installation* – The City should continue to pursue the supply and installation of shelters by private firms through the sale of advertising. However, it must be recognized that the market for shelter advertising and the supply of shelters through this method is limited. As a result, the City will need to supplement the ability of private firms to supply shelters in order to achieve the target coverage rate.

- *Lighting* – All bus stops and shelters should have sufficient lighting to ensure customer safety and security. Stops should be located to optimize the use of existing traffic and sidewalk lighting or, alternatively, the City should work with the Saskatoon Light and Power to install suitable lighting.

- *Accessibility* – In order to facilitate the use of conventional transit services by persons with mobility restrictions, all bus stops should be designed with large concrete pads extending a minimum of 8 metres long (the width between the front and centre doors of buses) and between the road edge/curb and sidewalk (if applicable) or, if no sidewalk, a minimum of 3 metres back from the road edge/curb. All bus stop areas should be level with a maximum height from the roadway of 18 cm.

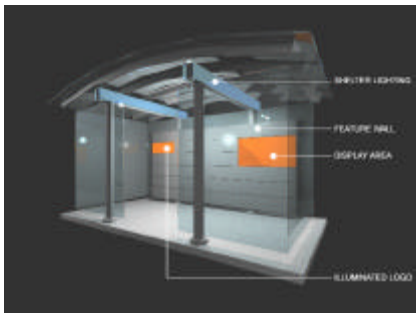
BRT Stations

The short term BRT service will have 32 stations at non-terminal locations along the two corridors. If two shelters are used for all non-terminal BRT stations this will require 64 shelters, three times more than STS currently has system wide.

Keeping with the approach of providing a premium service with BRT and using newer and higher quality equipment on the BRT routes, appropriate distinctive shelters should be used. Given the age and condition of many of the current shelters, they should not be relocated. Instead, new shelters should be purchased and installed at designated station areas.

More sophisticated BRT shelters, such as the ones being installed in York Region, various cities in Ontario and Québec and Halifax (shown at right) should be considered. These would cost between $15,000 to $20,000.

Additional considerations at the BRT stops would include ITS elements such as real-time information displays can be installed and powered in the shelters.



BRT shelter being considered for Halifax, NS.

4.5.7 FARE COLLECTION EQUIPMENT

This section reviews Saskatoon Transit's current fare collection equipment and examines alternatives technologies for collecting and recording transit fare revenues and for providing transit users with increased flexibility in purchasing transit trips.

Fare System Options

The existing fare collection equipment is based on a mechanical, or "gravity", farebox produced by Diamond Manufacturing. While low-cost and easy to maintain, a mechanical fare collection system has several key, inherent deficiencies:

- No ability to collect ridership data

- Incorrect fare payment cannot be identified

- No ability to cross-tabulate ridership with revenue

- No audit capability

- No ability to identify and prevent the use of illegal coinage or fare media

- Limited ride purchasing options, other than through the use of pre-printed paper tickets and passes

Obtaining accurate ridership data requires that manual counts be undertaken periodically using checkers or surveyors on-board the vehicles. Auditing of fare revenue requires manual exchange of the cash vaults inside the fareboxes and individual counting of fare revenue.

Modern electronic fareboxes address all of these deficiencies and can interface with other ITS (information technology system) programs related to passenger counting, operations reports and driver reporting systems.

The range of fare collection systems now in use, or being developed, fall into four categories:

1. Low technology – non-electronic systems

2. Basic Electronic – electronic systems which collect data and employ magnetic stripe cards

3. Advanced Electronic – electronic systems which collect data, verify fare media deposited and permit payment via electronic fare media including smart cards

4. Smart Card systems – stand-alone systems which can be "added on" to low technology and basic electronic systems

Current costs for each of the above alternative systems range from $7,000 to $20,000 per bus for the most sophisticated, smart card and debit card capable system.

New trends, influenced by practices in Europe, are changing the face of transit trip purchasing in the industry. These trends include greater emphasis on non-cash trip payment, off-board trip purchasing through vending machines, promotional and customer loyalty incentives, electronic fare media, especially smart cards with expanded usage

These trends are influencing and, in turn, are being influenced by new technologies. Fare collection and payment technologies introduced over the past 10 years have focused on reducing fare evasion. At the same time, they provide useful planning data for transit management. Electronic, registering fareboxes were developed to meet these needs, the first major advance in fare collection technology since the advent of public transit more than 150 years ago.

Fare system technologies have advanced significantly over the past five years, in particular, to keep pace with the changes and improvements in electronic technology and now offer transit users more options in purchasing transit rides. Nevertheless, fare equipment technologies still range from simple, mechanical, non-registering fareboxes to fully integrated fare systems which combine cash processing and smart card technologies in one package. This section describes the fare collection and fare system technologies currently available or in use by transit agencies.

Cash Systems

Farebox equipment to process cash fares falls into two general categories, either:

- mechanical, non-registering; or,
- electronic, registering

Mechanical, non-registering fareboxes simply act as a repository for collected fares. No registering or counting of the cash or tickets received occurs. Typically these units range from $1,500 (Diamond Farebox) to $7,000 or more in price (for GFI products).

Electronic, registering fareboxes count the cash received and, for the upper end models, will verify whether the cash or bills received are legal. They also permit bus drivers to record, through an integrated keypad, the classification of fare paid or whether a transfer or pass user has been used. Typically, these farebox models range from $8,000 to $20,000 in price depending on the function/feature set and any requirement for a driver console in addition to the central system costs.

There are four farebox manufacturers in the marketplace today. They are:

- GFI Genfare;
- Agent Systems; and
- Diamond Fareboxes.

Non-Cash Systems

The three most common non-cash fare collection systems are:

- Tickets or tokens;
- Multi-trip cards; and
- Passes (Flash, Magnetic Stripe and Smart Card).

Tickets/Tokens -tickets and tokens are usually collected along with the cash fares and are sorted centrally by agencies. They can be sold in multiples at a discounted rate, or can be required for purchase in order to eliminate cash handling by operators. The tickets are generally paper-based, while tokens are metal (or plastic). Paper tickets are cheaper to produce than tokens, whereas tokens can be recycled for use through the sorting process.

Multi-Trip Cards -multi-trip cards are single pieces of paper (usually credit-card sized) that the operator punches at each entry. When the card has been punched the appropriate number of times, it is of no value and is disposed by the user. Generally these cards are of a better quality paper than tickets as they must endure more handling by the users and operators.

Passes - pass technologies fall into three categories:

- Flash Pass
- Magnetic Strip Card
- Smart Card

The following presents a summary of the characteristics, advantages and disadvantages of each of these pass technologies.

1. Flash pass

A "flash" pass is a non-electronic paper or card product typical of most current monthly passes. The pass is pre-printed with the duration of its validity (monthly, weekly, daily) while its use may be accompanied by a requirement for the user to present valid identification in the form of a photo or government-issued identification card. The user simply shows the card to the vehicle driver upon boarding (or to an inspector if a Proof Of Payment honor system is in place) together with the required identification.

2. Magnetic stripe cards

Magnetic stripes permit information (data) to be stored and processed electronically. Fare transaction information is communicated between a magnetically-encoded card and a receiver ('reader"). Magnetic stripes can be imprinted on cards made of heavy paper, thin plastic, or heavier plastic such as that used for credit cards. The magnetic stripe can have a light or heavy degree of magnetism (coercivity) which affects the ease with which the electronic message imprinted on the stripe can be altered. The heavier the magnetism then the harder it is to produce counterfeit cards. The electronic stripe can be buried under a thin layer of plastic for longer life.

Read-only magnetic stripe cards are used by a number of transit agencies as passes or multiple ride cards.

Magnetic stripe cards must be passed (swiped) through a "reader" (as when using a credit card) to retrieve the information and "validate" the use of the card.

3. Smart cards – Contact and Contactless

A "smart card" is a credit card sized "passive computer" that is powered up and becomes operational only when connected to a "read/write" device. The interaction between the card and the read/write device can be either direct ("contact") or through a radio frequency inductive field ("contactless" or "proximity"). The proximity card is preferred for transit applications because it permits faster processing (in milliseconds) compared to the contact card which requires 2 to 3 seconds for processing. The contact card is preferred by the banking industry.

Recent developments in smart card have seen the development of a "combi" card which has dual interface and bridges the gap between the transit and banking industries by being both a contact as well as a proximity card.

Multiple applications can reside on a single smart card. They can hold stored rides, act as a period pass or store value ("purse"). Use of the card can be limited by time period (day, week, month, semester), by the number of rides or by a combination of time and rides (ride frequency).

Smart cards were pioneered in Europe (France) where their use is expanding rapidly. It is now beginning to emerge in North America and Asia and is seen as a key element in simplifying transit use in multiple jurisdictions such as the GTA, Los Angeles and New York.

With the interest and involvement by credit card agencies, there is now a convergence of multiple applications for smart cards such as telephones, electronic cash, other municipal services (parking, recreational facilities, libraries) and the development of loyalty and discount schemes. Small read/write units now widely used in stores for debit card purchases, are also suitable for encoding, or replenishing, smart cards at store locations.

The trend toward "Smart Bus" systems (Automatic Vehicle Location, on-board customer information, diagnostics and driver information) point the way towards "smart" systems for fare collection as well. All systems can be linked thereby creating a wealth of information for service planning, budgeting and personnel management.

To date, the use of smart cards has been limited by three factors:

- lack of common design standards for smart cards and fare collection systems
- high capital and operational costs, particularly with respect to cost of cards; and,
- rapidly changing technology.

However, these three issues are being addressed with the cost of smart cards, especially, declining significantly from a previous cost of $8.00 to $10.00 each to $4.00 to $5.00 depending on volumes and based on recent quotes in the U.S..

Smart Cards and credit/debit cards represent the new fare purchasing/payment technology which can be used in conjunction with electronic fareboxes to provide an integrated approach to the purchase of transit rides and fare payment.

Fare Technology Selection for Saskatoon

Smart cards offer the greatest potential for not only flexible ride purchasing and fare payment options to transit customers but also for partnering with other municipal or private services to expand the presence of transit in the community. The industry is moving towards smart cards for purchasing and paying for transit trips. A number of projects for introducing smart cards are being pursued in Canada and specifically in the Greater Toronto Area. However, to be cost-effective in smaller municipalities, smart cards should not be adopted for transit fare purposes alone. Rather they should be combined with other municipal services in order to broaden their application and appeal.

To determine which system is the most appropriate for Saskatoon, three basic questions need to be addressed. These are:

- how will transit trips be purchased by users?
- what fare payment options will be provided?
- can transit ride purchasing options be integrated with other municipal services?

If a wide range of purchase and payment options are to be provided, then the fare collection equipment should be capable of accepting payment by cash as well as other fare media (tickets, passes, etc.). This points to the selection of a fare collection system similar to the one in use today. If payment with electronic media is desirable, then a more sophisticated fare collection system is necessary including the use of smart cards should this alternative be viable.

Determining a suitable transit fare payment strategy and, in turn, the type of fare payment processing technology suitable for Saskatoon Transit, the City should undertake an integrated review of the various fare purchasing/payment systems available and determine the ability of other municipal services to be integrated with Saskatoon Transit's fare system requirements. This process would take approximately one year and should be guided by experts in fare payment options and, specifically, smart card technology. The review should be undertaken in 2006.

4.6 Supporting Demand Management Strategies

This section summarizes recommendations for transportation demand management, technology improvements and other strategies STS and the City of Saskatoon can utilize to encourage ridership growth and more efficient operations. More detail on demand management other supporting strategies including ITS can be found in Appendices B and C.

4.6.1 TRANSPORTATION DEMAND MANAGEMENT OVERVIEW

Meeting the transportation needs of an increasing population has become more challenging and municipalities are recognizing the financial, environmental and social limits of relying solely on new infrastructure to meet increasing travel demands. Travel demand management (TDM) is both a strategy and series of techniques to reduce the demand for automobile travel and help communities get the most from our existing transportation systems. *TDM encourages people to travel more efficiently by traveling less, traveling together, and using travel modes that consume fewer resources and create fewer undesirable impacts than cars (e.g. public transit, walking, cycling or carpooling).* Ultimately TDM provides a strategic alternative to the cycle of road construction and increasing traffic. TDM does not preclude investments in road infrastructure. It provides an approach for communities to incorporate alternatives to new roads that often prove to meet our travel needs while being more cost-effective and enhancing local quality of life. TDM has emerged as a major theme in virtually all strategic transportation studies conducted by Canada's municipal, provincial and federal governments in the last decade.

It is important to note that TDM is only one part of new paradigm for comprehensive transportation solutions. By helping individuals travel more efficiently and minimizing the need for infrastructure, TDM can help conserve public and private funds, land and other natural resources while reducing undesirable social and environmental impacts. TDM offers Saskatoon a way not to fix problems, but rather to prevent them. The benefits that TDM can bring to municipalities, businesses and individuals include the following:

- Municipal cost savings including reduced road capital and operating costs.
- User cost savings such as reduced vehicle operating and ownership costs if TDM enables a household to reduce car travel or the need for an additional car.
- Reduce congestion by diverting auto travel. Preventing or diverting even a small amount of automobile travel can reduce congestion and delay. In this way, TDM can help those who continue to drive personal or commercial vehicles.
- Create better access to opportunity. TDM measures can improve personal access to opportunity for the one-third of Canadians who are non-drivers by making walking, cycling and public transit more convenient ways to reach jobs, education, and vital services like health care.
- Reduced environmental impacts. By managing the demand for auto travel, TDM can minimize air and water pollution from road construction, maintenance and use.
- Create more liveable communities. TDM strategies like walking, cycling and transit can create vibrant and dynamic public spaces. TDM also encourages physical exercise while lower air pollution levels reduces the severity of respiratory illness.

TDM looks for reasonable ways to manage the demand for travel, particularly the most inefficient type of transportation - single-occupant vehicle travel. TDM strategies influence the purpose (*why?*), destination (*where?*), time (*when?*) and mode (*how?*) of personal travel decisions, by:

- Making non-automobile travel options; such as walking, cycling and transit; more attractive and easier to use.
- Helping people understand how their travel decisions affect the community and building positive public attitudes towards alternative travel options through public education.
- Using incentives and disincentives to influence personal travel decisions by counteracting the hidden costs of driving alone.

It is not reasonable to expect people to choose a method of travel that is not best for them. TDM does not force people to change how they travel. Rather, it changes the context in which people make their travel decisions.

4.6.2 TDM AND THE CITY OF SASKATOON

Saskatoon has a strong tradition of urban planning. Existing planning and transportation policies clearly point toward the idea of managing urban development in a proactive manner with an eye toward the efficient delivery of services such as infrastructure. However, there does not appear to be a comparable guiding framework for the development of the transportation system, and nothing that would assist the development of a TDM program in Saskatoon. Recent policy documents have alluded to various TDM strategies, but few, if any mention TDM specifically. In recent years some TDM techniques have been employed in Saskatoon, but not in a coordinated manner or with the benefit of policies focusing on managing demand. TDM techniques have instead been employed on a piecemeal basis to deal with specific problems.

After consultation with Saskatchewan Highways it was clear that there are no provincial policies on transportation demand management. However, department officials mentioned Saskatoon and Regina as areas where TDM may be effective.

Without the policy initiative of managing the demand for auto travel and an appropriate policy framework, TDM measures will likely continue to be developed in a piecemeal fashion. *Currently, it appears that there is no suitable policy framework for TDM in Saskatoon.*

In this context, TDM solutions should be tailored to meet Saskatoon's unique needs while drawing from other North American cities that have taken an aggressive approach to demand management. For example, rapidly growing cities such as Markham and the City of Toronto insist on the consideration of TDM in all major development proposals.

4.6.3 SCREENING POTENTIAL TDM MEASURES

There are numerous TDM strategies communities like Saskatoon can consider. Specific TDM techniques are detailed in Appendix B. Not all strategies are appropriate for small and mid sized communities. Others require a mature policy framework and the ongoing support of government and private partners. Exhibit 4-11 below summarizes the impacts of each category of TDM strategies reviewed and their applicability to small and mid sized cities. The purpose of this screening is to identify TDM measures that Saskatoon Transit, together with other stakeholders, could consider for near term implementation. Measures recommended for near term consideration are identified below. Other measures may be valid for the community but would likely be led by departments other than Transit.

Exhibit 4-11: Impacts of TDM Measures

TDM Technique	Impacts			Applicability to Small & Mid Sized Cities	Recommended for Near Term Consideration
	Reduce Congestion	Increase Transit Ridership	Reduce Emissions		
Improved Pedestrian & Cycling Infrastructure	●	●	●	High	Yes
Transit Service Improvements	●	⬤	⬤	High	Yes
Transit Priority	●	⬤	●	Mid	Yes
Carpool/Park and Ride Lots	⬤	●	⬤	Low	No
HOV Facilities	⬤	●	⬤	Low	No
Car Sharing	⬤	●	⬤	Mid	No
Ridesharing Program	⬤	●	⬤	High	No*
Transportation Management Associations	⬤	●	⬤	High	Yes
Traffic Calming	●	●	●	Low	No*
Telecommunications Technology	⬤	●	●	Low	No
Alternative Work Schedules	⬤	●	⬤	High	No
Economic Incentives	⬤	⬤	⬤	High	Yes
Public Outreach	●	●	●	High	Yes
Parking Management	⬤	⬤	⬤	High	No*
Road Pricing	⬤	⬤	⬤	Low	No
Coordinated Transit & Land Use	●	⬤	⬤	High	Yes

● Moderate Impact ⬤ High Impact * Could be considered by other departments

The following TDM measures are recommended for Saskatoon Transit. They will complement transit services, encourage greater ridership and help reduce infrastructure costs. These measures were selected for effectiveness (they have been proven to work), and to be appropriate for Saskatoon Transit Service to pursue. Saskatoon and STS already have limited experience with many of these strategies. These strategies are also considered very promising for success in Saskatoon based on information collected during the Strategic Plan.

4.6.4 INCREASE INTERMODAL CONNECTIONS WITH TRANSIT

Improving pedestrian walkways is important to neighbourhoods, persons with mobility limitations, and others. Better pedestrian facilities will remove a significant barrier to transit use. Business communities often regard foot traffic as a sign of potential customers and are sometimes willing to partner with government to provide pedestrian friendly environments.

In Saskatoon, University and high school students are already heavy bicycle users and represent an important potential market. Bus/cycling integration has proven effective at attracting new passengers. STS has taken the first steps toward integrating transit and cycling by beginning to install mobile bike racks on some buses.

Potential actions that STS could take to improve pedestrian and bicycle connections with transit include:

- Work with mobility-challenged riders and the City to identify and improve areas where sidewalks and curb cuts are deficient. Focus on areas with obvious needs, for example near hospital and seniors centres, or near homes of those with special needs.

- Work with the city to ensure adequate sidewalks with curb cuts become required for all new developments and that older sidewalks are repaired in the same manner.

- Work with the City during winter months to prevent sidewalks and bus stop areas from being covered in snow ploughed from of the road.

Bike racks are available in many cities.

- Consider providing bus racks on all buses. The image at right illustrates a front mounted bike rack.

- Provide additional strategic wayside bike parking. Work with the University and SIAST to provide bike parking near transit stops or further into campus.

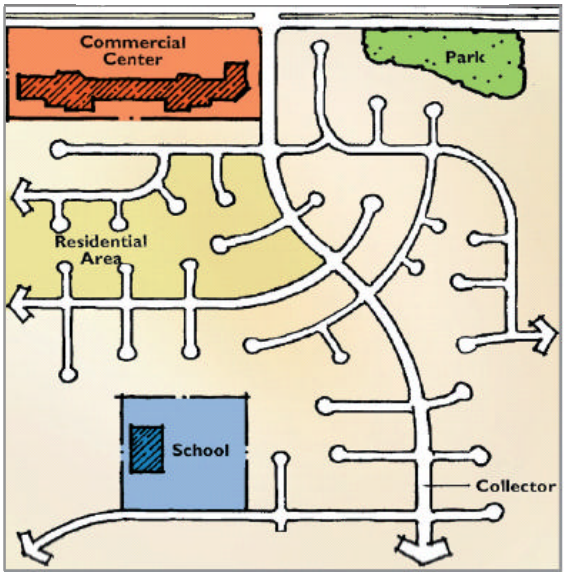
- Work with suburban centres, retail areas and employers to provide bicycle parking.

4.6.5 IMPROVE LAND USE COORDINATION WITH TRANSIT-ORIENTED DEVELOPMENT

Coordinating land use and transportation decisions begins with an ability to plan urban growth. Saskatoon already enjoys a strong history of urban planning and growth management. The next step is to consciously ensure transportation investments support a vision for urban development. Exhibit 4-12 below illustrates some of the configuration differences between conventional auto-oriented urban development and new styles that promote more compact and pedestrian-friendly urban design.

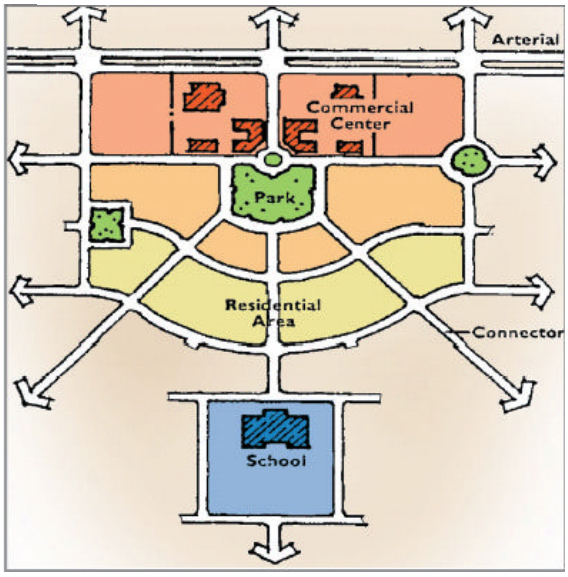
Exhibit 4-12: Conventional Auto-Oriented and Neo-Traditional Development

Conventional Auto-Oriented



Makes travel by foot or bike difficult.
Expensive to service with transit.

Neo-Traditional Pedestrian-Oriented



Balances auto & pedestrian access.
Easy to bike or use transit.

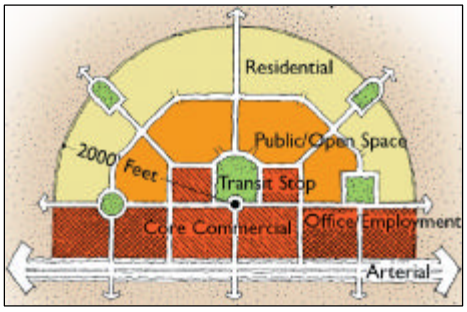
IBI/Calthorpe Associates

Specific land use strategies that can encourage transit use include downtown redevelopment and intensification, clustered suburban development, more compact residential development in transit corridors, mixing land use activities (work, recreation, residential), pedestrian-friendly urban design, and physical integration of new development with transit services often called transit oriented development. Transit-Oriented Development (TOD) guides urban development into transit supportive configurations in order to create accessible neighborhoods and increase transit ridership. TOD offers an alternative to auto-oriented urban development through integrating transportation and land use planning, providing the necessary context for improving transit service, implementing TDM strategies and ultimately reducing automobile dependence.

TOD is a particular strategy for coordinating land-use and transportation that depends on well-designed connections between high-quality transit service and attractive compact residential and commercial areas. There are other strategies that can be used to coordinate land use and transit. In areas with lower densities or less frequent transit service, other location-efficient development strategies, such as zoning that promotes more compact, pedestrian friendly development near BRT stations, may be an appropriate precursor to a formal TOD. All land-use strategies maintain core TDM principles in common: provide alternatives to automobile use, manage automobile traffic, and encourage more compact and mixed-use development. Saskatoon already enjoys a strong history of urban planning and growth management. Refocusing that tradition to support TOD can help the City capture many of the benefits of TDM.

Principles of Transit-Oriented Development

TOD is defined as:
"Compact, mixed-use and pedestrian-friendly neighborhoods containing a range of housing types, workplaces, shops, entertainment, schools, parks and civic facilities essential to the daily lives of residents – all within an easy 5 minute walk from a transit station."



Typical TOD layout. IBI/Calthorpe Associates

The intent of transit-oriented development is to concentrate as much potential ridership as possible in close proximity to the station while creating an environment that further encourages walking and transit use.

TOD neighborhoods cluster residences and jobs around a transit stop, typically higher-order rapid transit. The central station is surrounded by relatively high-density residential and commercial developments, with lower density development as distance from the station/stop increases. TOD densities range from 6-30 residential units per acre and 25-150 employees per acre. TOD areas are typically one quarter to one half mile in diameter from the station, covering 125 acres and representing a reasonable walking distance to the station form all directions. The TOD has a strong pedestrian orientation to facilitate access to the transit station. By maximizing the number of people and jobs with easy access to high quality transit service the result is a neighborhood with high accessibility that generates increased ridership for transit. Frequently TOD's also utilize other strategies for urban revitalization such as mixed commercial/residential uses, human-scale urban design, accommodations for multiple transportation modes, as well as numerous TDM strategies.

A key feature of TOD is the quality of the transit service. The availability of high quality, frequent transit service is a precondition for making TOD successful. To date most TOD in North America have developed around rail stations that provide rapid transit or commuter services. However, with the advent of Bus-Rapid-Transit, that provides *rail-quality service*, TODs are increasingly being considered for BRT stations as well. Another crucial aspect of transit service for TODs is that it must connect residences to not only jobs, but other activities as well. This can be achieved by directly linking higher order service to major destinations (such as downtown, the University, and suburban centres), and by incorporating commercial development alongside residential development, making station areas throughout the City *destinations* as well as generators of ridership. In addition, the convenience of transit service in TODs attracts new rides during off peak periods resulting in more efficiently used transit resources.

Benefits of TOD

TODs have several key advantages relative to auto-oriented development that create opportunities for beneficial results. Benefits of TOD include:

- ***Efficient Land Use*** –More compact residential and commercial development and less surface space given over to parking. This allows for more efficient use of publicly funded infrastructure.

- ***Increased Transit Ridership*** –TOD's offer a way to bring the largest number of potential riders into easy walking distance of transit stations.

- ***Reduce Auto Travel*** –TOD also provide great environment in which to incorporate other TDM strategies to manage auto demand. Litman found that households near rail stations in Vancouver and Portland owned fewer cars and ride transit more than households further from stations.

- ***Environmental Benefits*** – TOD can foster ecological and health benefits including reduced auto emissions, and more walking and biking.

- ***Neighbourhood (Re)Development*** - TODs can be new developments or evolve through incremental changes to existing neighborhoods. While new developments offer the opportunity to start from scratch, TOD offers an opportunity to revitalize established urban areas.

- ***Housing Options*** – TODs provide a natural environment to create more and newer housing options including apartments, townhouses, semidetached housing and even single-family houses.

- ***Economic Development*** - By increasing the convenience of accessing TOD areas, encouraging compact development and providing resources or redevelopment, TODs can stimulate economic development. Mixed-use neighborhoods can act as business incubators using residential foot traffic to sustain small businesses.

Impacts

In 2000, the *Future Growth of Saskatoon* report evaluated land-use expansion opportunities available to the city as it looked forward to a future of up to 400,000 residents. The report found that to accommodate short-term population growth will mean the addition of three new Suburban Development Areas (Suburban Centres) each requiring 4,000 acres of new urban land and support infrastructure and services to accommodate an average of 50,000 new residents apiece. Not evaluated in that report were the implications of increasing densities in other areas of the city, or to higher levels in the Suburban Development Areas.

Exhibit 4-13 below estimates two scenarios where transit-oriented development and TDM strategies were used to accommodate some or all of the population growth at higher densities. The first table illustrates how developing more compact suburban centres around transit lines would require far less land to accommodate the same number of people. The second table illustrates how many additional residents could be accommodated on the same initial plot of land.

Exhibit 4-13: Accommodating Growth with TOD

Potential Area Saved with Transit Oriented Development

	Suburban Development Area	TOD Low Density	TOD Moderate Density	TOD High Density	TOD Very High Density
Population	50,000	50,000	50,000	50,000	50,000
Households	20,000	20,000	20,000	20,000	20,000
Ave Hhld Size	2.5	2.5	2.5	2.5	2.5
Population Density (Pop/acre)	12.5	15	20	25	30
Area (Acres)	***4,000***	***3,333***	***2,500***	***2,000***	***1,667***

Additional Residences Possible with Transit Oriented Development

Population	***50,000***	***60,000***	***80,000***	***100,000***	***120,000***
Households	20,000	20,000	20,000	20,000	20,000
Ave Hhld Size	2.5	2.5	2.5	2.5	2.5
Population Density (Pop/acre)	12.5	15	20	25	30
Area (Acres)	4,000	4,000	4,000	4,000	4,000

The results are striking. At a "high" density of 25 residents per acre twice the number of people could be housed on the same land area with TOD compared to conventional suburban

development. Significant savings for urban infrastructure could be realized in this manner. Clearly not all urban growth in Saskatoon can or should be focused into TODs. However, opportunities may exist to bring many to realize some of the benefits made possible by TOD should be explored more fully.

TOD in Saskatoon

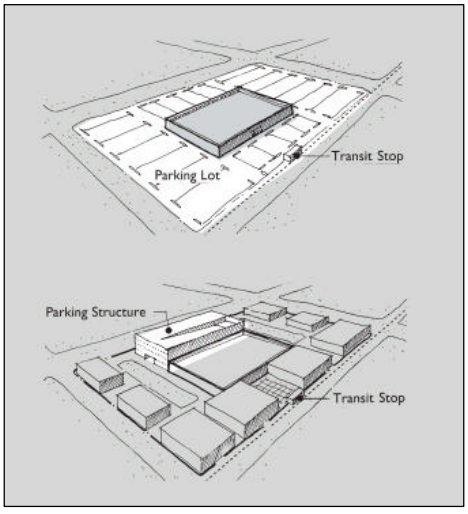
There are good reasons to be cautiously optimistic about coordinating transit and urban growth in Saskatoon; the City is growing with both population and economic activity, a higher-order transit service (Bus-Rapid-Transit) is being developed, and there are opportunities for development at major transit hubs such as downtown and the University, as well as the suburban centres.

With BRT development in the early stages of development it is too early to state where or when TOD could or ought to be pursued in Saskatoon. However, based on current BRT plans and existing growth strategies three general areas can be tentatively identified as having potential for TOD:

- ***Downtown*** – As the central transit hub for two higher-order transit lines and most conventional bus routes, and the site of several existing high-rise residential towers downtown already demonstrates many of the attributes of transit oriented development; compact development, pedestrian friendly street grid, and public buildings. Downtown is also the subject of ongoing debate about how best to rejuvenate the area. TOD offers a framework for organizing redevelopment efforts that the City, local businesses and residents could consider as part of a rejuvenation strategy. Accommodating residents in downtown could lead to a significant revitalization of local businesses and daily activity. Public and private investment can also stimulate economic development in the downtown.

- ***University of Saskatchewan Area*** – Anticipated to rival downtown as a destination along the new BRT system, Place Riel also has strong potential as a TOD. The University has considered adding additional on-campus housing in the area. With Place Riel established as a major transit hub, growing student demands for housing and transportation, and the demand for academic space high but space limited TOD may serve as a useful model for the University to consider as it develops strategic development scenarios.

- ***Suburban Centres*** – As key parts of the City established growth plans suburban centres are already growing with new residential construction. As major commercial destinations, bus terminals and transfer points between conventional transit and BRT they have important potential to see additional development within a TOD framework. The City and STS area already pursuing a type of TOD through coordinating service with designated suburban centres and partnerships with owners of shopping malls. A recent proposal for Nutana Suburban Centre (Market Mall) includes a new bus terminal and an adjacent residential high rise. The image at right illustrates a transit-oriented arrangement for a conventional suburban shopping centre.



IBI/Calthorpe Associates

With a strong potential for TOD and development in some areas already moving forward the City may wish to develop more formal policies regarding urban development near proposed BRT stations. TOD offers the city a strategy for achieving the goals of infill development, proactive planning and revitalization prominent in existing policy documents.

4.6.6 PROMOTE TDM THROUGH PUBLIC OUTREACH

Successful outreach is more than advertising. Determining customer needs, tailoring TDM strategies, and providing useful information and promoting TDM are the goals of a successful public outreach program. Specific outreach activities can include:

- Surveying transportation system users to identify needs, preferences and perceived barriers for TDM.
- Educating stakeholders (public officials, businesses) about how TDM can benefit them.
- Providing information about TDM to potential users.
- Promoting the benefits of TDM.
- Promoting alternative modes of transportation.
- Developing a central users guide for information about how to use the transportation system.
- Targeted advertising to specific markets (students, parents, employers, neighbourhoods, community groups, etc). Explore the notion of branding the program to make TDM tools and services more identifiable and accessible to the public.
- Promote promotional events, such as special event shuttles or competitions (National Commuter Challenge Day) to raise the profile of TDM efforts.

Outreach should be a part of any TDM initiative from the City or STS.

4.7 Operating Strategies

4.7.1 FARE STRUCTURE

Selling discounted transit passes or tickets in bulk to large institutions with large numbers of potential riders (i.e. business, universities) is a promising supporting strategy for transit in Saskatoon. Experience and research has shown that after service improvements, fare incentives have the greatest potential to increases ridership. Discounted passes and tickets can be an effective way to increase ridership while providing increased fare flexibility, a popular attribute for riders, employers and the public.

Interest in discounted transit passes for large groups was a promising topic of conversation at the Business, Academic, School Board and Transit Users focus groups and there appear to be several opportunities to increase ridership in Saskatoon by developing a bulk passes/discount program for certain large groups of potential transit riders, such as

- ***University U-Pass*** – The City and University have attempted to provide a U-Pass for students at the University. As one of the largest rider groups, University students represent an attractive market for bulk passes. Another opportunity to approach students at adopting a U-Pass will come after the short term service improvements have been delivered. These improvements will offer vastly increased service to the University including two BRT routes and a new terminal at Place Riel.
- ***Universal Passes for High School Students –*** In discussions with representatives of the high-school boards it was clear that they are interested in developing and helping to fund a universal

access pass for all secondary schools students. The Boards felt that the current fare structure is not flexible enough to encourage increased student use. Also the current service is not useful to all students or for after school activities. Access to school programs and after school activities for low-income students is also important. Universal student passes allow students to use all transit services without paying individual fares. This arrangement makes transit far easier to use and allows students all-hours access to the entire community for school, jobs or recreation. It also opens a large market to transit, some of who may become lifelong riders. The school boards believe they could save money on current transportation spending through a universal pass program. It was noted that the universal pass would likely require the same real subsidy but provide far more travel options for students and increase ridership across the system. This way the same subsidy creates more value for the ratepayers while improving STS performance by increasing ridership.

- ***Large Employer Discounts –*** In discussion with employers at the business focus group it was clear that several large employers, particularly in the Northern Industrial Area, have difficulties related to recruitment and retention of employees due to limited transportation budgets. Several communities, including Regina, have developed programs in cooperation with employers to provide discount transit passes in bulk. Typically the passes are discounted and the employer and employee share the costs. In addition to private businesses, this option might also be possible for municipal employees as well. Most employer-based programs have proven popular with employees and successful at reducing the impact of transportation costs for employers.

- ***Affordable Passes for Low Income Riders*** – Low or fixed income residents who are clients of social service programs often utilize transit for medical, work and other types of trips. Some cities have made arrangements to sell discounted transit passes or tickets in bulk to social service agencies that then distribute them to their clients as needed. In some cities this arrangement has proven effective with minimal administrative burden.

STS should identify the target populations in Saskatoon and study the potential costs and benefits of different pass programs more closely. After review, detailed programs should be designed, staff allocated and distribution begun.

4.7.2 INTELLIGENT TRANSPORTATION SYSTEMS

Advances in information technologies have enabled many industries to become far more effective and efficient. Intelligent Transportation Systems (ITS) allow transit to take advantage of these advances in order to:

- Increase ridership
- Improve service reliability & on time performance
- Increase safety and security
- Help communicate information to passengers
- Improve perception of transit
- Reduce operating costs.
- Reduce fleet size/maximize fleet usage
- Reduce travel time
- Reduce “bus bunching”
- Reduce fuel costs

ITS applications typically refer to a set of integrated on-board technologies with vehicle location processing at its core. The bus "knows" not only where it is but also where it is supposed to be and it can share this information with other data collection and customer information systems. This

concept is consistent with the common scenario in the transit industry in which *real-time* location information is transmitted to a central dispatch system for schedule and route adherence processing.

Appendix C provides an overview of the most common ITS applications in the transit industry including operating tools such as; automatic vehicle location, mobile data terminals, automated operations software and computer aided dispatching, advanced fare collection, automatic passenger counters, in-vehicle security features, and maintenance software; traveller information systems such as automatic stop announcements, real time information displays, interactive voice response systems, and internet-base trip planning; and transit priority measures such as transit signal priority, queue jump lanes, as well as other priority strategies.

ITS technology use is spreading among transit agencies in small and mid-size communities. Ongoing challenges include:

- ***Identifying Needs*** – Smaller communities often lack the chronic congestion problems that have led larger cities to pioneer ITS development.

- ***Cost*** – ITS systems can reduce ongoing operating expenses, but require up-front capital investments.

- ***Familiarity & Complexity*** – Advanced information technology is not common in transit operations. Technology decisions are frequently complex and impact the agency for several years.

ITS can create opportunities for better service even in small cities by improving on-time performance, customer convenience through advanced fare collection and real-time information, and allow better data collection for service planning. Efficiencies made possible by better information management can reduce operations and maintenance costs.

One of the biggest challenges for mid sized transit agencies in introducing ITS is the high capital costs of the technology. Fortunately, as ITS technology is becoming more standardized it is less complex and more affordable for mid size bus fleets. In earlier attempts to integrate technology with transit technologies were implemented independently requiring redundant data, driver interfaces, data on/off load mechanisms, and processing systems. For example, in the past it was not unusual for buses to have two separate vehicle location systems, each supporting its own passenger counting or next stop announcement function.

In the past transit agencies have adopted a piecemeal approach to ITS, procuring single systems on an as-needed basis to achieve results without the high capital cost of a comprehensive system. However, some fleets have found that this strength becomes a limitation as they try to incorporate more ITS technology. With comprehensive ITS applications, core data collection, processing, and on/off systems are shared among multiple functions, minimizing the incremental cost of each. Earlier technologies are not always compatible with new systems leading to early obsolescence and additional expenses. Expansion must also be considered. Wireless systems may seem expensive for small deployments, but they create an affordable platform for providing communication as ITS applications, such as signal priority, expand beyond the original area.

A regional ITS architecture serves as a blueprint for how ITS systems should be organized within and between transportation agencies. Such coordination could tie traffic, transit and rail crossing information systems together. Typically, these plans are developed before significant investment in highway-based ITS systems to ensure compatibility as the system grows. However, many communities have not experienced the levels of congestion ITS systems are designed to reduce and therefore do not have ITS architectures in place. In 2001 Saskatchewan Highways and

Transportation developed an ITS strategy report. Transport Canada maintains a nationwide Canadian ITS Architecture that could serve as a model for Saskatoon.

Current ITS-Related Projects at Saskatoon Transit Services

At present STS is moving forward with several ITS efforts to improve the efficiency and reliability of transit service.

- STS has instituted scheduling software to assist with developing route schedules.
- STS is developing moving toward using technology to provide information to travellers. A new automated telephone information service has been purchased that will provide callers with up-to-date information about route schedules, service changes, and public service bulletins. Similar information may also be provided on the internet.
- Saskatoon Transit Services is currently working toward establishing transit signal priority along College Avenue and the University Bridge to facilitate the anticipated increase in bus traffic.

STS has purchased a trip planning application for its website to allow visitors to plan trips online.

Recommended Transit Priority Measures

Transit priority measures will be useful along routes where on-time performance is very important, and along roads congested with automobile traffic. Timing of priority measures is also a factor. If priority is only needed during rush hour or to preserve on-time performance signal priority may be appropriate. If, however, priority is required around the clock, more permanent solutions, such as queue jump lanes, are more appropriate.

Transit routes carrying large numbers of passengers, or having great need to avoid delay are good candidates for priority measures. In Saskatoon the four proposed BRT corridors will require a high degree of reliability and on-time performance and will carry the bulk the system-wide riders. Transit priority should be considered along these corridors, but only as warranted by below acceptable on-time performance. BRT corridors are:

- 22nd Street West,
- Warman/33rd/Idylwyld,
- 25th St. East/College Ave./Preston/Taylor, and
- 25th St. East/College Ave./Preston/Attridge/Central/115th.

Transit Signal Priority: For transit signal priority STS should focus resources on crucial intersections along congested BRT corridors. The most heavily travelled transit corridors in Saskatoon are also an area of current and increasing congestion and anticipated heavy bus traffic.

- ***College Drive in front of the University*** - This road is heavily travelled by students and non-University travellers alike. It also has several access roads leading into Place Riel creating many opportunities for congestion. STS and the City are already advance signal priority plans to facilitate access and egress of buses to and from the University's busy terminal.
- ***University Bridge*** – The four-lane bridge acts as a bottleneck along the most important BRT corridor. Signal priority, possibly supported with queue jump lanes at both ends of the bridge would allow buses to start over the bridge before it became congested. The approach to the

bridge along 25tth Street downtown may also require TSP or possibly dedicated traffic lanes to facilitate buses access to the bridge.

These areas are the most crucial, but not the only, areas TSP may be needed in the coming years. Areas already experiencing congestion, or projected to become congested, are areas of focus for transit priority measures. Several current and future areas of congested have been identified and rated high, medium or low for their potential to disrupt operations of the proposed transit network. Based on information from the City of Saskatoon five areas are already congested and will remain so until 2021. These are:

- *Warman Road/2nd Avenue between 33rd Street and 25th Street* – Bus service will be withdrawn from this segment. Importance for transit priority measures: None.

- *Circle Drive between Airport Drive and Attridge* – This will impact three proposed local bus routes. Importance for transit priority measures: Low.

- *Idylwyld Drive between 33rd Street and 20tth Street* – This will impact three routes, including a BRT route, as well as several intersecting routes. Importance for transit priority measures: Medium.

- *25th Street between 2nd Avenue to University Bridge* – This downtown segment will impact many routes including the crucial BRT connections between downtown and the University. Importance for transit priority measures: High.

- *College Drive between University Bridge and Cumberland* – This busy segment serves the entrance to the University and will impact all routes service the school, including all BRT routes. Importance for transit priority measures: High.

In addition to these segments, three additional areas are projected to become congestion by 2021, these are:

- *College Drive from Preston to McKercher Drive*. – Only one bus route intersects this segment. Importance for transit priority measures: Low.

- *Boychuck Drive from Highway 16 to Taylor Street* – This will impact a branch of one BRT route. Importance for transit priority measures: Medium.

- *Attridge Drive from Circle Drive to Nelson* – This will impact two routes, including one BRT route. Importance for transit priority measures: High.

Provincial Yield to the Bus (YTB) Law: The effectiveness of YTB programs and laws are not clear. A survey of transit agencies across North American that have YTB programs or laws found mixed results[1]. One third of responding agencies reported some anecdotal improvement in schedule adherence, but also reported challenges with enforcement and increased risk of collisions. STS already has a YTB program with "Thanks for the Brake" signs posted on the rear of buses. In cooperation with other transit operators in the Province as well as municipal officials, STS could promote the policy objective of a provincial "Yield to the bus" law for Saskatchewan. Promoting the YTB program to drivers through public education campaigns, perhaps in concert with other transportation demand management initiatives, may also increase the program's effectiveness.

[1] Transit Cooperative Research Program Synthesis 49: Yield to Bus – State of the Practice. 2003.

Additional Intelligent Transportation System Measures

STS should continue deploying software scheduling technology, telephone and internet-based information systems. These stand-alone initiatives promise substantial improvements in reducing operations costs and providing more and better passenger information.

In the longer term STS should consider developing an AVL and CAD system, along with a wireless communications network, as a platform for additional ITS applications, as needed. Additions to the transit AVL system could include: automatic stop announcements, real-time passenger information systems, advanced fare collection and internet-based trip planning. STS may also want to work with other City departments and the Province to develop Saskatoon ITS Architecture. A common approach to maximizing the benefits of ITS is to expand the technology to other municipal department, such as road maintenance and snow ploughs, that have seen significant benefits form ITS in their own right. Further study of ITS in Saskatoon and at STS will be necessary to identify the most beneficial ITS technologies.

4.8 Financial Plan

The Financial Plan presents a 10-year summary of capital and operating costs, revenues and system performance associated with each of the elements of the Transit Service Strategy. Detailed estimates are provided for 2006-2010 covering the period when the Short Term Service Plan will be implemented. Broad estimates are provided for 2011-2015 covering the period when the Long Term Strategy will be implemented. The longer term figures are broad estimates due to the uncertainty of the transit needs and timing of service changes beyond the 5 year time period. The costs associated with the elements of the transit service strategy include staff and capital resource requirements. Recommendations with respect to transit fares and subsidy levels are provided.

The Financial Plan is summarized in Exhibit 4.14.

- **Revenue Hours** – the proposed service strategies will make significant improvements to the transit services over the long term. In the short-term, there will be significant changes to the routes although relatively modest increases in revenue hours and accordingly operating costs; the revenue hours will increase from 307,200 to 314,000 hours (a 2.2% increase), which will have a minimal impact on the number of operators required because of scheduling efficiencies. In the long term after the Short Term Service Plan is implemented in 2006, revenue hours will increase to 330,000 in 2011 and 400,000 in 2015. This will require an increase in STS staff.

- **Operating Cost** – $22.0 million in 2005 to $24.0 million in 2007 after the Short Term Service Plan is implemented. If the Long Term Service Strategy is implemented after 2008, operating costs could increase to $28 million by 2011 and $39 million by 2015. The rise in unit operating costs over the period is due primarily to increased fuel costs, wage rates and inflation. Unit operating costs in transportation, maintenance and administration, are assumed to increase by 3% per annum over the 10-year period of the Plan to account for inflation and wage increases, plus a 30% increase in fuel costs over the 2006-2007 period..

- **Ridership and Modal Split -** the proposed increased service levels should cause annual ridership to increase from 8.7 to 9.1 million by 2007 when the short term service plan has been in place for two years, and 9.5 million by 2011 and 9.9 million by 2015 when the long term strategies are being implemented. This is an average annual ridership increase of about 1.5%, which is consistent with the population increase and the service improvements that will have been made. The ridership level is expected to rise from 42 to 44 passengers per capita in the short term, and to 49 passengers per capita over the

long term. The service improvements are intended to increase the modal split from 6.0% to 7.0% over the 10-year period; higher modal splits than this will require more extensive improvements and significantly higher costs.

- **Operating Revenues and Fare Rates** – annual passenger and related operating revenues are based on the expected ridership using the proposed fare structure and rates in Exhibit 4:14. Council will need to increase the fare rates so that average fares increase about 8 cents per annum over the 10-year period. This will be necessary to meet inflation and the financial targets that have been established for STS.

- **Operating Cost Recovery** – it has been determined that the transit system will need to recover 56% of its operating costs from operating revenue within the next ten years. If the transit system performs as shown in Exhibit 4:14, the cost recovery goal could be achieved by 2009 assuming that the Short Term Service Plan is completely implemented by that time.

- **Net Operating Cost/Tax Burden -** the net operating costs of the transit system will remain close to the $13 million level over the 2006-2015 period, which compares to $12.4 million in 2005. By 2016, the net costs could reach $17 million if the aggressive strategies of the Long Term Plan are followed.

- **Municipal Subsidy -** STS will require a municipal subsidy of about $13 million or $61 per capita over the next 10 years, as compared to $12.5 million and $60 per capita in 2005. When the Long Term Strategy is implemented by 2016, a municipal subsidy of about $17 million or $75 per capita could be required, which is an additional subsidy of $5 million. The additional municipal subsidy can be offset by Saskatoon's share of the federal gas tax revenue, which is expected to be about $10 million annually.

- **Capital Expenditures –** When fully implemented by 2016, the Long Term Service Plan will require approximately 110 vehicles in peak hours, or a total fleet of 125 vehicles including a 20% spare ratio, for maintenance and operations purposes. Over the eleven period, 111 vehicles will need to be acquired for replacement and growth purposes. The total cost to acquire the vehicles is estimated to be $50 million based on a projected $450,000 per vehicle in 2006 dollars, excluding applicable taxes.

Exhibit 4-14: Saskatoon Transit Long Term Financial Plan

Assumes Implementation of Short Term Service Plan in 2006

	2003 Actual	2004 Actual	Budget 2005	Ten Year Projections 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
City Population	205,000	205,900	206,800	207,600	209,000	210,300	211,700	213,000	214,500	215,900	217,300	218,700	220,100	221,500
Bus Fleet														
Standard Buses	87	86	87	87	79	71	62	53	44	35	26	17	8	
Standard LF Buses	26	27	26	26	34	42	52	62	72	82	93	104	115	125
Small Buses	1													
Total Fleet	114	113	113	113	113	113	114	115	116	117	119	121	123	125
Peak Requirement: Regular Route	64	66	67	71	71	72	72	73	74	75	76	77	78	83
Extras for Trippers	23	23	23	19	19	19	19	18	18	18	18	17	17	17
Spare Ratio	23.7%	21.2%	20.4%	20.4%	20.4%	19.5%	20.2%	20.9%	20.7%	20.5%	21.0%	22.3%	22.8%	20.0%
Staff														
Operators	178	181	184	186	188	189	191	193	195	198	201	204	207	237
Dispatchers and supervisors	17	26	26	26	26	26	27	27	27	28	28	28	29	33
Maintenance Staff	54	51	51	52	52	53	53	54	55	55	56	57	58	66
Administrative Staff.	13	10	10	10	10	10	11	11	11	11	11	11	11	12
Total Staff	262	268	271	274	276	278	282	285	288	292	296	300	305	348
Vehicle Hours														
Revenue Vehicle Hours	275,967	286,785	287,700	294,300	297,500	301,000	304,500	309,000	312,300	317,000	321,800	326,600	331,400	381,000
Charter Vehicle Hours	15,897	16,261	19,500	19,700	19,500	19,000	18,500	18,000	17,700	18,000	18,200	18,400	18,600	19,000
Total Vehicle Hours	291,864	303,046	307,200	314,000	317,000	320,000	323,000	327,000	330,000	335,000	340,000	345,000	350,000	400,000
Hours/Capita	1.42	1.47	1.49	1.51	1.52	1.52	1.53	1.54	1.54	1.55	1.56	1.58	1.59	1.81
Revenue Passengers	8,444,208	8,882,406	8,700,000	8,835,000	9,135,000	9,226,000	9,318,000	9,411,000	9,505,000	9,600,000	9,696,000	9,793,000	9,891,000	10,880,000
Pass./Hour	28.9	29.3	28.3	28.1	28.8	28.8	28.8	28.8	28.8	28.7	28.5	28.4	28.3	27.2
Pass./Capita	41.2	43.1	42.1	42.6	43.7	43.9	44.0	44.2	44.3	44.5	44.6	44.8	44.9	49.1
Modal Split	5.9%	6.2%	6.0%	6.1%	6.2%	6.3%	6.3%	6.3%	6.3%	6.4%	6.4%	6.4%	6.4%	7.0%
Operating Revenue														
Passenger Revenue	$ 7,806,559	$ 8,141,890	$ 8,352,000	$ 9,303,255	$ 10,322,550	$ 11,163,460	$ 12,020,220	$ 12,893,070	$ 13,829,775	$ 14,784,000	$ 15,756,000	$ 16,746,030	$ 17,803,800	$ 20,672,000
Average Fare	$ 0.92	$ 0.92	$ 0.96	$ 1.05	$ 1.13	$ 1.21	$ 1.29	$ 1.37	$ 1.46	$ 1.54	$ 1.63	$ 1.71	$ 1.80	$ 1.90
Other Revenue	$ 1,052,513	$ 1,154,960	$ 1,198,147	$ 1,211,915	$ 1,230,093	$ 1,248,545	$ 1,267,273	$ 1,286,282	$ 1,305,576	$ 1,325,160	$ 1,345,037	$ 1,365,213	$ 1,385,691	$ 1,406,477
Total Operating Revenue	$ 8,859,072	$ 9,296,850	$ 9,550,147	$ 10,515,170	$ 11,552,643	$ 12,412,005	$ 13,287,493	$ 14,179,352	$ 15,135,351	$ 16,109,160	$ 17,101,037	$ 18,111,243	$ 19,189,491	$ 22,078,477
Direct Operating Cost	$ 18,119,468	$ 18,513,910	$ 19,762,795	$ 21,121,671	$ 22,144,924	$ 23,025,132	$ 23,938,222	$ 24,961,711	$ 25,946,439	$ 27,129,754	$ 28,360,716	$ 29,641,119	$ 30,972,821	$ 36,459,436
Trans.,Maint., Admin Cost/Hr	$ 55.97	$ 55.64	$ 57.36	$ 59.08	$ 60.85	$ 62.67	$ 64.55	$ 66.49	$ 68.49	$ 70.54	$ 72.66	$ 74.84	$ 77.08	$ 79.39
Fuel Cost Per Hour	$ 6.11	$ 5.45	$ 6.98	$ 8.19	$ 9.01	$ 9.28	$ 9.56	$ 9.84	$ 10.14	$ 10.44	$ 10.76	$ 11.08	$ 11.41	$ 11.76
Total Direct Op.Cost/Hour	$ 62.08	$ 61.09	$ 64.33	$ 67.27	$ 69.86	$ 71.95	$ 74.11	$ 76.34	$ 78.63	$ 80.98	$ 83.41	$ 85.92	$ 88.49	$ 91.15
Debt Service and Depreciation	$ 2,076,127	$ 2,245,786	$ 2,252,050	$ 2,252,000	$ 2,252,000	$ 2,252,000	$ 2,252,000	$ 2,252,000	$ 2,326,500	$ 2,326,500	$ 2,326,500	$ 2,326,500	$ 2,326,500	$ 2,990,000
Total Operating Cost	$ 20,195,595	$ 20,759,696	$ 22,014,845	$ 23,373,671	$ 24,396,924	$ 25,277,132	$ 26,190,222	$ 27,213,711	$ 28,272,939	$ 29,456,254	$ 30,687,216	$ 31,967,619	$ 33,299,321	$ 39,449,436
Net Operating Cost	$ 11,336,523	$ 11,462,846	$ 12,464,698	$ 12,858,501	$ 12,844,280	$ 12,865,127	$ 12,902,729	$ 13,034,359	$ 13,137,588	$ 13,347,094	$ 13,586,179	$ 13,856,376	$ 14,109,830	$ 17,370,959
Net Cost/Capita	$ 55.30	$ 55.67	$ 60.27	$ 61.94	$ 61.46	$ 61.18	$ 60.95	$ 61.19	$ 61.25	$ 61.82	$ 62.52	$ 63.36	$ 64.11	$ 78.42
Revenue/Cost	43.9%	44.8%	43.4%	45.0%	47.4%	49.1%	50.7%	52.1%	53.5%	54.7%	55.7%	56.7%	57.6%	56.0%
Capital Requirements														
Buses for Replacement					6	6	6	6	7	7	7	7	7	7
Buses for Growth							1	1	1	1	2	2	2	2
Fare Structure				**Proposed Fare Structure**										
Adult Cash	$ 1.90	$ 2.00	$ 2.10	$ 2.25	$ 2.35	$ 2.45	$ 2.55	$ 2.65	$ 2.75	$ 2.85	$ 2.95	$ 3.05	$ 3.15	$ 3.30
Seniors Cash	$ 1.90	$ 2.00	$ 2.10	$ 2.25	$ 2.35	$ 2.45	$ 2.55	$ 2.65	$ 2.75	$ 2.85	$ 2.95	$ 3.05	$ 3.15	$ 3.30
Post Secondary Cash	$ 1.90	$ 2.00	$ 2.10	$ 2.25	$ 2.35	$ 2.45	$ 2.55	$ 2.65	$ 2.75	$ 2.85	$ 2.95	$ 3.05	$ 3.15	$ 3.30
High School Student Cash	$ 1.40	$ 1.50	$ 1.60	$ 1.70	$ 1.75	$ 1.80	$ 1.85	$ 1.90	$ 1.95	$ 2.00	$ 2.05	$ 2.10	$ 2.20	$ 2.35
Elementary Student Cash	$ 1.15	$ 1.20	$ 1.25	$ 1.35	$ 1.40	$ 1.45	$ 1.50	$ 1.55	$ 1.60	$ 1.65	$ 1.70	$ 1.75	$ 1.85	$ 2.00
Adult Ticket (Unit Price)	$ 1.50	$ 1.60	$ 1.70	$ 1.80	$ 1.88	$ 1.96	$ 2.04	$ 2.12	$ 2.20	$ 2.28	$ 2.36	$ 2.44	$ 2.52	$ 2.64
Seniors Ticket (Unit Price)	$ 1.50	$ 1.60	$ 1.70	$ 1.80	$ 1.88	$ 1.96	$ 2.04	$ 2.12	$ 2.20	$ 2.28	$ 2.36	$ 2.44	$ 2.52	$ 2.64
Post Sec. Ticket (Unit Price)	$ 1.50	$ 1.60	$ 1.70	$ 1.80	$ 1.88	$ 1.96	$ 2.04	$ 2.12	$ 2.20	$ 2.28	$ 2.36	$ 2.44	$ 2.52	$ 2.64
High Sch. Ticket (Unit Price)	$ 1.10	$ 1.15	$ 1.25	$ 1.35	$ 1.40	$ 1.44	$ 1.48	$ 1.52	$ 1.56	$ 1.60	$ 1.64	$ 1.68	$ 1.76	$ 1.88
Elementary Ticket (Unit Price)	$ 1.00	$ 1.00	$ 1.00	$ 1.05	$ 1.12	$ 1.16	$ 1.20	$ 1.24	$ 1.28	$ 1.32	$ 1.36	$ 1.40	$ 1.48	$ 1.60
Adult Monthly Pass	$ 51.00	$ 54.00	$ 57.00	$ 61.00	$ 65.00	$ 69.00	$ 73.00	$ 77.00	$ 81.00	$ 85.00	$ 90.00	$ 95.00	$ 100.00	$ 110.00
High School Monthly Pass	$ 36.00	$ 38.00	$ 40.50	$ 44.00	$ 47.00	$ 50.00	$ 54.00	$ 58.00	$ 62.00	$ 66.00	$ 71.00	$ 76.00	$ 81.00	$ 90.00
Seniors Monthly Pass	$ 51.00	$ 54.00	$ 57.00	$ 61.00	$ 65.00	$ 69.00	$ 73.00	$ 77.00	$ 81.00	$ 85.00	$ 90.00	$ 95.00	$ 100.00	$ 110.00
Seniors 3-Month Pass			$ 51.00	$ 54.00	$ 57.00	$ 60.00	$ 63.00	$ 66.00	$ 69.00	$ 72.00	$ 76.00	$ 80.00	$ 84.00	$ 90.00
Seniors 6-Month Pass			$ 97.00	$ 103.00	$ 109.00	$ 112.00	$ 118.00	$ 124.00	$ 130.00	$ 136.00	$ 140.00	$ 144.00	$ 148.00	$ 155.00
Seniors Annual Pass	$ 162.00	$ 173.00	$ 184.00	$ 195.00	$ 206.00	$ 216.00	$ 226.00	$ 236.00	$ 246.00	$ 256.00	$ 266.00	$ 366.00	$ 376.00	$ 384.00
Post Secondary Semester Pass	$ 168.00	$ 178.00	$ 188.00	$ 199.00	$ 210.00	$ 220.00	$ 230.00	$ 240.00	$ 250.00	$ 260.00	$ 270.00	$ 280.00	$ 290.00	$ 305.00