

# York Region

## York Region Transit - Five-Year Service Plan (2006-2010)

---

### Executive Summary

---

## Table of Contents

---

1. Introduction	i
2. Service Standards and Planning Process	i
2.1 The York Region Family of Services	i
2.2 Performance Measures	ii
2.3 Service Standards	ii
2.4 Establishing New Transit Service	iv
2.5 Stops and Station Guidelines	iv
3. Planning Process and Consultation	v
3.1 A Consistent Performance Standard	vi
3.2 Consultation Plan	vi
4. Existing Service Review	vii
4.1 YRT-TTC Route Operation Criteria	vii
5. Service Strategies	vii
5.1 New and Revised Strategies	viii
6. Five-Year Plan	x
6.1 Service Development Timeframes	x
6.2 Short-Term (1-2 Years)	xi
6.3 Medium-Term (3-5 Years)	xi
6.4 Resource Requirements	xiv
6.5 Fare Technology Issues	xv
6.6 Fare Structure Issues	xv
6.7 Fleet and System Accessibility	xvi
6.8 Technology Options	xvii

# York Region

## York Region Transit - Five-Year Service Plan (2006-2010)

---

### Executive Summary

---

---

#### 1. Introduction

---

Following the amalgamation of transit services in York Region in 2001, YRT has shown dramatic increases in route coverage, service levels, span of service and, most important, ridership. Residents of York Region have responded to the rapid growth and expansion of the system by increased transit use for their work, school and leisure travel.

Since amalgamation in 2001, ridership has grown from approximately 7.5 million passengers to 17.5 million projected for 2006. This ridership growth is unmatched any where in the country. The introduction of Viva services in the Yonge and Highway 7 corridors and connections to Don Mills and Downsview subway stations is just the latest and most dramatic example of service initiatives. As YRT moves into its second five years of operation, this Five-Year Plan is an opportunity to assess the current system and plot a strategic course for the next five years. This period from 2006 to 2010 will be a period where YRT services begin to mature, where growth in transit service catches up with rapid population growth, where services continue to expand in response to growth, and innovative service concepts and technology applications continue to develop, and York Region residents come to see their YRT transit service as a vital element of the transportation network in the Region.

This Five-Year Plan responds to the challenges of the next five years by refining the service standards into more effective planning tools, developing a comprehensive communication plan that ensures effective input from stakeholders, that outlines service initiatives and growth requirements, and explores new ways YRT can continue its innovative development with flexible services, smaller buses, express services, and community shuttles, all supporting and complementing an extensive network of Base Grid services, local routes, and Viva corridors.

---

#### 2. Service Standards and Planning Process

---

---

##### 2.1 The York Region Family of Services

---

York Region currently provides six different service types as part of its transit services. Each service type addresses ridership demands with a unique type of service delivery model, tailored to specific demographic, geographic, and customer needs. YRT also provides specialized door-to-door services for individuals in York Region with mobility related disabilities. The family of service includes:

- Viva: York Region's new bus rapid transit (BRT) system, operating in the Highway 7 and Yonge Street corridors and providing connections to Don Mills and Downsview subway stations;

- Base Grid Routes: certain routes and services (primarily on main arterial roads) designated to ensure a basic level of access throughout the service area;
- Local Routes: provide the basic structure of the YRT system throughout the service area, serving as a feeder or neighbourhood circulator in the transit system;
- Express Routes: comprising either overlay or point express that carry significant numbers of passengers between two distinct points, such as the subway and a major employer, and do not depend on activity along the route for their passengers;
- Shuttles: providing local service to GO Train stations, Viva stations and other major destinations;
- Community Bus Routes: fully accessible transit services typically designed for seniors and people with disabilities who can use fully accessible conventional transit.

---

## 2.2 Performance Measures

---

Performance of the YRT system is measured differently for system-wide performance and the performance of individual routes. At the system-wide level, the ridership per capita, cost-recovery ratio, and revenue-hours per capita are the three key indicators. The three measures must be considered together, not individually, with the goal to strike a balance between them, since improvements in one measure can often come at the expense of performance of the other.

The performance of individual routes is assessed on the basis of passenger boardings per revenue vehicle-hour (i.e. the total number of fare paying passengers, plus transfers, divided by the total number of revenue vehicle-hours in service). Table E - 1 shows the key performance indicators to be assessed as part of a continuous quality improvement framework.

---

Table E - 1  
Performance Standards

<i>Indicator</i>	<i>Guideline</i>
Service Effectiveness	To maximize the transportation, environmental and mobility benefits of transit, YRT will strive to achieve a per capita target of 15 revenue passengers per capita.
Economic Performance	To balance customer service, community benefits and affordability to both users and non-users, YRT will strive to achieve an overall cost-recovery ratio from fares in the range of 40 to 45 percent during continued expansion phases of Viva and other service
Amount of Service	To ensure effective services with a growing population, YRT will achieve and maintain a level of 1.0 hours of service per capita (currently 0.80).
Service Design	Individual routes are assessed on the basis of passenger boardings per revenue vehicle-hour (details in next section).

---

## 2.3 Service Standards

---

YRT Service Standards dealing with route coverage, service levels (frequencies and span of service), vehicle loading and route performance will be used for evaluating transit routes and will be the basis for making decisions about introducing new services. These are summarized in Table E - 2.

Table E - 2  
Service Standards Summary

	Viva	Base	Local	Point Express	Overlay Express	Shuttle	Community Bus (base)	Community Bus (other)
Distance to Stop								
<ul style="list-style-type: none"> <li>Monday-Saturday Daytime</li> <li>All other periods</li> </ul>								
Service Frequencies								
<ul style="list-style-type: none"> <li>Weekday peak</li> <li>Weekday off-peak</li> <li>Saturday</li> <li>Sunday/Holiday</li> </ul>	15	20	30	N/A	N/A	N/A	60	60
	15	30	60	N/A	N/A	N/A	120	120
	15	30	60	N/A	N/A	N/A	120	120
	15	60	60	N/A	N/A	N/A	120	120
Performance Targets (Boardings per Hour)								
<ul style="list-style-type: none"> <li>Weekday Peak (avg/minimum)</li> <li>Other Times (avg/minimum)</li> </ul>	N/A	N/A	30/10	35/30	30/10	25/20	15/5	10/5
	N/A	N/A	22/7	35/30	30/10	25/20	12/4	8/3
Passenger Capacity (average over 60 minute period)	72 (60' veh) 48 (40' veh)	55 (40' veh) 48 (35' veh) 40 (30' veh)		100% of seating capacity	100% of seating capacity	100% of seating capacity	100% of seating capacity	100% of seating capacity
Route Directness	1.0 to 1.1	1.0 to 1.1	1.0 to 1.2	1.0	1.0	1.25 to 1.75	Up to 2.5	

---

## 2.4 Establishing New Transit Service

---

### 2.4.1 Determining Whether Service is Warranted

Service warrants (i.e., whether a route should be provided or not) for **Local Routes**, **Express Routes** and **GO Shuttles** are determined by performance levels. Designating a route as Base Service will depend on the network coverage, and whether or not new designation is required to maintain the standard.

The introduction of a **School Special** is similar to that of a Shuttle. It depends on whether or not the school is or can be easily served by a regular service within the route network and the limits of the *Route Directness* guidelines for those routes.

Population targets for considering **Community Bus** services within small urban communities such as King City and Mount Albert are included as guidelines since a service in any community should be operated if it meets *Route Performance* standards. However, the designation of 15,000 population is an appropriate guideline for considering service, and should be used to identify communities where these standards will apply.

### 2.4.2 Service Expansion into New Areas

Services introduced in new areas not previously served should be guaranteed for a minimum 12 months of operation to ensure enough time for travel patterns to adjust and for recording of 4-season ridership patterns. At the end of the 12 months, the service must meet the minimum *Route Performance* thresholds required for its type of service.

Within this trial period, interim targets are set to ensure that a service that is clearly not capable of meeting the ultimate targets is identified as early as possible. Monitoring at 3, 6 and 9 months is completed to ensure that the new service is moving towards the appropriate standard. Targets for these interim periods are set at 25 percent, 50 percent and 75 percent of the ultimate target, respectively. If the performance at the end of each period has not reached at least 75 percent of the target value, the route should be re-examined to identify potential changes to improve its performance. If the same standard is not met in the next period, the changes should be recommended.

### 2.4.3 Service in New Operating Periods

Routes that introduce service in new operating periods where routes already exist, or modify the existing route are subject to similar evaluation, but over a shorter 6-month period. If the service change is substantial, staff may recommend a longer trial period at the service introduction stage. Interim targets are established at 2 months and 4 months, with target levels of 33 percent and 66 percent of the ultimate target.

---

## 2.5 Stops and Station Guidelines

---

Bus stops should be placed at most intersections, passenger generators and transfer points subject to minimum spacing criteria. The spacing of stops should not normally be less than 250 metres in developed areas and 500 metres in undeveloped areas (specific major trip generators may require variances in stop spacing).

Development around the major stops should be encouraged at greater density and follow transit supportive design principles – closer to the street, favour pedestrian connections, and customer friendly uses in commercial areas such as coffee shops, or passenger amenities.

Priority factors in selecting bus stops as candidates for shelters include:

- ~ all terminals and transfer points;
- ~ high boarding locations (more than 35 passengers in peak periods);
- ~ unique exposure to inclement weather; and
- ~ proximity to senior residences and other institutional facilities.

Stops and the area around them should be made accessible to people with disabilities, including wheelchairs and other mobility aids. The long-term objective of YRT is to accommodate accessible features at all of its stops.

### 2.5.1 Locating Vivastations

Because of their cost and relative permanence, vivastations should be located with careful consideration of a number of factors.

It is therefore recommended that an additional vivastation on an existing Viva route should only be considered if:

- It is located at least 750 metres from the nearest adjacent vivastation on any Viva route serving the proposed station; and
- It will not reduce the average route-wide distance between vivastations on any route it serves to less than 1,000 metres.

A new vivastation on an existing route should only be considered if it is expected to add net boardings of at least 300 per weekday (not including shifts from adjacent vivastations).

New vivastations on extensions or revisions to the Viva system should be located with a view to maximizing potential ridership. They should also be located at least 750 metres apart and should not have an average spacing of less than 1,000 metres over the entire extension or revised section length.

---

## 3. Planning Process and Consultation

---

To assist YRT staff in meeting the objective of a fair and balanced appraisal of service requirements, based on sound technical analysis and effective consultation, a service review process has been developed, comprising a series of reviews and assessments of requests from a variety of sources. This process will provide staff with a consistent, objective framework to assess requests for new or revised services.

The framework has six critical elements:

- ~ service standards to assess new and existing services;
- ~ a series of three on-going route assessments comprising:
  - ~ regular route assessments as part of an on-going monitoring process;
  - ~ periodic service reviews to monitor the on-going performance of the system or respond to minor requests; and
  - ~ annual service reviews to assess major requests for new or revised services;
- ~ the data collection program required to support the review process; and
- ~ a comprehensive consultation process.

Additional details of the planning process are included in the Planning Process and Communication Plan Background Paper.

---

### 3.1 A Consistent Performance Standard

---

The boardings per revenue vehicle-hour measure gives a standard measurement against which to assess new services and provides the basis for the assessment approach used in the short-term analysis to identify routes for remedial action. Existing routes that perform higher than the system average contribute to raising that average and should be maintained. New proposals with estimated performance (based on ridership projections) in this range can be recommended, subject to approval. Routes that have performance lower than the system average – the ‘below average’ routes are easily flagged and subjected to detailed assessment to determine if there are remedial measures which can improve the performance of the route. The third level of routes is the small group of routes with boardings per hour less than one-third the system average. These routes have a negative influence on the average system performance and should be examined quickly to identify a major change that will improve performance. If such a change cannot be identified, or attempted solutions have proven unsuccessful, it may be recommended that the route be scaled back or discontinued.

Each route type should be examined separately, within its own set of performance thresholds, as described in the Service Standards Background Paper.

---

### 3.2 Consultation Plan

---

Regular and ongoing communications with the general public, key community groups and agencies, individual businesses and business groups, school boards, area municipalities, elected representatives and customers is vital both to hear about issues and areas of concern from them and to provide valuable information and education for them. Conducting open and regular communication in a proactive fashion will create a level of trust and reliability that will help to reduce any controversial aspects of service delivery.

A defined consultation plan with timeframes, topics, locations and issues identified will enable YRT staff to focus on obtaining the broadest cross-section of public input in both an efficient and productive manner. Individual requests for meetings and consultation could then be referred to one or another of the various components of the plan, if possible. This would help to optimize the time currently being spent on reactive responses to individual requests for public consultation and participation.

At each point of consultation and communication, it is important to present (with various degrees of emphasis depending on the group) the objectives of YRT, benefits of YRT to the broader community, and the objectives of the specific encounter.

Meetings should be designed for:

- ~ Area Municipalities;
- ~ areas experiencing change;
- ~ external stakeholders;
- ~ Neighbouring Municipalities and Transit Providers; and
- ~ general public consultation.

The Planning Process and Communication Plan Background Paper provides additional detail on the recommended organization and timing of these meetings.

---

## 4. Existing Service Review

---

This assessment of existing routes and short-term changes and adjustments was based on 2004 operational data and 2005 February and May monthly ridership report provided by YRT, the on/off passenger count conducted by YRT (2004 and 2005) and TTC (2003 and 2004), as well as the origin-destination survey conducted by ENTRA Consultants in May and June of 2005. The purpose of this review was to identify strengths and weaknesses in the existing system, and identify potential for short-term changes and adjustments that can improve the effectiveness and efficiency of the existing system. Details of the performance evaluation and route-by-route assessment are included in the Existing Service Review Background Paper.

The Viva program implemented in September 2005 will have a significant impact on YRT routes intersecting with Viva routes, as well as the underlying routes in the same corridors. The impact of the Viva program could not be evaluated in this study, given the early stage of Viva service development.

A travel pattern analysis was conducted using 2001 TTS and total travel matrices generated by the Regional travel forecasting model to identify the existing and future travel pattern in the Region and adjacent municipalities. The detailed analysis is described in the Existing Service Review Background Paper.

---

### 4.1 YRT-TTC Route Operation Criteria

---

Currently, TTC operates most cross-boundary routes on major south-north corridor roads with an exception of YRT and Viva routes to Finch Subway and York University. The following criteria have been established for decisions on operating cross-boundary routes (excluding Viva):

The criteria used are summarized in Table E - 3. If two of the first 4 criteria favour YRT, consideration should be given to YRT-operation, subject to consideration of capital and operating cost and vehicle availability. Cost savings should not be the single factor.

---

Table E - 3  
Criteria on Operating Cross-boundary Routes (excluding Viva)

<i>Criteria</i>	<i>YRT Route</i>	<i>TTC Route</i>
Proportion of customers crossing Steeles	< 50 %	>= 50%
Availability of logical YRT replacement	Yes	No
Ability to avoid extra fare for proportion of customers crossing Steeles Avenue	>= 50%	< 50%
Need for operational/schedule control	Yes	No
Cost Efficiency and Resource Availability	Cost/Benefit Analysis	

---

---

## 5. Service Strategies

---

The YRT Service Standards outline the various types of services offered by YRT and the service levels and design characteristics for each. The preliminary service strategies draw on these service types, plus some additional service and fare options, to describe the expansion of services in the future. This section outlines the various strategies that can be applied and examines potential timeframes for service development throughout the Region.

---

## 5.1 New and Revised Strategies

---

These new and revised strategies build on the existing service strategies, with changes appropriate for a maturing system. In this section, we present the various strategies on the basis of the geographical areas or connection types, since these are beginning to differentiate themselves in the diverse network of YRT services.

### 5.1.1 Urban Area Strategies

Strategies for the larger urban areas, Newmarket, Aurora, Richmond Hill, Vaughan and Markham, comprise elements of the full range of YRT services, including:

- Viva
  - service frequency and span of service changes in response to ongoing monitoring;
  - utilizing TTC BRT facility between York University and Downsview Station;
  - integrating services with Brampton AcceleRide (2007);
  - service extensions from Newmarket terminus;
  - integrating with Durham Region Transit (2010+).
- Base Grid and Local Routes
  - revise service levels and operating periods to be consistent with Base Grid designation;
  - continue to expand the Base Grid and Local route network to serve new development areas; and
  - review effectiveness of connections to Viva Services.
- Express Routes
  - must consider Viva services in or near the Viva corridors
  - Point Express designed to:
    - complement Viva services; and
    - serve point-to-point demand.
  - Overlay Express designed to:
    - serve non-Viva corridors;
    - support Viva service; and
    - help identify potential for future Viva service.
- Shuttles
  - serving GO stations, Viva stations and major employment sites;
  - short and direct routes;
  - scheduled specifically to transit connections or employee shift times.
- Community Bus – Fixed Route
  - introduce new service, or improve the effectiveness of poor-performing fixed routes;
  - introduce services into new subdivisions, using a small accessible bus, in advance of the road network availability and demand levels to justify the mature fixed route;
  - Example: Newmarket and Markham connector conversion.

- Community Bus – Demand Response
  - operate as a zone bus (fixed schedule, dynamic route), or traditional dial-a-bus (flexible schedule and route);
  - can be used in low demand areas, or low-demand operating periods (pilot recommended).

### 5.1.2 Smaller Urban Communities

- Base Grid Services
  - designated once the community has reached a threshold to warrant service, based on population;
  - may include local fixed routes or shuttles, community bus or combined with specialized services.
- Local Routes
  - defined for service *within* the smaller urban communities;
  - not expected to be common in many of the smaller urban communities until a population threshold of approximately 15,000 is achieved.
- Community Bus
  - similar to larger urban areas, but expected to be more permanent;
  - local service in Stouffville, with connections to Markham;
  - additional or replacement services in Sharon, Holland Landing or Keswick; and
  - new local services in Mount Albert, Sutton, Pefferlaw, Nobleton, or Schomberg.
- Shuttles
  - similar to larger urban areas, but expected to be more permanent and without Viva connections;
  - GO train shuttle in Holland Landing, Sharon, Stouffville or Mount Albert; and
  - local shuttles in Sutton, Pefferlaw, Nobleton, Mount Albert or Schomberg.

### 5.1.3 Smaller Urban Community to Urban Anchor Connectors

These connector services meet demand for connections from smaller urban areas to major urban areas, usually oriented towards anchor points for access to the remainder of the system. Anchor points should be a transit hub, including GO Stations or Vivastations.

- Express
  - direct service from a transit hub in a smaller community to a transit anchor point in larger centre;
  - only operate in periods warranted by demand, unless designated as a Base Grid Service;
  - E.g. Stouffville to Markham, or Sutton to Keswick to Newmarket.
- GO Fare Strategy
 

GO Transit has indicated a willingness to discuss fare agreements to allow spare capacity on selected routes to be used for local regional transit. In this scenario, passengers would pay a regular transit fare and YRT would be invoiced for the balance between the regular GO fare and the fare collected. GO fare strategies might be applied for service between:

- Markham and Stouffville;
- Nobleton, Schomberg and Kleinburg; or
- Sutton and Keswick to Newmarket.

#### 5.1.4 Inter-Regional Services

- Potential Express Routes
  - points in Durham Region to east Markham;
  - from UOIT (Durham College) to Viva and GO;
  - from the Taunton and Dundas corridors to Markham-Stouffville Hospital, Viva and GO Transit;
  - from Brampton to Viva (pre-Acceleride); and
  - from York Region to 407 GO connection to Pearson Airport.
- Potential GO Fare Strategy Applications
  - Sutton and Beaverton (in conjunction with Durham Regional Transit);
  - Stouffville and Uxbridge (in conjunction with Durham Regional Transit);
  - Nobleton and Bolton (Peel Region); and
  - Bradford-West Gwillimbury and Newmarket/Yonge Street (Simcoe County).
- Viva Services and Integration

Brampton Transit is embarking on the next phase of its Acceleride implementation, and from a customer perspective, it will be crucial to ensure the integration of these services.

YRT should also plan for inter-regional services providing access to GO and Viva stations within the Region, as well as connections to the Viva service, from both Brampton and Peel Region in the west and Durham Region in the east.

---

## 6. Five-Year Plan

---

### 6.1 Service Development Timeframes

---

The Five-Year Transit Service Plan examines the period for 2006 through 2010, and for the purpose of this strategy development has been divided into short-term, comprising 2006-2007 and the medium-term comprising 2007 through 2010. As part of this development, we have also considered the outlook for beyond 2010 to 2015, in terms of identifying potential development areas that may affect the need for transit service in the period beyond 5 years.

#### 6.1.1 Short-term Strategies

Specific route and service recommendations for 2006-2007 have been developed based on the deferred recommendations from the 2005 Annual Service Plan prepared by YRT, and additional changes recommended as a result of the service assessment completed in this study. In the short-term timeframe (2007-2008), route and service changes will need to respond to the continuing evolution of current developments and introduce new service in selected areas.

### 6.1.2 Medium-term Strategies

In the medium-term (3 to 5 years), demands will continue to grow from newly developing areas. Also during this timeframe, Viva services have the potential to expand, both in terms of service levels, as well as with route extensions, particularly in conjunction with *AcceleRide* development in Brampton to the west, and further development of the north-south service in or through Newmarket to the north.

The Five-Year plan for 2006 to 2010 includes a number of service initiatives. These have been identified separately for the Short-Term, covering a period of one to two years and Medium-Term, covering a period of three to five years.

The map in Figure 1 shows the recommended development of the Base Grid system by the end of the Five-Year plan. The steps required to achieve this network are described in the following sub-sections. Generally, as the system matures, YRT should plan to expand its system and service levels in line with population increases. Both new routes and additional vehicle-hours of service should be added at a minimum level equivalent to the population increase. In the short-term, higher levels of service increases may still be required to serve new areas and to support Viva service.

---

## 6.2 Short-Term (1-2 Years)

---

### 6.2.1 Route Modifications to Improve Service

In concert with on-going analysis by YRT staff, an extensive list of route and service improvements has been identified for the short-term to:

- ~ extend service to new areas;
- ~ complete the base grid expansion; and
- ~ improve service frequency and span of service to meet growth needs.

Table 8 in the main report shows a summary of these route and service changes for 2006/2007.

Table 9 in the main report shows the recommend services for 2008, including service expansions and base grid development. Table 10 in the main report shows recommended service expansions for 2009.

### 6.2.2 Route Modifications to Support Viva

With the implementation of Viva service, most routes have been reconfigured to enhance connections to the Viva network, and frequency changes have been implemented to support the service. As the Viva services mature over the course of the Five-Year Plan, YRT should closely monitor ridership levels and patterns, with consideration for tailoring Viva services more closely to demand.

---

## 6.3 Medium-Term (3-5 Years)

---

### 6.3.1 Base Grid Improvements

The Medium-Term step for the Base Grid includes expansion of the Grid to keep pace with new development areas. This includes route extensions and expansion of service on the existing grid with improved service frequencies and new operating periods.

### 6.3.2 Integration with Brampton Rapid Transit Initiatives

Brampton Transit is planning the implementation of an initial BRT service (*AcceleRide*) in the Queen Street/Highway 7 corridor, beginning in 2008. This service will allow further integration of YRT and Brampton Transit services in this corridor, and may require rationalization of service for Route 77 – Highway 7-Centre

Street. YRT staff should monitor the BRT developments in Brampton closely, and seek regular updates from Brampton Transit staff.

### 6.3.3 Potential Integration with Expanding Durham Services

Durham Region Transit (DRT) began regional service in Durham on January 1, 2006. The initial five-year development plan for DRT includes connections from Durham to the Highway 7 corridor in York Region and the Steeles corridor (to TTC) in 2009 or 2010. In the development of the transit terminal in east Markham, YRT staff will consider the needs of DRT to access the terminal and coordinate with both Viva and local services in the Highway 7 corridor.

---

Figure 1

Base Grid

---

### 6.3.4 Integration with GO Transit Services

GO Transit has demonstrated its willingness to cooperate with DRT and enter into fare agreements to permit regional travel at transit fares where GO Transit services operate. In these arrangements, where GO Transit has spare capacity in existing routes, regional transit passengers are able to board GO Transit services with payment of a regional transit fare or presentation of valid fare media. GO Transit records the transaction and bills the transit operator for the difference between the transit fare paid and the normal GO Transit fare.

In low demand areas, this can be a very effective way of introducing transit service, particularly where the chief demand is for connecting service similar to the commuter service that GO Transit provides. In the DRT example, high frequency service will be provided in this manner in the Highway 2 corridor, with the net DRT cost estimated at approximately 40 percent of the estimated net cost from operating similar levels of service internally.

## 6.4 Resource Requirements

Table E - 4 shows the summary of operating costs for the recommended changes. The table also shows the resource requirements in terms of vehicle requirements and revenue-vehicle hours.

**Table E - 4**

### Operational Summary

	2006	2007	2008	2009	2010
Additional System Annualized Revenue Hours	181,730	115,470	86,400	75,600	61,800
Viva	192,700	13,800	16,400	20,600	16,800
YRT	(10,970)	101,670	70,000	55,000	45,000
New Vehicles	10	24	18	17	15
Viva	5	7	5	7	6
YRT	5	17	13	10	9
Total System Annual Revenue Ridership (,000)	17,500	20,090	22,450	24,630	26,850
Viva (,000)	4,960	6,330	7,610	8,670	9,860
YRT (,000)	12,540	13,760	14,840	15,960	16,990
Revenues (\$,000)	\$40,971	\$47,041	\$55,195	\$63,582	\$69,313
Total Costs(\$,000)	\$104,081	\$121,231	\$136,102	\$150,586	\$164,232
R/C Ratio	39%	39%	41%	42%	42%

Full explanatory notes to Table E - 4 are included in the main report, as Table 12.

---

## 6.5 Fare Technology Issues

---

York Region and YRT are participating in the planning and development of a GTA Smart Farecard system, designed to integrate fare payment and settlement throughout the GTA, with pilot implementation expected in late-2007. YRT is expected to implement the GTA Smart Farecard system near the end of 2009.

For the first three to four years of the five-year Service Plan, YRT will operate using its current fare payment technology without the complication of needing to coordinate with a fare integration partner operating the GTA Smart Farecard system. In the final year of the five-year Service Plan, YRT will operate with the new GTA Smart Farecard system technology and will need to coordinate with GO Transit (expected to have implemented the system) and both Brampton Transit and TTC that are expected not to have implemented it.

All aspects of YRT's current fare structure will be enabled technically and commercially by the GTA Smart Farecard system. When the GTA Smart Farecard system is launched at YRT, various system adaptations will be required including:

- ~ retrofitting existing YRT fareboxes to register a default adult fare for every cash drop (This may require some technology retrofits for any remaining different farebox technologies, including manual fareboxes on the mobility and some community buses);
- ~ de-rating the MultiRide vending machines to vend only single-journey tickets;
- ~ altering OneRide vending machines to have on-line communications; and
- ~ enabling OneRide and MultiRide vending machines with a smart card reader and antenna to reload value onto GTA smart cards.

---

## 6.6 Fare Structure Issues

---

### INTER-REGIONAL FARE STRUCTURE INTEGRATION

During the first four years of the current service plan, YRT's current fare integration strategies with its partners GO Transit, Brampton Transit and TTC will still be applicable. It is recommended that York Region avoid any new fare integration strategies that require additional capital investment that will not be re-usable under the GTA Smart Farecard system.

During the fifth year of the service plan, according to the planned schedule, fare payment for trips involving different operators will vary according to the level of integration and progress on implementation of the GTA Farecard:

- ~ GO Transit and YRT will be accomplished according to the GTA Smart Farecard transfer protocols;
- ~ For YRT and either Brampton Transit or TTC trips, cash paying passengers will receive a paper transfer or a single journey ticket from the OneRide machine that must be presented to the second bus driver;
- ~ YRT passengers with GTA Farecards will be required to obtain a paper transfer to be presented to the Brampton Transit or TTC bus driver;
- ~ Brampton Transit and TTC will not be able to accept YRT smart card passes for initial travel on their systems; and
- ~ the current requirement to pay a separate TTC fare when crossing the Toronto boundary will still apply.

## IMPLICATIONS FOR RIDERSHIP AND REVENUE

### Consideration of Potential Fare Structures and Impact on Ridership and Revenue

Implementation of the GTA farecard will give YRT a variety of fare structure options that may be used to promote transit ridership among specific markets:

- ~ time-of-day pricing – considering off-peak discounts to build ridership during slow periods;
- ~ implementation of loyalty program tied to increased use of the smart card for fare purchases;
- ~ establish a discounted large employer pass program similar to a U-Pass program;
- ~ increase penetration of secondary student pass program; and
- ~ special fares for special events.

### Options for Fare Structure Changes and Consideration of Impacts

YRT should consider the following medium term fare structure changes:

- ~ increasing flat cash fares significantly to provide a definitive financial incentive for passengers to pre-pay for their transit fares.
- ~ introducing an east-west fare zone similar to the existing north-south structure. Fare zone boundaries could be considered at Highway 400 and Highway 404, when travel across *both* zone boundaries would require a fare surcharge.
- ~ increasing pre-paid ticket and pass fare by small increments each year, tied to investments and cost.
- ~ establish a modified U-Pass program for post-secondary students offering a steeply discounted fare structure for 100 percent of the student body
- ~ establishing an H-Pass program for secondary students in York Region offering a steeply discounted fare structure for 100 percent of the student body under conditions similar to the U-Pass.

---

## 6.7 Fleet and System Accessibility

---

The objectives of this component of the review were to:

- ~ develop criteria to identify accessible routes;
- ~ review the existing fleet and network and identify potential short-term accessible routes;
- ~ identify where future vehicles should be assigned to make routes accessible; and
- ~ review facilities and provide guidelines for accessible routes.

Ultimately, all routes in the system should be accessible. With a variety of equipment in the fleet, it may be necessary to prioritize routes to create a base network on which to build in the short-term, prior to full fleet accessibility anticipated by 2012.

The first defining criteria for identifying candidates for designated routes should be the identified Base Grid network. Secondary candidates for accessible service are those routes outside the Base Grid network that enjoy high ridership or that serve specific groups such as seniors residences and hospitals should be considered as primary candidates for an accessible route designation.

Designating a transit route as accessible need not require that all trips be accessible, though that would be the ultimate objective.

Generally, YRT should consider identifying routes as accessible where:

- ~ at least 50 percent of all bus trips are provided with accessible equipment; and
- ~ the resulting accessible vehicle headway conforms to the required minimum service standards level of service.

These policies should be identified clearly on any promotional or scheduling material prepared by York Region Transit.

#### SYSTEM ACCESS

Designating a route as accessible should also give the customer some assurance that they will be able to move comfortably between the bus and their origin and destination. Many of the barriers in this area are not entirely related to transit, but involve accessibility issues on Regional roads and municipal streets.

Within YRT's responsibility however, the ultimate goal should be to make all stops accessible. Current programs ensure that all new stops are accessible, and retrofit programs are being designed to address remedial needs. Until that time however, designating a route as accessible should depend on a majority of passengers being able to access the stop at both their origin and destination. Details of stop and shelter access requirements are included in the Accessibility Background Paper.

---

## 6.8 Technology Options

---

### 6.8.1 York Region Transit ITS Background

Currently, the main driver of ITS in York Region is the suite of Viva BRT technologies and systems. ITS deployments to date for YRT conventional fleet have involved small-scale pilot projects for Automatic Vehicle Location (AVL) and Transit Signal Priority (TSP).

#### VIVA ITS

The ITS vision for the Bus Rapid Transit (BRT) Quick Start transit service has been fully developed and is currently being deployed, involving an integrated system of ITS technologies. Full deployment and acceptance of the system is anticipated for January 2006 after the full Viva system is in operation.

The Viva system will incorporate a multitude of ITS features for intelligent tracking, monitoring, and management of vehicles and service as part of a direction to provide a state-of-the-art transit system within the Region of York. These features are based on an infrastructure of technology and services not currently utilized by YRT.

As part of the Viva Rapid Transit project, the following ITS technologies have been deployed and integrated in to the overall system operation:

- ~ Computer Aided Dispatch (CAD)
- ~ Automatic Vehicle Location (AVL)
- ~ Passenger Information systems at stops using variable message signs (VMS)
- ~ Transit Signal Priority (TSP) – conditional TSP based on schedule adherence
- ~ Automatic Passenger Counters (APC)

- ~ Wireless communication from dispatch to vehicles through GSM/GPRS and WLAN.
- ~ Automatic Fare Collection systems and Revenue Management Systems (RMS) for the Viva off board fare payment system.
- ~ Passenger Information systems including Web and IVR
- ~ Scheduling software systems

#### YRT TRANSPORT CANADA ITS DEPLOYMENT PROJECT

YRT fleet operations have been moving along a different path for the deployment of its ITS systems; limited systems to date have only been deployed on pilot and demonstration basis, and do not operate as an integrated unit. YRT has a vision for future upgrades and enhancements to their fleet operations including features similar to those used for the BRT system. These enhancements will provide benefits such as an increased quality of service, improved tracking and dispatching, and a consistent level of functionality across BRT and YRT conventional fleets, and possibly YRT's specialized transit fleet (Mobility Plus).

- ~ Preliminary discussions for ITS deployments on the YRT conventional fleet include Computer Aided Dispatch and Automatic Vehicle Location (CAD/AVL) systems and TSP deployments on selected YRT routes. These directions will be rationalized and confirmed through the project undertaken. The goal of integration between the ITS deployments would allow more intelligent operations, management, and customer service.