



OFFICE OF THE  
**Auditor General**  
of British Columbia

**BC Transit: Managing  
Operator Productivity**

**BC Transit: Its Success  
as a Market-focused  
Organization**

**Performance Audits**

### Canadian Cataloguing in Publication Data

British Columbia. Office of the Auditor General.

BC Transit : managing operator productivity;  
BC Transit : its success as a market-focused organization.  
(Report year ends Mar. 31.)

“Performance audits.”

ISBN 0-7726-3243-X

1. B.C. Transit – Evaluation. 2. Local transit – British Columbia –  
Personnel management – Evaluation. 4. Bus drivers – British  
Columbia – Planning. II. Title: BC Transit, managing operator  
productivity. III. Series: British Columbia. Office of the Auditor  
General. Report ; 1996/97: 9.

HE4508.B7B74 1997

388.4'09711

C96-960125-8



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# auditor general's comments



As British Columbia becomes more urbanized, the role of public transit becomes more important. If our cities are to remain livable and attractive, we need to ensure that transportation and environmental issues in urban areas are addressed. Traffic congestion and air pollution are increasing, particularly in the greater Vancouver region. A successful transit system is an essential element in dealing with these issues.

In order to be successful, a transit system has to be efficient, and has to provide services which attract key potential customers, such as automobile commuters. This report looks at how BC Transit is doing in these two critical areas. The first audit deals with how well BC Transit manages an important element of efficiency—the productivity of its bus operators. The second deals with how well BC Transit has succeeded at attracting customers by becoming market-focused.

We found that while BC Transit compares well in many areas of performance with other transit systems in North America, significant problems exist which need urgent attention. The current management team in BC Transit have inherited problems that have a long history. BC Transit has not done well over the years in its management of bus operators. Key management processes are deficient, and absenteeism has become a chronic problem, especially in Vancouver. Nor has BC Transit met its goal of providing market-focused services; the voice of the customer is only faintly heard in many parts of the organization. However, we also found that Transit management is aware of these problems, and has begun the arduous task of tackling them.

Solutions to some of these problems require consensus between transit management and its senior stakeholders. This may not be easy. The governance of BC Transit is more complex than for other Crown corporations, or indeed for other transit systems. BC Transit management receives policy direction not only from the provincial government and the Board of Directors, but also from the

Regional Transit Commissions. I understand that these arrangements are under review. Meanwhile, there is a need to ensure that stakeholders' expectations of management are consistent, and that all stakeholders provide support for the actions that BC Transit needs to take.

Transit management will need committed support from the government and the regional transit commissions if real change is to happen. I believe the problems outlined in these audit reports are serious enough to warrant that support.

*George L. Morfitt, FCA  
Auditor General*

*Victoria, British Columbia  
June 1997*



# introduction

# introduction

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## BC Transit is a Complex Organization, with a Complicated Governance Structure

British Columbia Transit (BC Transit) is a provincial Crown corporation, responsible for planning, marketing, and operating three different transit systems:

- Vancouver Regional Transit System, serving the Lower Mainland as far east as Langley and Maple Ridge. The Vancouver region accounts for 86% of BC Transit's total expenditures.
- Victoria Regional Transit System, serving Greater Victoria from Sooke to Swartz Bay. The Victoria region accounts for 7% of total Transit expenditures.
- Municipal systems, serving 42 smaller communities in the Province, which together account for 7% of Transit's total expenditures. These services are managed by BC Transit in cooperation with local communities.

BC Transit is governed by a board of directors appointed by the provincial government. The board sets policy and annual budgets. There are also two regional transit commissions, one for Greater Vancouver and one for Greater Victoria, which set fares and service levels, and make recommendations to the board regarding operating and capital budgets. The municipal systems are under the authority of the Municipal Systems Committee of the board.

This structure is unusual: most North American transit systems report directly to either municipal or regional governments. BC Transit's structure creates some anomalies. For example, the commissions set fare levels and receive fare revenues but do not have direct responsibility for costs. On the other hand, service levels set by the commissions must accommodate the budget established by the board. This calls for a high degree of communication and cooperation between these bodies if Transit's management is to receive clear and consistent policy direction.

## BC Transit Delivers Services to its Customers Through a Variety of Operating Arrangements

Vancouver bus, trolley bus, and SeaBus operations are run by BC Transit itself, as are Victoria bus operations. SkyTrain is operated by the British Columbia Rapid Transit Co. Ltd. under contract, while commuter rail service is provided by West Coast Express Ltd. under contract. Both these operating companies belong to the provincial government. The West Vancouver “Blue Bus” system is operated under contract by the West Vancouver Municipal Transportation Department. Custom transit services (“handyDART”) are operated by a number of different companies and non-profit agencies, under contract to BC Transit.

### Exhibit 1.1

#### Operating Arrangements in BC Transit

Service	Operator	Service & Fare Levels Set
<b>Vancouver Region</b>		
Bus and trolley bus	BC Transit	Vancouver Regional Transit Commission
SeaBus	BC Transit	Vancouver Regional Transit Commission
SkyTrain	BC Rapid Transit Company Ltd.	Vancouver Regional Transit Commission
West Coast Express	West Coast Express Ltd., which in turn contracts to private sector companies	Transit Board of Directors (fare levels set by provincial government)
West Vancouver Bus	West Vancouver Municipal Transportation Department	Vancouver Regional Transit Commission
Custom Transit (handyDART)	Contractors	Vancouver Regional Transit Commission
<b>Victoria Region</b>		
Bus	BC Transit	Victoria Regional Transit Commission
Custom Transit (handyDART)	Contractors	Victoria Regional Transit Commission

Source: BC Transit



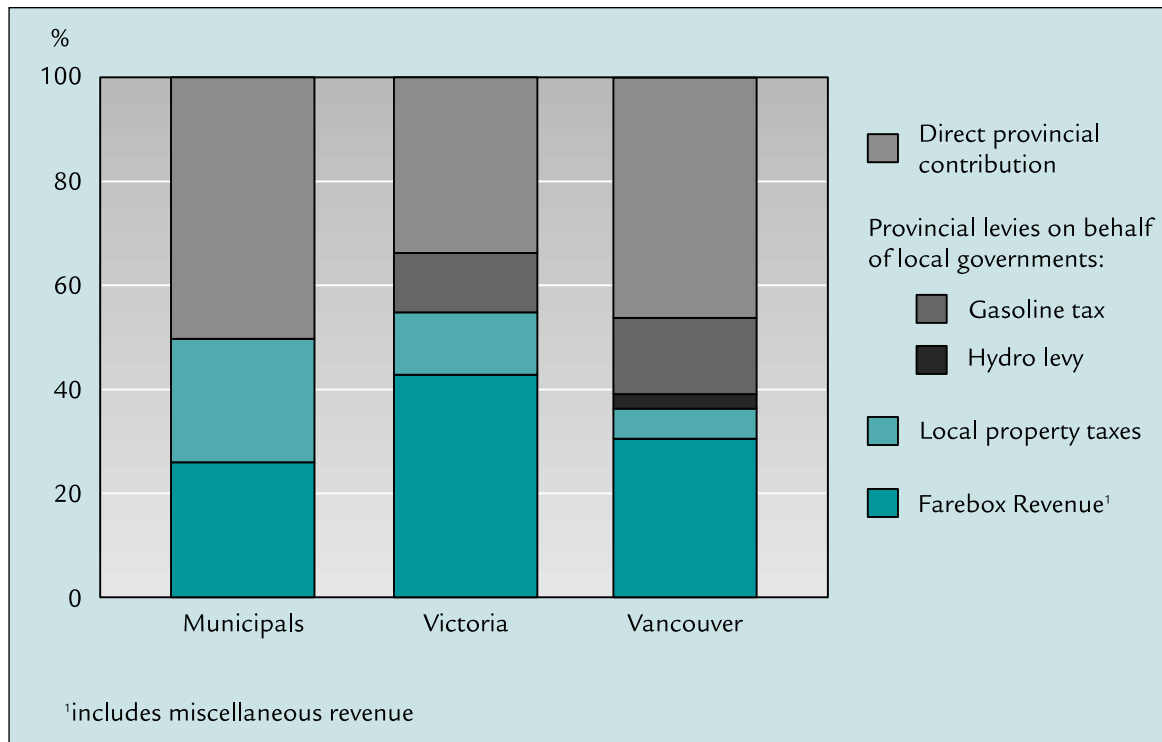
## The Cost of Operating BC Transit is Shared Between Customers and Taxpayers

Total expenditures for BC Transit in 1995/96 were \$585 million. The cost of operating BC Transit is shared between the regional transit commissions (or local municipalities, for municipal systems) and the Province. Sharing formulae vary. Vancouver’s SkyTrain rapid transit project, for example, has a separate formula for each of the three phases of its development, described below.

The Vancouver Regional Transit Commission meets its share of costs from fares, non-residential municipal property taxes, and two provincial levies whose revenues have been allocated to the commission—one on residential electric bills, and the other on gasoline. The Victoria Regional Transit Commission meets its share of costs from fares, residential property taxes, and the provincial levy on gasoline. In the municipal systems, local governments rely on fares and property taxes to cover their share of costs. Exhibit 1.2 shows the breakdown of these sources of funding.

### Exhibit 1.2

#### BC Transit Funding Sources, 1995/96



Source: BC Transit

Province-wide, riders pay directly about 30% of the cost of providing services; the remaining 70% comes from provincial and local governments.

## Vancouver Regional Transit System Serves the Lower Mainland

Vancouver region offers the following services:

- *Buses and Trolley buses*: a mix of standard, articulated and low-floor buses that operate throughout the Lower Mainland. Most are diesel-powered. However, the fleet includes trolley buses, electrically powered from overhead wires, as well as 25 buses fueled by compressed natural gas. Transit is also testing a bus powered by a hydrogen fuel cell.
- *SeaBus*: a passenger ferry service across Burrard Inlet, between downtown Vancouver and North Vancouver.
- *SkyTrain*: an automated rapid transit service that operates between downtown Vancouver and Surrey. The first phase of SkyTrain, from downtown to New Westminister, opened in late 1985. Phase II saw service extended across the Fraser River to Scott Road in Surrey; Phase III, completed in 1994, extended service to Surrey City Centre.
- *Custom transit (handyDART)*: a non-scheduled, door-to-door, lift-equipped transit service for individuals whose disabilities prevent them from using the conventional transit system.
- *West Coast Express*: a commuter rail service that operates between downtown Vancouver and Mission.

To supplement its vehicular services, Vancouver Transit also operates a Park-and-Ride service, and a Transportation Demand Management program:

- *Park and Ride*: a set of parking lots along the urban perimeter that makes it convenient for suburban customers to use their automobiles to access transit services. Park and Ride provides an economical alternative to high-cost feeder bus service in low-density suburbs.
- *Transportation Demand Management (TDM)*: a strategy to make better use of the existing road network and transit system by encouraging the use of transit and other alternatives to the automobile (such as the bicycle), and discouraging the use of single-occupancy vehicles. BC Transit works with other agencies such as the Ministry

of Transportation and Highways and the Greater Vancouver Regional District to develop TDM strategies. As part of this effort, Transit has developed a training program which assists employers in developing TDM strategies for their employees.

## Victoria Regional Transit System Serves the Capital Region

Victoria region offers local and express bus service using 178 diesel buses. It also offers handyDART, Park and Ride, and a Transportation Demand Management program.

## BC Transit is Well-regarded in the Transit Industry

In 1995 the Canadian Urban Transit Association gave Victoria its System of the Year award, and in 1996 the American Public Transit Association rated Vancouver as the best system in its size category in Canada and the United States.

## Public Transit is a Vital Service for a Developing British Columbia

One of the most important ways in which transit systems contribute to the quality of life in their communities is by reducing automobile use. Less automobile use means less traffic congestion, which in turn means the freer movement of goods, less noise and air pollution (and thus lower health costs), and less land needed for roadways and parking facilities (and thus less investment in this infrastructure). As Victoria region's *Five Year Service Plan 1996-2001* points out: "Air pollution, land consumption, and energy consumption are three of the environmental costs of transportation. In all categories, transit is more efficient than the auto-orientation typical of many North American communities."

BC Transit and the provincial and regional governments have agreed that one of Transit's major roles is reducing traffic congestion, especially in the Lower Mainland, by increasing Transit's share of the commuter market. To succeed, Transit must have the cooperation and support of government in developing transit-supportive land use and transportation policies. Of equal importance, Transit must make sure that it is both efficient and market-focused—the subjects of our two audits.



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# bc transit: managing operator productivity

*An audit of how efficiently BC Transit manages the available time of its bus operators*

One of the goals of BC Transit (Transit) is to excel in providing cost-efficient public transportation systems. Since the cost of the time of its bus operators accounts for about 32% of its total operating budget, Transit must manage this time well if it is to achieve that goal. This means seeking ways to minimize the cost of the time which it needs from its operators, while respecting the constraints imposed by the National Safety Code, the collective agreement with the operators, and other factors. It is a complex and challenging task.

## Audit Purpose and Scope

The purpose of the audit was to assess Transit's degree of success in maximizing the productivity of its bus operators and in measuring the results which it has achieved.

Our audit looked for answers to the following questions:

- How well does Transit use the time of its operators?
- Does Transit set expectations for operator efficiency and has it assigned responsibility for attaining them?
- Is Transit measuring the right things to determine if it is making progress towards its goals for operator efficiency?
- Does Transit schedule its operators' work efficiently?
- Is Transit managing attendance of the operators well?
- Is Transit managing daily dispatch operations well?
- Is Transit adequately prepared for collective bargaining?
- Does Transit appropriately inform its stakeholders about its efficiency in using the operators' time?

Our audit included bus operations in both the Vancouver and Victoria transit regions. We did not look at any of the processes for assigning operators for bus services delivered under contract, such as municipal operations and Handydart, nor did we include the operations of Skytrain or Seabus.

We focused on activities in the 1996 calendar year. Our examination was carried out in accordance with value-for-money auditing standards recommended by the Canadian

Institute of Chartered Accountants, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

## Overall Conclusion

The Vancouver region needs to improve the productivity of its bus operators. Overall productivity is not satisfactory and absenteeism in particular continues to be a problem. Vancouver region lacks goals for operator productivity and related performance areas, and does not yet have a proper information system to monitor and manage productivity. The scheduling function in Vancouver, which has a major impact on productivity, has been under-resourced, and only recently has begun to get the technology needed to help achieve productivity gains targeted in the long-term plans for the organization.

In the Victoria region, Transit has been comparatively successful in maintaining a consistent level of operator productivity. The scheduling function is well-organized and focused, and levels of absenteeism, although high in comparison with many other transit organizations, are significantly lower than those in the Vancouver region.

We also concluded that Transit needs to develop a stronger approach to collective bargaining, and to link its bargaining strategy to its long-term goals.

We recognize that most of these problems have evolved over many years, and that correcting them will take a high degree of commitment and cooperation from management, labor, and the governance of the organization. Solutions to many of these issues are neither easy to find, nor speedy to implement. Current management has made some progress in a number of areas, and we encourage the continuation of these efforts.

## Key Findings

### Productivity and work attendance should be improved

In the Vancouver region, key indicators of overall productivity and absenteeism show that Transit has not been successful in achieving satisfactory results in the efficient use of the time of its operators.

Covering for absenteeism resulting from sickness among operators costs Transit in excess of \$8 million in direct costs annually. If Vancouver was successful in reducing short-term absenteeism by 25%, bringing the average to 16.6 days a year, savings of nearly \$2 million a year in direct costs could result.

## Measurable efficiency objectives should be developed for the Vancouver region

The Vancouver region has set several long-term goals for overall productivity gains, and the region has selected some performance indicators with which to measure its success in attaining these goals. The corporation, however, has not established a strategy for achieving the goals, nor has it set clear expectations of performance relating to them.

The Victoria region has linked productivity goals with its short- and long-term service projections, has chosen appropriate performance measures and has assigned them, with expectations of performance, to operating managers.

## Scheduling in Vancouver requires better support

Scheduling has the potential to save (or lose) millions of dollars annually for Transit. It can also have a tremendous effect on the daily work life of operators and raise issues of safety and reasonableness of work expectations. Despite how critical scheduling is, Transit has not adequately supported the scheduling function of the Vancouver region in the past, nor has it properly evaluated scheduling performance. Vancouver schedulers have only recently adopted the state-of-the-art technology that is needed for a complex, modern transit system. Full support for the potential cost saving adjustments which schedulers identify has also been lacking.

In Victoria, on the other hand, scheduling has been well supported and schedulers have had the benefit of working with up-to-date technology for a number of years. The result is that scheduling has significantly contributed to efficiency of the region's operations.

## Better information systems are urgently needed for daily operations

Transit center managers do not have the basic information they need to help them use the bus operators' time in the most cost-efficient way, and their performance in this regard is not regularly evaluated. However, progress is being made. Interpreting rules as to how the operators are assigned to work, which has been a major problem for 40 years, has been clarified and transit center managers are doing a satisfactory job of estimating how many operators are needed, both in the short and long term. Nevertheless, there remain opportunities for increased efficiency which Transit has not fully investigated.



## Transit needs an adequate system for monitoring and controlling operator hours of service

Transit does not yet have a system in the Vancouver region which complies with National Safety Code requirements for monitoring and controlling the number and timing of the hours which operators work.

## Management of attendance should be more effective

Transit's levels of operator absenteeism are high, particularly in Vancouver. Management in that region has been taking some appropriate steps towards improving the quality of attendance information and providing relevant training for management staff. However, it has not set long-term objectives for reduced absence rates, identified the factors that significantly influence the attitudes of its operators towards attendance, or established a plan to reduce operator absenteeism. Moreover, the roles and responsibilities of the various participants in the attendance management program and the values which underpin it are not universally understood within the organization.

Victoria has been more successful in limiting absenteeism, notably in the management of longer-term absences. Responsibilities are more clearly defined and information systems provide timely and relevant data for managing individual attendance.

## Clearer goals and better information are needed for collective bargaining

Transit needs to improve its management of the collective bargaining process. It should be more assertive in developing goals for the process and in presenting management's agenda. Corporation negotiators need a stronger information base than they have now, as the cost impact of some contract provisions is not being measured adequately.

## Transit reports publicly using high level performance measures, but does not explain the factors affecting the results

Transit's accountability reporting on operator productivity is generally at an appropriate level for the needs of the Board of Directors, the regional transit commissions and the Legislative Assembly. However, lacking in some reports is a meaningful level of contextual information, including analysis of the performance measures and what they suggest about the overall level of performance.



## summary of recommendations

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### Setting Expectations and Measuring Performance

1. *Transit needs to translate its overall goal for the Vancouver region of a yearly 1% improvement in productivity into measurable objectives for each of the major activities in Transit. Further, Transit needs to ensure that the key performance indicators it uses can be clearly seen to measure progress towards attaining those objectives.*
2. *In the Vancouver region, Transit needs to assign responsibility clearly for the attainment of objectives, by setting sub-objectives and targets for individual business units and staff throughout the organization.*

### Managing the Scheduling Process

3. *Transit should provide the scheduling function in the Vancouver region with clear performance expectations, and support the function in meeting these expectations. This support should come from the Board and other key stakeholders, as well as from management.*
4. *Transit should determine the additional resources needed to enable the scheduling function in the Vancouver region to meet the expectations for its performance. These resources should be directed to the determination of vehicle running times and passenger load counts, among other things.*
5. *To help it evaluate the effectiveness of scheduling, Transit should retain records of run-cuts prepared as part of the scheduling process, both those adopted and those that were not, with explanatory notes about the basis of selection.*

### Managing Daily Dispatch Operations

6. *Transit should implement a transit center operations system that supports decision-making, eliminates duplication of records, and reports on the efficiency of operations.*
7. *Transit should explore whether or not there are opportunities for further efficiencies in the way in which daily work is assigned.*

### Complying with the National Safety Code

8. *Transit should implement a more effective system in the Vancouver region for monitoring compliance with the National Safety Code.*

## Managing Operator Attendance

9. *Transit should implement a comprehensive strategy for attendance management. It should also define more clearly the goals and priorities of the attendance management process, and ensure that these are understood throughout the organization.*
10. *Transit should conduct a review of operator attitudes to identify the factors most significantly affecting the levels of operator attendance in the organization. Every effort should be made to enlist the support of the union for the survey. On completion, the key results should be shared with all the interested stakeholders. As well, Transit should analyze the current balance of incentives and disincentives in the disability plan to see if the balance is appropriate.*
11. *The roles, functions, and values associated with the attendance management program should be articulated more clearly and communicated to managers and supervisors who administer the program.*

## Managing the Collective Bargaining Process

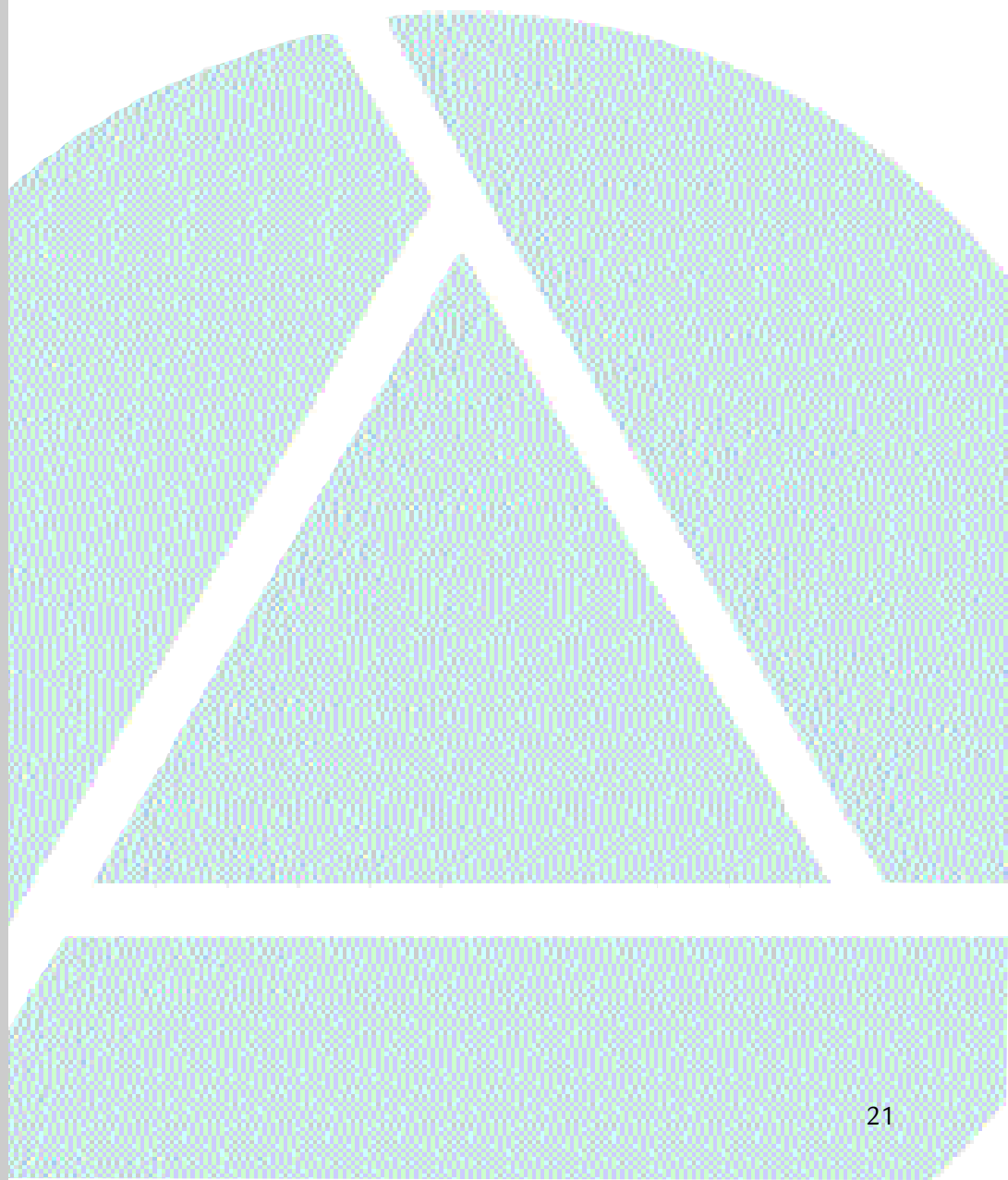
12. *Transit should establish long-term goals for collective bargaining, and strategies for achieving them. The goals and strategies should reflect the proposed development of the transit system as contemplated in the medium- and long-term service plans. Bargaining strategies must be linked to the budget process and to the overall mandate for negotiations.*
13. *Transit should acquire a contract costing model to assist it in evaluating the impact of proposed contract revisions.*
14. *In future contract negotiations, Transit should ensure that the basis of measuring the success of the contract provisions be defined adequately and be capable of being measured accurately. For provisions which may be canceled by either party, success and measurement criteria should be set out clearly in the contract language.*

## Reporting on Performance

15. *Transit should ensure that performance information provided to different groups of stakeholders is accompanied by analysis that is consistent in content and relevant to the interests of the groups concerned.*



# detailed report





## background

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### Why Efficiency is Important

Transit needs to make the best use of its resources so that it can provide its services efficiently and effectively. This will be particularly important as both the service area and the demand for service grow.

Transit's 10-year development plan sets out the priorities for developing the transit system during the decade to 2006, and sets ambitious ridership and service expansion goals—this at a time when many transit organizations in North America are experiencing reductions in market share. Given the present economic and political environment, however, resources to support even current service levels are not easy to find. Transit will have to use its resources as efficiently as possible, if it is to meet its ridership and service goals.

### Key Issues for Managing Operators

There are several processes that a transit company needs to manage well if it is going to use its operator work force efficiently. The three most significant ones are scheduling, attendance management, and management of daily dispatch operations.

### Scheduling

Perhaps no other function is more critical to the quality, reliability, and cost-effectiveness of a transit operation than that of scheduling. Scheduling affects the two most significant cost items in the transit budget: operator pay hours and the number of vehicles required for service.

Scheduling is the process by which vehicles and operators are assigned to routes. How many vehicles and operators are needed will depend on such factors as ridership patterns (which influence the route structure and the number of trips for each route), the size of the fleet (which limits the number of buses schedulers can work with), and the collective agreement (which sets the conditions under which operators are available to drive, and how much they are entitled to be paid).

The skill of the schedulers and the quality of the information and technology at their disposal translate these demands and constraints into the resources needed to provide the expected service. Good schedules deliver this service with

the fewest resources, both in terms of operator hours and number of vehicles.

## Attendance Management

Absenteeism—the occurrence of unscheduled employee absence from the job—is a major management issue in transit organizations across North America. Several studies have shown that absenteeism (sick leave in particular) is a problem for the industry as a whole.

Delivering a reliable service is a primary goal, but this can be very expensive in organizations with high levels of employee absence. The higher the level of absenteeism, the more operators are needed to deliver service. This raises the cost of providing current service and diminishes the organization's ability to expand the system without additional resources. Improved attendance can therefore help a transit organization to achieve more with its existing resources.

## Daily Dispatch Operations

To maintain reliability of service, transit centers have to make daily decisions as to how work is to be covered. The spareboard—primarily a pool of operators available to fill in if a regular operator is unable to work—is one tool that transit organizations use. Paying operators to work overtime is another.

Spareboard operators are paid, whether there is work for them to do or not, as long as they make themselves available for work. This mainly involves being available for assignment at times of roll calls and for lengths of time set out in the work rules. Estimating how many operators are needed for spareboard work, and using their time efficiently within the work rules, are challenges for transit center staff. They have to design work assignments in a way that maximizes the use of the standard time of the available operators and minimizes the payment of overtime.

In turn, scheduling, attendance and daily operations must be managed within the context of long range planning and contractual issues. The most significant of these are the organization's service policies and service plan, the National Safety Code, and the collective agreement and other work rules.

## Service Policies

Service policies which are approved by each regional transit commission set out the circumstances under which transit service will be provided and the types of service involved.

They include, for example, minimum passenger loads and frequency of service during peak and off-peak hours for urban and suburban service during weekdays and weekends.

## Service Plan

Annual service plans, also approved by each regional transit commission, set out what service—in terms of routes, trips and service hours—will be provided by Transit during the year they cover.

While a certain level of all-day service is needed, demand peaks occur during the morning and afternoon commuting period. The relationship between the two levels, known as the peak to base ratio, affects how the operators' work shifts are designed. The base service levels provide a source of what are known as "straight shifts", that is, a piece or pieces of continuous work which provide an operator with seven and one-half hours of paid time. Because of the peaks, some operators are not able to choose straight shifts, but have to work what are known as "split shifts"—this involves the operator carrying out a morning and an afternoon work assignment with an unpaid break of up to four and a half hours between the two.

## National Safety Code

Since September 1993, Transit has been required by legislation to comply with the National Safety Code. The code applies to all persons responsible for operating commercial vehicles exceeding a registered gross vehicle weight of 4,500 kilograms (10,000 pounds). The code requires minimum periods of rest for vehicle operators, and sets standards for records which show how operators' time is spent.

## Collective Agreement and Work Rules

The collective agreement between Transit management and the operators' union (The Independent Canadian Transit Union, or ICTU) represents a mutually agreed limitation of management rights. It, along with the related work rules, defines how some aspects of the work will be designed, how and by how much the employees will be compensated, and various other issues, all of which set the limits within which operations personnel have to manage. We did not assess the collective agreement, but we did look at how Transit prepares itself for contract negotiations.





## how well transit manages the time of the operators

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Making efficiency comparisons among transit organizations is notoriously difficult. The industry lacks both generally accepted measurement standards and a consistent model for allocating and naming elements of cost. The result is that organizations often report the same aspects of efficiency using different measures and cost definitions. Even within organizations, the comparability of performance is sometimes impaired by inconsistent methods of measurement.

For these reasons, it would be wrong to assume that the performance of one organization can be replicated by another based only on reported performance. Behind the numbers lie a complex interaction of different organizational elements, some readily discernible but others more subtle. We think that it is important for Transit to examine whether various factors that contribute to differences in productivity are controllable by management or not, and, if they are, whether this offers a practical opportunity for performance improvement.

With this in mind, we looked at performance indicators of operator management in Transit, and at those of some other transit organizations both in Canada and in the United States. These are mainly organizations with which Transit compares its own performance trends. Because our audit focused on efficiency in the use of the transit operators' time, the data relate to this aspect of transit operations.

### Service Hours Per Operator

Exhibit 2.1 shows the average number of hours transit operators in six cities spend driving buses each year. A high proportion of driving to non-driving hours usually reflects well on the way productivity is managed. Service hours per operator is one of Transit's key performance indicators.

Transit's service hours per operator are the data included in the corporate key performance indicator summaries. For the corporate level indicators, Transit uses full time equivalents (FTE's) for calculating its number of operators. This means that, for the calculation, overtime worked is converted into the number of additional operators that would be needed if the same total hours had been worked without overtime. In this respect, and in some of the others described below, the basis

Exhibit 2.1

Average Annual Hours an Operator Drives a Bus in Six North American Cities, 1994 to 1996

	1994	1995	1996
<b>Vancouver</b>	<b>1,336</b>	<b>1,316</b>	<b>1,325</b>
<b>Victoria</b>	<b>1,474</b>	<b>1,480</b>	<b>1,468</b>
Ottawa	1,542	1,543	1,466
Winnipeg	1,462	1,444	1,423
Seattle	1,556	1,549	Not available
Pittsburgh	1,692	1,693	1,770

of calculation of Transit’s numbers differs from that of the other organizations shown.

As the exhibit shows, the numbers vary considerably, even between Vancouver and Victoria. Factors that contribute to this variation include the service profile in each location (particularly the size of the area served and the relationship between urban and suburban service), the organizations’ work rules, the operators’ standard day, the use or not of part-time operators, levels of attendance at the organizations concerned, the average length of service of the operators, and the effectiveness of the processes for managing the operators’ available time.

Ratio of Driving Time to Total Paid Hours

Service hours per operator is a measure of how many hours of driving Transit obtains from each operator. But it does not disclose how many of those hours were paid at regular time and how many involved the payment of overtime and other premiums. Managing efficiently means getting the most use from the operators’ regular hours and, in doing so, reducing the amount of premiums.

Exhibit 2.2 summarizes the relationship between the standard working hours that operators in six cities are paid for and the hours operators actually spend driving buses. For example, in 1996, the Vancouver region paid the equivalent of 1.49 hours of regular time for each hour of driving. A high ratio is an indicator of inefficiency; it is likely that the transit authority is paying excessive premium time and too much for non-driving work and unproductive time.

## Exhibit 2.2

### Operator Paid Hours Divided By Operator Driving Hours in Six North American Cities, 1994 to 1996

	1994	1995	1996
<b>BC Transit</b>			
– Vancouver	1.48	1.47	1.49
– Victoria	1.34	1.40	1.40
Ottawa	1.33	1.33	1.36
Winnipeg	1.36	1.31	1.32
Seattle	1.34	1.34	Not available
Pittsburgh	1.28	1.26	1.24

Premium time involves overtime mainly, but also premiums for Sunday work and long shifts. Non-driving time refers to operator activities which, while not spent at the wheel, are necessary to provide the service. Such activities include bus inspections, training on new vehicles and acting as transit supervisors. Unproductive time is time for which operators are paid but where there is no work to assign them.

The content of collective agreements has a major impact on the cost of service, as many of the premiums and conditions under which operators are eligible to receive guaranteed payments are negotiated through the collective bargaining process. Scheduling efficiency is another element affecting how well the schedulers use the operators' regular time. Daily dispatch operations is a third: transit organizations with part-time operators are often able to cover work at less cost than those without them and, in all transit organizations, the skill and experience of dispatchers can minimize the amount of overtime paid.

## Absenteeism

The other important productivity indicator is absenteeism. Transit companies, unlike most organizations, employ additional drivers to cover for absent operators. This maintains the reliability of the service but is an additional cost. Most transit companies therefore have attendance management processes that aim to minimize unscheduled absences and the extra cost of covering them.

By industry standards, the cost of absenteeism is high, and not just to Transit. The corporation bears the cost of the short-term disability plan and pays premiums to fund workers' compensation claims. After 17 weeks of short-term disability, however, absent operators are transferred to the long-term disability plan, which is funded solely by the employees. Managing attendance well can therefore benefit both management and the operators: management can better provide reliable service at a reasonable cost, and operators can keep at an affordable level the premiums they pay to finance the long term disability plan.

Exhibit 2.3 below provides information about the average number of sick days taken per bus operator in five cities on an annual basis. The information for organizations other than Transit deals primarily with the short-term absences. Transit's information is provided at two levels of detail: short-term absences, including time taken for workers' compensation claims, and total absences, including long-term disability.

### Exhibit 2.3

#### Average Sick Days Taken Per Bus Operator Per Year In Five Transit Systems

	1994	1995	1996
<b>Short-term absences, including workers compensation</b>			
<b>BC Transit:</b>			
Vancouver region	22.87	22.68	22.15
Victoria region	11.61	14.07	14.96
Winnipeg	8.40	7.10	8.00
Seattle	8.46	9.12	Not available
Pittsburgh	14.18	10.68	11.87
<b>BC Transit long-term absences</b>			
<b>Up to one year</b>			
Vancouver region	4.43	4.03	5.04
Victoria region	1.54	0.92	0.84
<b>One year and longer</b>			
Vancouver region	6.97	8.35	9.87
Victoria region	6.05	5.68	5.76
<b>BC Transit total short and long-term absences</b>			
Vancouver region	34.27	35.06	37.06
Victoria region	19.20	20.67	21.56

As the exhibit indicates, the rate of short-term absence through sickness in both Vancouver and Victoria is high compared with that in other transit organizations. Since it is not likely that the incidence of sickness would vary substantially from one province or state to another within the same industry, we believe that for comparison purposes the results have some validity. We recognize, nevertheless, that the comparison of rates of absence does not necessarily reflect the comparative costs of absenteeism. Some organizations, such as Winnipeg's, offer incentive schemes to employees paying or otherwise compensating them for unused sick days. In these cases, the cost of absenteeism may be much higher than the absence rates suggest, once the attendance "premiums" have been factored in to the cost of service.

The data suggest that the Vancouver region has achieved overall marginal improvements in short-term attendance in the past three years.

For years prior to 1995, the Victoria region generally achieved rates of short-term absence of approximately half those of the Vancouver region. In 1995 and 1996, Victoria experienced notable increases in absenteeism, though levels are still substantially below those for Vancouver.

While we think that Transit's inability to make significant reductions in short-term absenteeism is cause for concern in itself, we are equally disturbed by the rising trend of absence related to long-term disability. As Exhibit 2.3 indicates, rates of long-term absence have been steadily increasing in the Vancouver region.

The information in Exhibit 2.3 gives an indication of total absences. However, it does not give a sense of how days taken are distributed among the operator population. Exhibit 2.4 shows, in days, the distribution of absences by percentage of operators at each transit center for 1996. As well as short-term disability, the data include long-term absences.

Two immediate observations can be made. The first is that in 1996 nearly 55% of all operators in both regions took ten days or fewer per year, and of this, some 16% did not take any sick days at all. This reflects well on the conscientiousness of the majority of operators in the system.

The second is that the success of the Victoria region in containing its average short-term sick days per operator to about 15 per year is largely due to about 10% of its operators taking 31 days or more in sick leave per year. This proportion

Exhibit 2.4

Number of Sick Days By Percentage of Operators in Transit Centres in the Vancouver and Victoria Regions, 1996

Days	% 0	% 1-5	% 6-10	% 11-15	% 16-20	% 21-25	% 26-30	% 31+
Oakridge	19.76	17.43	20.13	10.63	5.96	4.10	2.42	19.57
North Vancouver	7.88	17.73	19.70	12.32	6.90	4.93	1.97	28.57
Burnaby	9.66	18.03	19.53	11.16	8.58	5.79	3.00	24.25
Surrey	14.79	18.65	18.65	10.29	8.04	3.22	4.50	21.86
Port Coquitlam	15.41	15.41	19.03	10.88	6.65	3.02	4.53	25.07
Victoria	18.38	23.68	26.46	11.14	4.74	2.51	3.06	10.03
<b>Average</b>	<b>15.90</b>	<b>18.26</b>	<b>20.52</b>	<b>10.90</b>	<b>6.64</b>	<b>4.16</b>	<b>2.92</b>	<b>20.70</b>

is less than half that in four of the five Vancouver transit centers. This suggests to us that the corporation might benefit from a wider implementation of some of the attendance management practices that have proven to be successful in Victoria.

In the remainder of this report, we look at the key processes affecting these results.



## setting expectations and measuring performance

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Transit can improve or expand its services in two ways: by securing external funding and by making internal efficiency gains. With pressures on public sector budgets mounting and the need to maintain fares at affordable levels, Transit will have to look increasingly at the second way if it wants to achieve service improvements.

We expected the corporation to have set strategic goals for operational efficiency, and to have developed comprehensive strategies for attaining those goals. We also expected that Transit would communicate and explain its efficiency goals and strategies to its external stakeholders, in order to gain assurance that management would be supported in its attempts to make efficiency gains; and would set expectations for efficiency internally, allocating responsibility for meeting them and setting targets.

### Conclusion

The Vancouver region has set several long-term goals for overall productivity gains, and the region has selected some performance indicators with which to measure its success in attaining these goals. The region, however, has not established a strategy for achieving the goals, nor has it set clear expectations of performance relating to them.

The Victoria region has linked productivity goals with its short- and long-term service projections, has chosen appropriate performance measures and has assigned them with expectations of performance to operating managers.

### Findings

#### Long-term Goals Exist, But Have Not been Translated Into Measurable Objectives

Transit has been given a long-term goal of operating cost-efficiently, and in its long- and medium-term planning, it has set out graduated productivity goals. The goals, however, have not been translated into measurable objectives.

For example, the draft *TransAction 2002* five-year plan for the Vancouver region includes a commitment by Transit to achieve a productivity gain of 1% in each of the five years from

1997/98 to 2001/02, as shown in Exhibit 2.5. As well, the region has set itself a similar goal for the fiscal year 1996/97.

These projected gains, however, have not been translated into measurable objectives for scheduling, attendance management, and other processes that affect operator productivity. Transit needs to determine these objectives so that it can set performance expectations and measure progress.

## Performance Indicators Are Not Linked to Goals or Objectives

Transit has developed a number of key performance indicators for both the Vancouver and Victoria regions to measure certain elements of performance. Two of these indicate operator efficiency: service hours per operator and operating cost per service hour. Service hours per operator is a direct measure, showing how many hours on average an operator spends driving a transit vehicle. Operating cost per service hour is an indirect measure, including both operator compensation and other costs not associated with operators.

Both of these indicators, because they are not linked to objectives, do not show whether the rate at which performance is improving will enable Transit to achieve its long-term goals.

To gain the support of its stakeholders, Transit management must be able to explain how different courses of action are likely to affect its ability to succeed. Using performance

### Exhibit 2.5

#### 5 Year Plan Projections, Vancouver Region

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
<b>Assumptions</b>						
Population (millions)	1.9	1.9	2.0	2.0	2.0	2.1
Ridership (millions)	122.1	127.3	129.1	132.1	133.4	136.4
Productivity gains	1%	1%	1%	1%	1%	1%
<b>Service Hours (millions)</b>						
Bus	3.11	3.25	3.35	3.43	3.53	3.60
SkyTrain	0.61	0.62	0.63	0.64	0.66	0.67
Custom	0.39	0.41	0.42	0.41	0.45	0.46
West Coast Express	0.02	0.02	0.02	0.02	0.02	0.02
<b>Total</b>	<b>4.13</b>	<b>4.30</b>	<b>4.42</b>	<b>4.53</b>	<b>4.66</b>	<b>4.75</b>

Excerpt from BC Transit *TransAction 2002*



measures linked to Transit's objectives would allow management to do this. Because the present linkage is weak, stakeholder support could be compromised.

The Victoria region has linked productivity goals to its short- and long-term service projections.

## Targets Are Set for Key Performance Indicators, But They Are Not Challenging

Transit sets annual targets for its key performance indicators, but these are outcomes of the budgetary process and are not designed to stimulate improved performance.

The budget process involves adjusting prior years' results by the anticipated inflation factor, the estimated changes in service levels, and a very broad allowance for the financial impact of future contract settlements. However, there is little attempt to relate the resulting target to what might be achieved by managing the processes well.

Individual efficiency targets for transit centers are not set. Transit managers believe that they are accountable for delivering the service plan within the financial budgets which they have been given—and they are. Beyond this, though, managers at most centers are little aware of any performance expectations for individual processes under their control.

For 1995/96, Transit management achieved the targets it had set at the beginning of the year for both service hours per operator and cost per service hour. However, whether the targets represented a real challenge to management is uncertain. When compared with the previous year's results, the targets set for 1995/96 anticipated a reduction in productivity and an increase in cost per service hour. For example, in the Vancouver region the budget anticipated an annual five-hour reduction in service hours per operator. The effect on the budget of factors which might have impaired future efficiency was not clear, nor was the extent to which this effect could, or should, be mitigated by improved management performance.

In the 1996/97 fiscal year, the Vancouver region's business plan is forecasting a decline in productivity, in spite of having a long-term productivity goal calling for a 1% gain in that year. This casts doubt on the ability of the Vancouver region to achieve the productivity targets contemplated in the five-year plan.

## Detailed Performance Measures Are Needed

Transit's key performance indicators offer a broad assessment of what it has achieved. Indicators for service hours per operator and cost per service hour are distributed monthly, with extensive prior-period comparative information. Nevertheless, diagnosing where problems are and acting to correct them can be difficult with high level broad indicators alone.

Each function must develop more detailed measures to examine the results of activities such as scheduling, attendance management, manpower planning, and dispatch efficiency, all of which can affect the efficiency with which Transit uses its operators' time. These measures should be owned by individual business units, so that accountability for performance can be clearly established and monitored by the managers of those units. The managers' performance can then be assessed against these efficiency measures.

Vancouver region has not yet developed supporting measures for the key performance indicators. As a result, accountability for the success of some key processes, such as attendance management, is not clear and may be reflected in the region's high rates of absenteeism. The Victoria region has developed some supporting indicators and assigned them to individual units in the organization.

We believe that integrating performance measures into the budgeting process is a needed step in improving Transit's overall efficiency.

### **Recommendation 1:**

*Transit needs to translate its overall goal for the Vancouver region of a yearly 1% improvement in productivity into measurable objectives for each of the major activities in Transit. Further, Transit needs to ensure that the key performance indicators it uses can be clearly seen to measure progress towards attaining those objectives.*

### **Recommendation 2:**

*In the Vancouver region, Transit needs to assign responsibility clearly for the attainment of objectives, by setting sub-objectives and targets for individual business units and staff throughout the organization.*



## managing the scheduling process

A good scheduling process can make a big difference to Transit's efficiency and the quality of work life of its operators. Scheduling is complex work, and must be supported adequately and monitored closely.

We expected to find that Transit had provided its scheduling function with the resources and support it needs, and was evaluating the performance of the function properly.

### Conclusion

Scheduling has the potential to save (or lose) millions of dollars annually for Transit. It can also have a tremendous effect on the daily work life of operators and raise issues of safety and reasonableness of work expectations. Despite how critical scheduling is, Transit has not adequately supported the scheduling function of the Vancouver region in the past, nor has it properly evaluated scheduling performance. Vancouver schedulers have only recently adopted the state-of-the-art technology that is needed for a complex, modern transit system. Full support for the potential cost saving adjustments which schedulers identify has also been lacking.

In Victoria, on the other hand, scheduling has been well supported and schedulers have had the benefit of working with up-to-date technology for a number of years. The result is that scheduling has significantly contributed to the efficiency of the region's operations.

### Findings

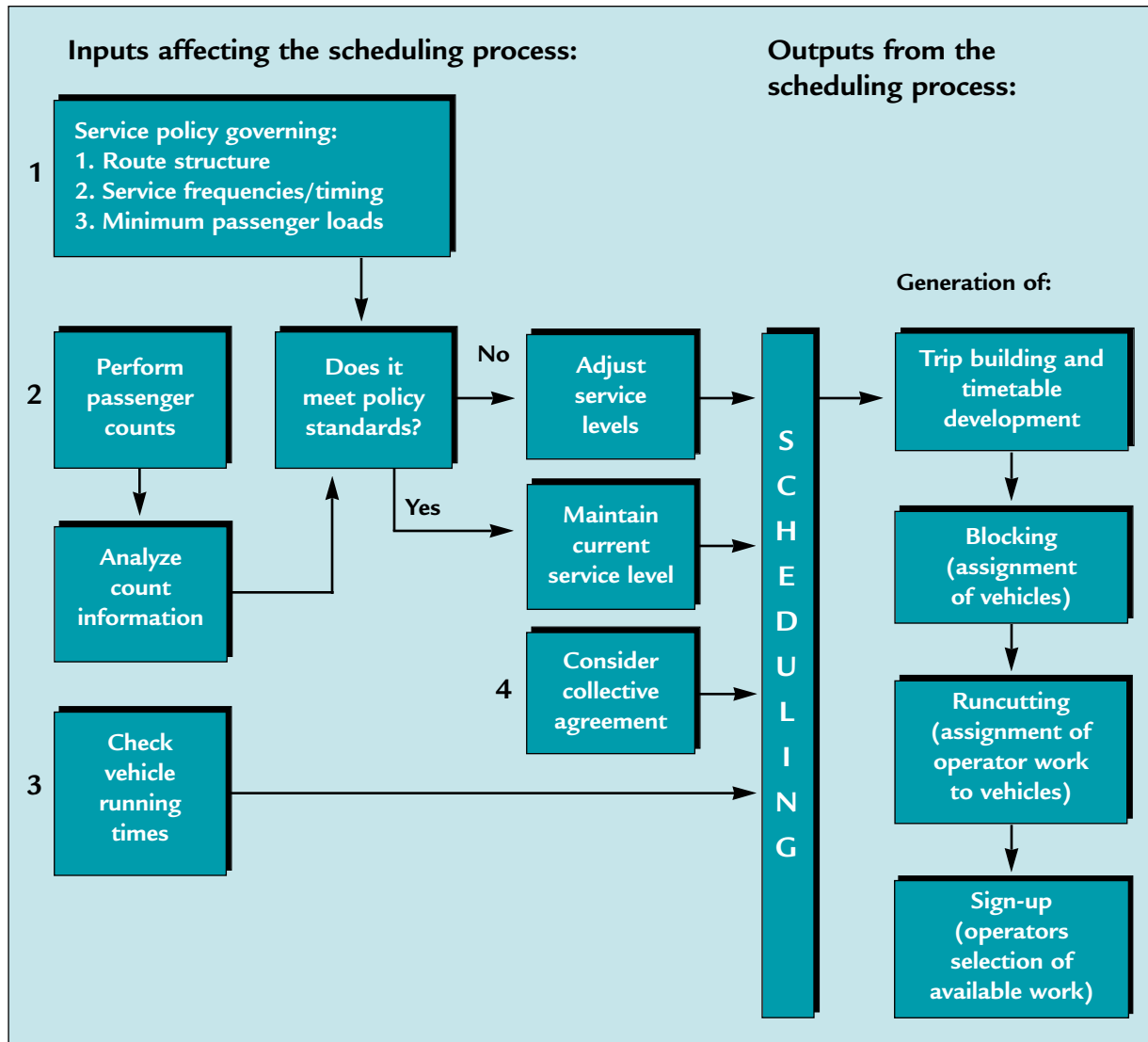
#### The Complex Art of Scheduling

Transit scheduling is a management function that may appear to be a relatively simple process and yet is probably the single most complicated and important function of transit management. Essentially, scheduling is the art of assigning vehicles and operators to routes in an economical fashion, in response to existing and latent ridership patterns, and in accordance with written and unwritten rules and practices.

The arrival of a transit vehicle at a certain point on a specified route at a certain time on a specific day is not a haphazard event. It occurs only because schedulers have taken information about service policies, load counts, running times, bus availability, and collective agreement provisions and produced both the "paddle," or bus assignment sheet, which

## Exhibit 2.6

### Outline of the Scheduling Process



operators have with them at the front of the bus, and the list of operator work assignments.

Chronologically, scheduling involves:

- Assembling policy information from the executive board, management, and planners that influences route structure, span of service, frequency of service, and service timing. Service policy usually sets out minimum peak load requirements and the frequency of service for urban and suburban service during peak and off-peak periods on weekdays and weekends. Other elements of service policy may include defining the maximum walking distances for

passengers to and from bus stops, hours of bus operation, and other standards that the company wishes to uphold.

- Collecting and analyzing passenger load data and other non-policy data required to establish where service is required. This data helps the schedulers and planners arrive at the right level of service.
- Determining, by actual field investigation, vehicle running times between time points by day of the week and time of day for both new and existing routes. Urban geography and traffic flows are constantly changing, with the result that running times consistent with safe and reliable operation rarely remain constant over long periods. These need to be monitored and adjustments made to the schedule if required.
- Determining the number of trips and developing the timetable.
- “Blocking” the buses, which involves assigning each vehicle to a series of trips from the beginning to the end of the day. Sometimes, the trips will all be on the same route, particularly if it is a high frequency urban route; other times, the vehicle may operate on a number of different routes. This is known as “interlining”, and often results in a more efficient use of vehicles, particularly on suburban service.
- “Run-cutting”—this means “cutting” up the vehicle blocks into shifts making up a day’s work (called an index) for an operator. Shifts must reflect the conditions set out in the collective agreement and related work rules, and must each be designed to meet legislated safety requirements. The goal is to attain a composition of work which enables the schedule to be delivered at the least cost in terms of operator hours paid for.
- Signing-up. This is the process for assigning work to operators, usually done by operators choosing their work in order of seniority, normally about four times a year.

Schedulers frequently have to balance competing objectives in developing a run-cut. Service must be delivered at a cost that is affordable to travelers and to the governmental organizations which fund transit. On the other hand, service delivery must be designed in such a way that the operators’ working conditions are not unfairly compromised. An appropriate balance of interests must therefore be found. Senior management needs to decide where this balance should be, and should communicate it to all of the employees, particularly the schedulers.

## Scheduling in Vancouver

### *Clearer Goals and Objectives Are Needed*

*“Because the schedule determines overall vehicle and human resources, it also determines most of a transit system’s expenditures. Therefore, it must be subject to continuous review and improvement, regardless of the frequency of formal schedule changes, if the overall efficiency, effectiveness and productivity of the transit system is to be maintained and improved.”*

*Source: Canadian Urban Transit Authority Handbook*

Schedulers need clear expectations and support from senior management for the more difficult decisions involved in meeting those expectations.

Because schedulers design the work of the operators, their activities not only have a major effect on efficiency, but also have more potential to affect labor relations than any other single function of transit. Clear goals and objectives are therefore essential. However, the Vancouver region has set no long-term goals for efficiency to be delivered by the scheduling process, nor has it used target setting consistently as part of the planning phase for each run-cut.

Management’s ability to pursue its efficiency goals depends largely on the extent to which its goals, and strategies to achieve them, are supported by the Board and within the organization. There is currently some uncertainty about the rate at which management should pursue scheduling efficiencies within the existing work rules. As long as this uncertainty continues to exist, there will be little chance of establishing reasonable expectations of performance for the scheduling function.

Developing a realistic strategy for maximizing efficiencies under the existing work rules also hinges on management knowing the extent of the potential efficiencies that can be realized. Because management in Vancouver has not yet determined the full potential for such efficiency, it is not able to develop a program for realizing productivity improvements in an orderly way over an appropriate period.

Partly as a result of the above weaknesses, schedulers are receiving little guidance beyond the upcoming quarter.

Transit planning documents have described the goals of scheduling technology as being, among other things, to improve both scheduling efficiency and the quality of work for the operators. This linkage is a good one in that successfully

pursuing scheduling efficiency is made easier if both schedulers and operators have a common understanding of what is meant by quality of work. However, Transit has not yet defined “quality of work” in this context, and this could pose a major obstacle in pursuing scheduling efficiency.

**Recommendation 3:**

*Transit should provide the scheduling function in the Vancouver region with clear performance expectations, and support the function in meeting these expectations. This support should come from the Board and other key stakeholders, as well as from management.*

*Current Resources Are Inadequate*

The importance of scheduling suggests that transit organizations should commit sufficient resources to this function to enable it to work effectively. However, because many organizations in the industry do not recognize or fully understand scheduling’s role and importance, it is not uncommon to find scheduling departments that are understaffed, ill-trained, and lacking the necessary equipment and access to agency resources that are necessary to accomplish efficient and cost-effective scheduling.

In the Vancouver region, the scheduling function is centralized under the guidance of the Customer Services Division in corporate headquarters (See Exhibit 2.7).

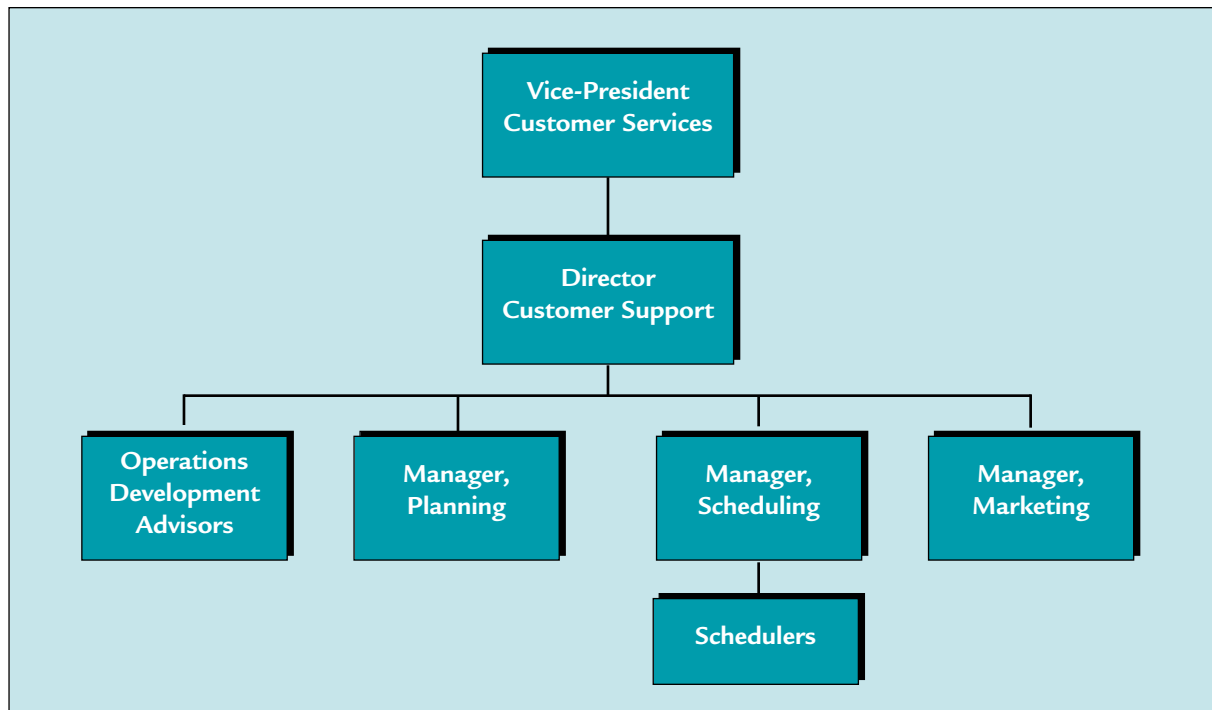
Seven schedulers report to the manager of scheduling. The schedulers are located at the Vancouver regional headquarters and only infrequently visit the centers for which they are responsible.

The scheduling function in Vancouver is going through significant change. There are many demands on the time of the schedulers. As well as dealing with day-to-day scheduling issues for the transit centers for which they are responsible, the schedulers take part in system planning. They are also implementing a new, sophisticated scheduling technology, which management hopes will achieve greater efficiencies in the development of the schedules.

These activities improve the visibility of scheduling within the organization, and help ensure that the impact on scheduling of many service planning and resourcing issues is considered at the right time. However, the demands they place on the schedulers are great and may jeopardize the schedulers’ ability to deliver the levels of efficiency that Transit expects.

Exhibit 2.7

Organization Chart, Customer Services Division, Vancouver Region



We believe that more schedulers may be needed if the scheduling function is to adequately address all of these responsibilities.

*Information Support Is Weak*

Schedulers also need better information to do their job well. Schedules that fail to provide sufficient running time can jeopardize the safety and reliability of the system.

Producing schedules for safe and reliable service delivery involves knowing what the ridership patterns are, and the length of time that vehicles need to safely complete trips under current traffic conditions at different times of day. The resources which Vancouver schedulers need to develop accurate and efficient schedules have at times been reduced to levels which make it difficult for them to succeed. Specifically, three important elements of the scheduling process lack adequate resources: collection of passenger load data, the analysis of the data, and determination of vehicle running times. Transit should attend to this issue as a priority.



**Recommendation 4:**

*Transit should determine the additional resources needed to enable the scheduling function in the Vancouver region to meet the expectations for its performance. These resources should be directed to the determination of vehicle running times and passenger load counts, among other things.*

*New Technology is Being Implemented in Vancouver*

Up to 1995, the Vancouver region had been using a slow and cumbersome scheduling technology which did not allow schedulers to explore fully different alternatives in designing schedules and work assignments. Achieving major efficiencies with the technology was difficult, and its inability to respond quickly to the need for subsequent revisions encouraged a overly cautious approach to pursuing efficiency gains in designing the work.

During the past year, however, Vancouver has been implementing a new scheduling technology. If used to its full advantage, it will enable schedulers to provide management with short- and long-term options for improving efficiency. Schedulers are still learning the technology and have been loading large amounts of base data into the system. It will therefore take time for results to show.

*More Information on Results Needs to be Retained*

The lack of goals and objectives for the scheduling function means that the performance of the schedulers cannot be evaluated. This is regrettable given the importance of scheduling to the organization.

Assessing how well schedulers are doing their job is usually based on the “pay-to-platform” ratio for the run-cuts they produce. This indicates how many hours of an operator’s time the transit organization needs to buy to obtain one hour of driving time. A low ratio means that the scheduler has generally succeeded in using the operator’s time productively; conversely a high ratio can mean that the organization is paying for more premium time and non-productive time than it should. The pay-to-platform ratio is a major component of driving hours to total paid hours, which has been described earlier in this report.

Scheduling tends to be done on an incremental basis—a scheduler does not start from scratch each time a new schedule is to be developed. There are sound practical reasons for this approach. As well as promoting continuous improvement in

efficiency, it allows schedulers to monitor how the composition and quality of work changes from one schedule to another, and enables scheduling problems to be resolved in a logical and orderly way.

To demonstrate how well they have responded to expectations of performance, schedulers should maintain records of previously adopted run-cuts. In the Vancouver region, such records are available up to 1994 but after that the information is not organized. In particular, the results of run-cuts which were not adopted but which demonstrated superior efficiency to the one that was adopted, were not retained. The lack of such data impairs management's ability to assess whether or not the scheduling process is achieving efficiency gains.

***Recommendation 5:***

*To help it evaluate the effectiveness of scheduling, Transit should retain records of run-cuts prepared as part of the scheduling process—both those adopted and those that were not—with explanatory notes about the basis of selection.*

## Scheduling in Victoria

### *Organization and Profile Are Adequate*

In Victoria, the scheduling function is merged with the planning function. The run-cut is developed primarily by a senior planner, with the assistance of a scheduler. The senior planner, as outlined in the organization chart in Exhibit 2.7, reports through the planning and scheduling manager and then the division manager of planning and marketing. We believe that this gives scheduling the profile it needs.

### *Methodology and Technology Are Appropriate*

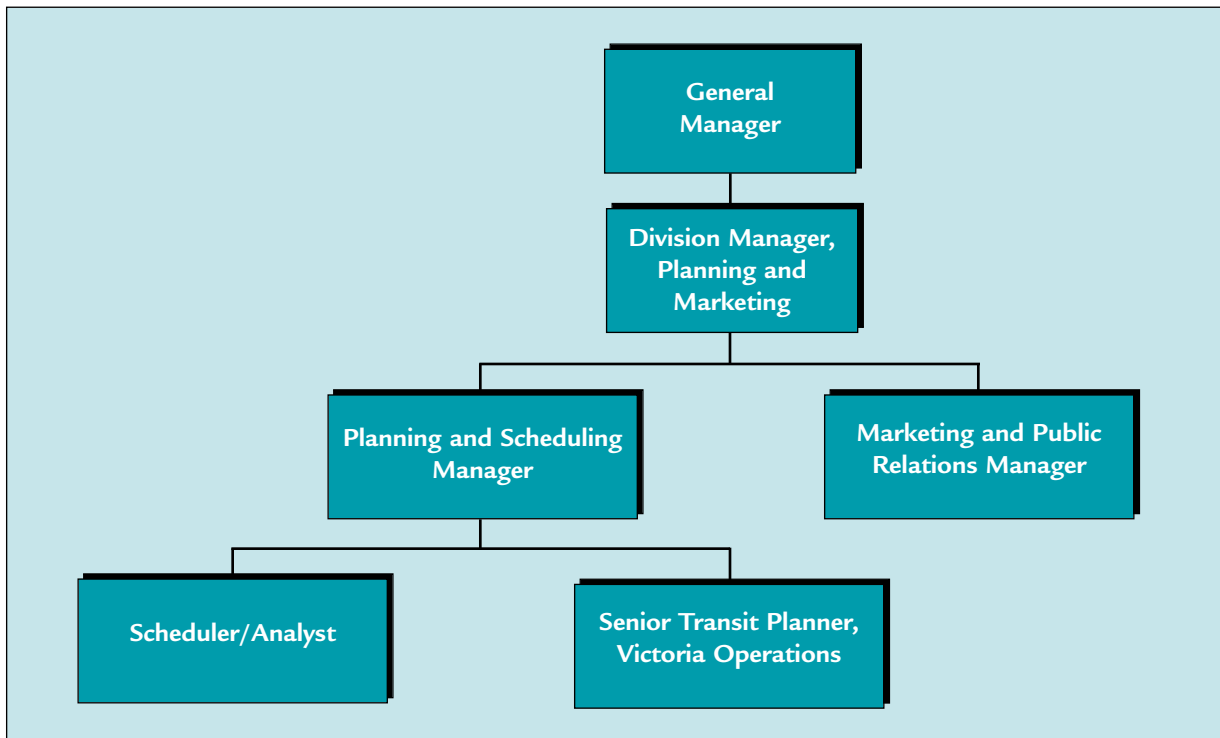
Victoria has been using state-of-the-art scheduling software since about 1989, with the region even assisting the developers of the software with product development. The staff working in scheduling, including the senior planner, are very experienced in the process and have a sound understanding of the methodology.

### *Goals and Objectives Are Not Always Formally Documented*

The Victoria scheduling department has a sense of the longer-term goals and objectives that are expected of it, and sets short term targets (although these targets are not always formally set out in written documentation).

Exhibit 2.8

Organization Chart, Planning and Marketing Division, Victoria Region



*More Information on Results Needs To Be Retained*

Victoria has been generally successful in achieving a sustained level of scheduling efficiency.

The records and efficiency results of previously adopted run-cuts are maintained. On a quarterly basis, the new proposed run-cut is submitted for review with accompanying explanations about the changes from before. This run-cut and the related explanations are reviewed by management. However, because unadopted run-cuts are not maintained on file, it is difficult to determine whether more efficient alternatives might have been available.



## managing daily dispatch operations

Every day, transit center managers must try to balance conflicting objectives while maximizing the efficiency of the system. On the one hand, they must ensure that sufficient operators and buses are available to maintain reliable service. On the other, they must minimize the amount of unproductive time, overtime and other premium time incurred in delivering the service, yet ensure they work within the labor contract provisions, and safety regulations. This work is pressured, complex, and sensitive, and calls for experience and quick judgment. Decisions made in error or without the benefit of valid and current information can have a major impact on Transit's bottom line.

In looking at this activity, we expected to find that managers have the information they need to make decisions, and that their performance is regularly evaluated.

### Conclusion

Transit center managers do not have the basic information they need to help them use the bus operators' time in the most cost-efficient way, and their performance in this regard is not regularly evaluated. However, progress is being made. Interpreting rules as to how the operators are assigned to work, which has been a major problem for 40 years, has been clarified and transit center managers are doing a satisfactory job of estimating how many operators are needed, both in the short and long term. Nevertheless, there remain opportunities for increased efficiency which Transit has not fully investigated.

### Findings

#### Spareboards Need To Be Carefully Managed

If an operator with regular work is sick or otherwise unavailable for driving, service has to be canceled or someone else has to be found who can do the work. Routinely canceling service is not a realistic option; it reduces service reliability, which invariably leads to decreased ridership. Transit organizations therefore find ways to get the work done, even if this adds to the cost of service.

The most common method of maintaining reliability is keeping a pool of operators whose role, in part, is to perform the regular work of absent operators. This pool is commonly

known as “the spareboard.” These operators also carry out other pieces of special and non-recurring work which are not assigned to regular operators. Operators are assigned to work in order of seniority.

Like regular operators, spareboard operators are eligible to earn the daily guarantee—that is, seven and one-half hours’ pay. They do this by reporting to rollcalls at which work is assigned, and by being available for assignment during periods of time set out in the work rules. If the levels of absence are high, most spareboard operators will have a full day’s work. If the levels are low, many may be eligible to receive the daily guarantee without having to work for seven and a half hours.

Each transit center operates its own spareboard. The cost of doing this is significant; in the Vancouver region, for example, the proportion of spareboard operators to the total is normally about 15%. On any one weekday, Transit may have up to 150 operators assigned to cover for regular operators who may be sick—and this does not include those available to cover other types of absence.

There are two key management objectives involved in running the spareboard. The first is getting the number of spareboard operators right. Transit centers need enough additional operators to maintain service reliability, but not so many to create excessive unproductive time. The second is getting as much of the available work as possible performed at straight-time rates, while minimizing the amount of overtime and unproductive time.

## Transit Has Good Processes for Estimating the Numbers of Operators Needed

Transit center managers generally use a consistent approach to determining how many operators are needed.

Within the transit industry, the personal experience and judgment of transit managers have traditionally been the main factors determining the numbers of operators needed. If Transit’s information systems for daily operations improve, transit center managers would have better information on which to base staffing decisions.

For the Vancouver transit centers, an operations development analyst at headquarters reviews the divisional staffing models for reasonableness. This review provides an independent assessment of whether or not the assumptions and decisions made in arriving at the operator complement are

realistic and reasonable. In Victoria, the determination of the overall staffing complement is reviewed by senior management.

We believe that the process in both regions provides a reasonable basis of determining operator staffing requirements. They promote consistency in approach, but allow individual transit centers flexibility in addressing the unique characteristics of their service profile and attendance history.

## Unproductive Time Is At An Acceptable Level

Unproductive time represents time paid even though the operator has no duties to perform. In the Vancouver region for the years 1995 and 1994, it amounted to \$693,000 and \$778,000, respectively, which accounted for 0.7% and 0.8%, of total operator compensation for the Vancouver region for those years. We consider this to be an acceptable level.

## Spareboard Rules Have Been Clarified

The interpretation of the spareboard rules in both the Vancouver and Victoria regions have been agreed upon by both regional management and Independent Canadian Transit Union locals representing the operators.

Although Vancouver bus operations constitute a single region, its service is delivered through five transit centers. Each transit center operates relatively autonomously, and, as such, each operates its own spareboard using its own operators. Applying the interpretation of the rules is the job of depot supervisors and their support staffs in each of the transit centers.

Clarifying the spareboard rules has been a major achievement for management and the representatives of the operators. For the 40 or so years prior to July 1995 (when the interpretation of the Vancouver rules became operative), there was no unanimity among management and the operators as to how the rules should be interpreted. This led to many anomalies and inconsistencies, which, among other things, increased the likelihood of inefficiencies in assigning spareboard work.

Although there are still some areas of the rules where further clarification is needed, we believe that their present interpretation is an important achievement in defining and serving the interests of all the parties affected by them.

## Current Information Systems Make it Difficult to Manage

Transit center managers need information systems that enable them to evaluate the cost-effectiveness of different dispatch options, while at the same time capturing and retaining information about how efficiently the spareboard is being operated. Current systems fail to meet both these objectives.

Although there is a computerized system for recording the total work time of each operator, other processes which are manually-based rely significantly on the experience and intuition of depot staff and produce huge quantities of paper—all of which make it difficult and time-consuming to assess performance.

Transit management recognizes that the decision support information for transit centers requires considerable improvement. The most significant initiative to address these concerns is a proposal for a Daily Operations Management System (DOMS). The DOMS proposal is estimated to cost between \$3 and \$5.8 million, depending on the option chosen, and would be phased in over a four-year period.

The proposed system would significantly upgrade the existing processes for operator time-keeping, and would also create a database of strategically important information for decision making and the analysis of performance. For example, the system could provide depot staff with options for designing the spareboard work to minimize the payment of premium hours. The availability of such information should enable management to improve productivity through achieving better control over the cost of service and better information to support strategic decision-making.

However, much of the impetus behind this proposal has dissipated. Part of the reason is the difficulty in obtaining government approval for the capital outlay. While Transit is currently monitoring the implementation of a smaller operations management system in another transit organization, there appears to be no definitive plan for addressing the inadequacy of decision support and performance information in the existing systems.

The problems created by the inadequacy of the operations records are too pressing to ignore, particularly in light of the National Safety Code compliance requirements discussed later in this report. If the DOMS project has been abandoned, Transit should develop an alternative plan.

We understand that there is less costly software currently available or under development that can handle a majority of

the tasks that DOMS would include. Some of this software would easily integrate with Vancouver region's new scheduling system. These alternatives may not provide a solution to all the problems, but they might allow Transit to proceed on some of the most urgent ones at a more affordable cost.

**Recommendation 6:**

*Transit should implement a transit center operations system that supports decision-making, eliminates duplication of records, and reports on the efficiency of operations.*

## Managers' Performance in Spareboard Management Is Not Fully Evaluated

Although there are significant deficiencies in the design of the operations information systems, Transit management does monitor certain aspects of spareboard performance from data prepared for payroll purposes. For each bi-weekly pay period, headquarters staff prepare charts showing, for each transit center in the Vancouver region, the daily relationship between the amounts paid for overtime, guarantee time (time paid when no work is available), and non-productive standby (that portion of a standby shift during which an operator is not required to drive). When the value of overtime payments is high, the amount paid for guarantee time and non-productive standby time should be low.

The charts are reviewed by an operations development analyst at headquarters. This high level review should identify cases where there is a sustained pattern of irregular spareboard activity at a particular location. However, isolating the cause of the irregularities in a timely way remains a problem due to weaknesses in record keeping described earlier. We understand that operations managers at headquarters have for some time intended to carry out audits of transit center spareboard operations. However, we are not aware of any audits having been performed to date.

## Opportunities for Further Efficiency Should Be Explored

Major efficiencies in spareboard management could be achieved from fundamental changes in the way in which the spareboard is designed and maintained. Some changes could be made within the existing work rules; others would have to be negotiated because they might be seen to be in conflict with current work rules. In either case, proposed changes could involve understandable areas of concern for the operators, such as the application of seniority. On the following matters, though, we believe that Transit management should evaluate



the potential benefits (and drawbacks) so that it can assess whether it is desirable to pursue the issues.

One possible source of improved efficiency might be to maintain a centralized spareboard for the Vancouver region. Instead of each transit center maintaining its own board, operators would be deployed from a central operation. This proposal would allow a surplus of spareboard operator time at one transit center to be made available to meet a deficiency at another center on a short-term basis, something currently not done.

We have not seen any costing of the potential benefits of this suggestion, although some transit managers we spoke to believed that significant savings might be achieved from pursuing it. More research would provide valuable information on this matter.

Another source of improved efficiency might be the use of part-time operators. This is a contentious matter because of the potential labor relations issues associated with it. Transit's ability to use part-time operators under the existing work rules is not completely clear. While the current collective agreement does not explicitly preclude their use, Transit's past practice and collective bargaining behavior might limit its ability to employ part-timers efficiently. For example, the current collective agreement calls for all operators to be eligible to receive a daily guarantee of seven and one-half hours' pay. This provision would seem to rule out any efficiencies from using part-timers, but we think Transit should assess its position on this.

Should the assessment confirm that Transit management is not currently able to use part-time operators efficiently under the existing work rules, management may wish to find out if there are ways in which their use could be realistically negotiated.

For example, in the last few years, management and operators have made progress in agreeing on a greater variety of work choices for operators, including the compressed work week. A day of fewer working hours and possibly a lower guarantee might be a logical extension of improving the quality of work through offering a wider variety of work choices to operators. The offer of such a work option could be limited (for example, to senior operators with a minimum number of years of service or within a specified number of years of retirement). But, if explored in this context, the arrangement could offer advantages to both operators and management. Operators would have a greater variety of work choices to suit their personal circumstances, concerns of the

union about a “parallel” work force with favorable working conditions could be allayed, and management would be able to provide a more efficient service.

We believe that both Transit and union officials should explore the changing nature of the workplace to ensure that Transit is keeping pace with changes in society in general.

**Recommendation 7:**

*Transit should explore whether or not there are opportunities for further efficiencies in the way in which daily work is assigned.*



## complying with the national safety code

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Effective September 1993, Transit was legally required to comply with the provisions of the National Safety Code as set out in the regulations to the *Motor Vehicle Act*.

These provisions are intended to enhance the safe delivery of service by defining rest breaks for operators and setting limits on the number of hours that can be worked during specified periods of time. As well, the regulations set standards for the types of records that carriers are required to maintain in order to demonstrate compliance with the Code.

### Conclusion

The Vancouver region does not yet have a system which complies with National Safety Code requirements for monitoring and controlling the number and timing of the hours which operators work.

### Findings

In October, 1993, inspectors of the Motor Vehicle Branch carried out a review of the processes that Transit used in the Vancouver region to monitor driver hours of service. The purpose of the review was to assess the extent to which Transit was complying with the provisions of the Code. The review looked principally at two things; first, whether operators were working more hours than were allowed, and second, whether the design of the systems used by Transit to track when and for how long operators worked met the minimum requirements set out in the Code.

The inspectors concluded that the Vancouver region was in substantial compliance with the National Safety Code hours of service provisions—in other words, they did not find that the region's operators were working for more hours than the code allowed. They also found that the region had effective systems for checking the compliance of operators who had signed for regularly scheduled work. However, they expressed concern that these systems did not provide any assurance of compliance for certain other types of work assignment.

At the time of the inspectors' review, the Vancouver region maintained a computerized system to track operators' total time. The system did not, however, record the start and finish times of individual shifts and, therefore, was of only limited use in ensuring compliance with the Code. All other

processes were manually performed and the information relating to them was recorded manually. The volume of transactions was such that routinely retrieving data for review purposes was time-consuming and costly, making it difficult for Transit staff to do this work as part of daily operations.

In their final report, the inspectors noted that the Vancouver region “cannot, due to the size of its operation, effectively monitor or control driver hours of service by manual means. As noted earlier, a comprehensive computer program is the only viable option.”

Since the inspectors’ report, Transit has spent considerable time developing proposals to restructure the daily operations systems. However, no major changes have been made since the 1993 review, and current initiatives to bring them about appear to have lost momentum.

**Recommendation 8:**

*Transit should implement a more effective system for monitoring compliance with the National Safety Code in the Vancouver region.*



## managing operator attendance

Ensuring that the work of absent operators is covered is an expensive reality for transit organizations. Operations management tries to provide this coverage as cost-efficiently as the levels of absenteeism allow. However, sustained efficiencies are only achievable if absenteeism is kept to a reasonable level.

“Book-offs” for sickness are the largest component of unscheduled absences. On any one weekday, Transit has up to 150 operators assigned to cover the work of colleagues booked off for health reasons.

Promoting good attendance is therefore important: the less operator time a transit organization loses to unscheduled absences, the more productively it is able to use its resources. Moreover, because Transit’s employees finance the long-term disability plan, improved attendance helps the plan’s administrators to contain the cost of employee contributions.

Given the importance of this issue, we expected Transit to have set objectives for attendance and to have developed strategies to achieve them. As well, we looked for well-documented and understood processes for managing both short- and long-term leaves. We also expected to find sufficient attendance information at both the individual and summary levels to support and evaluate the leave management process.

### Conclusion

Transit’s levels of operator absenteeism are high, particularly in Vancouver. Management in that region has been taking some appropriate steps towards improving the quality of attendance information and providing relevant training for management staff. However, it has not set long-term objectives for reduced absence rates, identified the factors that significantly influence the attitudes of its operators towards attendance, or established a plan to reduce operator absenteeism. Moreover, the roles and responsibilities of the various participants in the attendance management program and the values which underpin it are not universally understood within the organization.

Victoria has been more successful in limiting absenteeism, notably in the management of longer-term absences. Responsibilities are more clearly defined and information systems provide timely and relevant data for managing individual attendance.

## Findings

### Clear Objectives and Strategies Need To Be Established

We found that Transit had not successfully developed a comprehensive attendance management strategy. In our discussions with Transit managers, we found little evidence of a commonly held view of the objectives of Transit's attendance management program (other than that of improving attendance). Managers were also uncertain as to whether or not they had met the expectations of the corporation. Except in Victoria, no explicit annual attendance targets had been set by senior operations management.

We believe that until Transit implements an attendance strategy and clearly defines its attendance management goals, priorities and values, there will continue to be problems with attendance practices within the organization.

#### **Recommendation 9:**

*Transit should implement a comprehensive strategy for attendance management. It should also define more clearly the goals and priorities of the attendance management process, and ensure that these are understood throughout the organization.*

### Factors Affecting Attendance Need To Be Identified

Transit management needs to know the factors that most significantly affect attendance at each of the transit centers.

Some factors are directly related to the nature of the work itself. Studies have shown that vehicle operators tend to experience higher rates of absenteeism than other occupational groups. For transit operators in particular, maneuvering large vehicles in difficult traffic conditions with heavy passenger loads is stressful. Operators may also be exposed to enhanced health risks as a result of working in close contact with numerous people throughout the day. A proportion of absenteeism is therefore attributable to health risks associated with the job.

Other factors influencing attendance are not directly associated with the nature of the tasks, but reflect what the operators see as being acceptable types and levels of organizational behaviour—a subject on which much transit literature has been written. A further factor which can influence attendance is the structure and terms of the disability plans. The design of the plans should not penalize operators for

### Details of Transit Disability Plans

The sick leave provisions that apply to Transit employees are contained in section G12 of the collective agreement between the Independent Canadian Transit Union (ICTU) and BC Transit.

The short-term disability plan provides benefits for injury or illness for absences up to 17 weeks in duration. On the first absence in a calendar year, eligible employees are entitled to a benefit equivalent to 100% of their regular earnings for the first eight weeks of absence, and to a benefit of 85% for the 9th to 17th weeks included. On the second absence, the provisions are as for the first, except that the first three days are only paid at 96% of the regular earnings. On the third and subsequent absences, the provisions are as for the first, except that no benefit is provided for the first three days of the absence. Benefits are paid by the plan carrier, which is reimbursed for claims and cost by Transit.

After 17 weeks of absence, employees go onto the long-term disability plan. This is funded by premiums paid by the employees and is administered by the ICTU. The plan provides a benefit of 60% of regular daily earnings, which becomes payable on completion of 17 weeks of absence due to illness or injury. Transit incurs no cost for claims and expenses associated with the operation of this plan.

being sick. On the other hand, they should not inadvertently reward excessive absenteeism.

We would expect Transit to have analyzed the current balance of incentives and disincentives in the design of the disability plans and the way in which the plans are administered to see if the balance is appropriate. However, Transit has not recently made such an formal analysis.

As both management and operators bear part of the total cost of absences, both have an interest in improved attendance. Transit has had some success in addressing certain of the health factors associated with absenteeism. However, it has not done as well in identifying the main attitudinal issues associated with attendance in the organization. Surveys are the most usual means of gathering this kind of information.

Transit has initiated two employee surveys in the last six years. The first, which covered all employees, was completed in 1990. Its results were summarized, but prompted no major initiatives. A second survey was planned in 1994 as part of a "Results by Objective" project on attendance. Although a draft survey was designed, it was never formally distributed.

#### **Recommendation 10:**

*Transit should conduct a review of operator attitudes to identify the factors most significantly affecting the levels of operator attendance in the organization. Every effort should be made to enlist the support of the union for the survey. On*

*completion, the key results should be shared with all the interested stakeholders. As well, Transit should analyze the current balance of incentives and disincentives in the disability plan to see if the balance is appropriate.*

## Roles and Responsibilities Should Be More Clearly Communicated

Managing the activities of the transit operators is primarily carried out at the transit centers.

The design and assignment of work, and other day-to-day decisions involving service delivery, are handled by the depot office at each center. Employee administration, including attendance management, is handled in the center administration office. Transit operators report directly to operations supervisors, the great majority of whom are former operators. The operations supervisors are based in the administration offices and are each responsible for between 200 and 350 operators.

In Victoria, we found that the responsibility for attendance management was clearly assigned to the operations section of the region, and the organizational structure reflected this.

In Vancouver, we found that the assignment of roles and responsibilities was not clear. Customer Services management, at headquarters and at the transit centers, and Human Resources management are both involved in the attendance management process — the former more directly and the latter in a more functional role. However, for many years and under many different administrations, there has been a tendency for the Board (and particularly the Chair) to involve itself in labor issues when continuity of service to the public has been at risk. This involvement has sometimes led to the perception that middle management decisions on attendance may not always receive support from senior levels in the organization and from the Board.

This intermingling of functions and priorities may make it difficult for line managers to discern the values they should apply in dealing with attendance problems and, as a result, the vigor and consistency with which attendance management policies and procedures are enforced may be impaired.

### **Recommendation 11:**

*The roles, functions, and values associated with the attendance management program should be articulated more clearly and communicated to managers and supervisors who administer the program.*



## Management Skills At the Transit Centers Are Improving

There was a general concern among managers in Vancouver that attendance was not being managed as effectively as it should be—a concern that is supported by some of the data. This may be addressed, in part, by clarification of attendance objectives and values, discussed earlier, and by more timely and manageable attendance information, discussed in the next section. However, an issue which has received little emphasis in the past is that of appropriate skills development in attendance management for managers and supervisors.

It is common in the transit industry for operations supervisors to be recruited by management from the pool of operators. In this regard, Transit's practice is largely consistent with that of the industry. Formal training for operations supervisors has historically included labor relations skills, but recently this component has not always been delivered as frequently as in the past. As a result, operations supervisors are not always well positioned to deal with some of the more difficult aspects of employer/employee relations, including absenteeism.

Current Transit management has recognized this problem and has scheduled appropriate professional development sessions in labor relations for operations supervisors during the 1996/97 year. It also acknowledges the need to give operations supervisors more feedback on their performance.

On a broader front, Transit has been attempting to revitalize operations management over the past two to three years. It has assigned experienced managers to positions where they are most needed, both at transit centers and at headquarters. As well, it has widened the traditional skills base of transit center management through external hirings of appropriately skilled managers.

## Improvements to Management Information Systems Are Underway

Transit organizations tend not to maintain adequate information about attendance. This makes it difficult for them to draw reliable conclusions from comparisons of their attendance data, either internally over time or externally with other similar organizations. It also weakens management's ability to establish accountability within the organization for attendance levels.

Informed attendance management decisions cannot be taken without reliable and consistent information at both the individual and the summary level. Adequate information

about individual case histories is needed so that decisions can be made appropriate to individual behavior. At the same time, individual information should be capable of being summarized so that attendance strategies can be developed and their effect monitored.

In the Vancouver region, records of individual operator attendance history are maintained manually at each of the depots. This has led to inconsistencies in the quality of records and, further, has made it difficult in the past to obtain summarized information that reliably characterizes the attendance behavior of the operators collectively.

As of August 1996, Vancouver was in the final stages of implementing a new centralized system for managing attendance of all employees. Information on the system, while maintained centrally, will be accessible by both headquarters and depot management and will provide a reasonably timely record of, and commentary about, individual attendance history. As well, the system will enable individual histories to be aggregated and summarized in different ways. When implemented, this should provide management with valuable information as to behavioral trends within the organization.

The Victoria region maintains detailed and timely records of the attendance history of individual operators, and has sound processes for managing unscheduled absences. Individual records are maintained on microcomputer applications and reports produced as needed.



## managing the collective bargaining process

In assigning work to its operators, Transit management has to observe certain requirements and conditions, some of which are set by external agencies and are beyond the control of Transit management, and others which are controllable by Transit and therefore can be shaped by management.

In particular, the collective agreement and related work rules between Transit and the operators set out mutually agreed constraints on Transit's rights to manage the operators' time. Because these constraints directly affect the efficiency of operations, the contract bargaining process provides Transit with an opportunity to negotiate improvements in efficiency.

Some provisions of the collective agreement affect efficiency directly, such as those that limit the hours which operators are available for work. For example, an operator is not compelled to accept work if the number of hours between the start of the first piece of work and end of the last piece exceeds a stipulated number. Others may have a less direct, but equally important, effect. For example, the design of the sick leave plan set out in the collective agreement can act on certain employees as an incentive or disincentive for absenteeism.

We expected Transit management, in pursuing its goal of being cost-efficient, to measure the impact of major elements of the collective agreement on its ability to deliver service efficiently. We also expected it to estimate the potential efficiency improvements from changes it can negotiate, and to have processes which enhance its ability to bring these changes about in a fair and open way, using reliable and accurate information. Finally, we expected it to evaluate whether or not changes to the contract have achieved the desired goals.

### Conclusion

Transit needs to improve its management of the collective bargaining process. It should be more assertive in developing goals for its involvement in the process and in presenting management's agenda. Corporation negotiators need a stronger information base than they have now, as the cost impact of some contract provisions is not being measured adequately.

## Findings

### Goals for Collective Bargaining Are Needed

Transit needs to routinely assess the effect of work rules on how efficiently it can deliver current and future service plans. It also needs to be more strategic in its approach to collective bargaining, and must set goals for the process which reflect corporate objectives and plans to expand the system.

Some work rules are shaped to provide cost-efficient service in a high-density urban environment with a high level of all-day service, such as the city of Vancouver. The same work rules may not produce as efficient a result when applied to service plans for low-density, suburban areas where the design of service is quite different. Incrementally modifying the collective agreement to extend its application to suburban and long-distance commuter service is usually costly. And where population growth is as rapid as it is in the Greater Vancouver region, these costs can significantly affect efficiency over time.

We think Transit should be analyzing future trends in service delivery, and using this information to determine the type of work rule structure that would allow it to respond to these trends most efficiently. This way Transit could plan proposed revisions for contract negotiations over a number of collective agreements. In fact, we found that Transit has not completed such an analysis, nor has it developed a regime of proposed contract issues to serve its long-term plans and objectives.

#### **Recommendation 12:**

*Transit should establish long-term goals for collective bargaining, and strategies for achieving them. The goals and strategies should reflect the proposed development of the transit system as contemplated in the medium- and long-term service plans. Bargaining strategies must be linked to the budget process and to the overall mandate for negotiations.*

### A Contract Costing Model Is Desirable

To make the right decisions in preparing for, and during, labor negotiations, management should know what it wants to achieve during negotiations, have a strategy to achieve it, and have timely and accurate information about the estimated costs and potential benefits of contract proposals. If this information is missing, negotiating parties will find it more difficult to satisfy themselves that any proposed settlement

reflects a balance of interests and goals. All participants should therefore have the opportunity to develop and evaluate the cost/benefit implications of their own proposals before negotiations, and of the proposals of other participants during negotiations.

In reality, the negotiating parties do not have unlimited time to do this. Expectations of an early settlement often leaves time for only a cursory examination of some contract proposals, particularly those introduced at a late stage in negotiations. This increases the risk of unanticipated outcomes that may conflict with the long-term negotiating objectives of the parties. In these circumstances, we would expect Transit to minimize this risk by being as prepared as is practicable.

We found that Transit is improving the capability of its information systems, but is still not yet taking full advantage of available technology to improve the timeliness of its evaluation of the costs and benefits of contract proposals. The scheduling technology used in Victoria, and which is only now being implemented in Vancouver, has demonstrated its ability to swiftly provide alternative costing projections for different ways of developing work shifts for the operators. This capability is valuable, not just for evaluating current proposals, but also for looking at the long-term options. There are, however, some efficiency-related issues that cannot be evaluated using the scheduling technology. For these issues, Transit is not as well positioned to evaluate the costs and benefits in an accurate and timely way.

A solution, we think, is the use of a contract costing model. A contract costing model is essentially a template that captures the terms and values of the collective agreement, and is able to project the financial impact of changing those terms. In 1994, Transit explored the potential for using a contract costing model, but ultimately decided not to acquire one. We believe that this decision should be reviewed.

**Recommendation 13:**

*Transit should acquire a contract costing model to assist it in evaluating the impact of proposed contract revisions.*

## Responsibilities Need To Be More Clearly Defined

Responsibility for the content of management's collective bargaining agenda is not clear. Neither Customer Services nor Human Resources claim ownership of the specific issues.

In part, this may be the result of Transit's historical bargaining mandate, which has called for management to take a non-confrontational approach at the bargaining table. In this

situation, management's own proposals have often been presented only as a counter to proposals put forward by the other participants.

## Evaluation of Contract Initiatives Needs To Be More Conclusive

We would expect Transit management to measure whether or not changes to the work rules have achieved the intended effect and, if they have not, to exercise its rights under the agreement.

Unless otherwise provided, changes to clauses in the collective agreement can only be made through collective bargaining. However, work rules that are documented through letters of understanding (LOU's) may be canceled by one party giving notice to the other that the LOU will end once the current collective agreement expires. Sometimes such terms may be canceled in mid-agreement if the LOU contains specific provisions which allow either party to do this provided any associated conditions are met.

Often, when work rules are set out in LOU's, it is because the parties have intended the provision to achieve a certain outcome. In these cases in particular, the language in the LOU should identify the desired outcome, describe the criteria for measuring the success of the provision and how that measurement would be done, and clearly set out the rights of the parties regarding termination. As well, performance against the criteria should be reported with appropriate frequency.

We found that Transit does not always ensure that expected performance is clearly defined in LOU's. For example, a plan for a compressed work week for operators for the Vancouver and Victoria regions was introduced under LOU's signed in early 1995. Under this plan, some work shifts were offered which allowed operators to choose a four-day week, working for nine hours and 23 minutes each day. The criteria for measuring success would include cost savings for Transit and improved working conditions for the operators. "Improved working conditions" was to be defined later. The LOU did not state how the broad objectives of cost savings and improved working conditions were to be measured.

Transit management has made some cost evaluations by comparing total payroll data before and after implementing the compressed work week, and by conducting individual case studies for hours and costs. However, the cost calculations do not isolate the effect of items other than the compressed work week, which may have affected the costs used in the

comparison. Moreover, the term “improved working conditions” has not yet been defined. We therefore feel that Transit does not have a sound basis for concluding on whether the initiative has met its objective, nor for exercising any rights it has about terminating the arrangement.

Although the LOU stated that the compressed work week was to be introduced for a trial period, it did not specifically provide for either party to cancel the provision. This creates uncertainty as to the rights of the parties to terminate the arrangement, should they so wish.

In general, we found that Transit tries to evaluate the effect which some contract provisions have achieved. But without clearly defined criteria or measures of success, it has often been difficult to determine what the effect has actually been.

**Recommendation 14:**

*In future contract negotiations, Transit should ensure that the basis of measuring the success of the contract provisions be defined adequately and be capable of being measured accurately. For provisions which may be canceled by either party, success and measurement criteria should be set out clearly in the contract language.*



## reporting on performance

A number of groups have legitimate interests in Transit's efficiency. Externally, representatives of the funding stakeholders, namely the provincial government and the regional transit commissions, want to know the extent to which Transit has met the efficiency goals set for it. The public, through its representatives in the Legislative Assembly, also are interested in Transit's accomplishments: first, from the perspective of being beneficiaries of transit services, and second, because the public is the ultimate source of financing of the transit system in each community. Transit should provide each interested group with performance information appropriate to its needs.

### Conclusion

Transit's accountability reporting on operator productivity is generally at an appropriate level for the needs of the Board of Directors, the regional transit commissions and the Legislative Assembly. However, lacking in some reports is a meaningful level of contextual information, including analysis of the performance measures and what they suggest about the overall level of performance.

### Findings

#### Reporting is at a Generally Appropriate Level

Transit provides accountability information to three major groups of stakeholders: the Board of Directors, the regional transit commissions, and the Legislative Assembly.

#### *Reporting to the Board*

Each transit division presents its annual business plan to the Board for approval. The appendices to the 1996/97 business plan of the Customer Services Division of the Vancouver region include the 1994/95 actual data for service hours per operator and cost per service hour, as well as the forecast amount for 1995/96. The appendices also include the 1995/96 actuals and the current 1996/97 forecast for the number of operators (in full-time equivalent hours).

Each quarter, the Board also receives reports of the key performance indicators, which include the cost per service hour and service hours per operator.



In both the plan and the quarterly report, we think the information provided is at an appropriate level of detail to meet the needs of the Board. If Transit expanded its commentary accompanying the data, describing how management initiatives and decisions have influenced the trends in performance, the information would be of even greater use to the Board.

### *Reporting To the Regional Transit Commissions*

Transit's dialogue with the regional transit commissions is a continuing process throughout the year. Transit provides information to the commissions in various ways, from the formal presentation and approval of the service plan, to less formal means such as retreats and workshops. Choosing the most appropriate vehicle for reporting is a case of deciding what the needs and preferences of transit commission members are in each region.

Information about costs is key to the needs of the commissions. Transit management in both regions provide the operating cost per service hour and advise the commissions of factors that change it. As well, the Vancouver region has been expanding the information it formally provides to its commission. For example, the 1996 annual service plan includes a four-year summary of service hours per operator. However, the data is not always accompanied by commentary that offers insight into the underlying events or management decisions that may be reflected in variations in the data. In the four-year summary of service hours just mentioned, there was no explanation as to what factors contributed to the changes in the service hours from year to year.

While the Victoria region reports information about cost per service hour to its commission, it does not routinely report non-dollar operating information such as service hours per operator.

### *Reporting to the Legislative Assembly*

Transit's 1995/96 annual report to the Legislative Assembly includes a financial and performance summary focusing on five key performance indicators for each of the Vancouver and Victoria regions over a five-year historical period. These indicators include operating cost per service hour.

While we found the information to be at the right level of aggregation, we did not think the analysis was adequate to explain the significance of the data presented.

For example, the report disclosed that, between 1994/95 and 1995/96, operating cost per service hour had increased in Vancouver by 3.9% and in Victoria by 0.5%. Other than commenting that the rate of increase for Victoria was well below the inflation rate, the report included no further explanation about, for example, why the rates of increase were significantly different between the two regions or how the collective agreement (which came into effect on April 1, 1995) affected costs.

**Recommendation 15:**

*Transit should ensure that performance information provided to different groups of stakeholders is accompanied by analysis that is consistent in content and relevant to the interests of the groups concerned.*



## bc transit's response to our report

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*BC Transit welcomes the Auditor General Report on Managing Operator Productivity and is pleased the contents addressed areas of concern previously identified by BC Transit.*

*Consistent with its strong commitment to improve productivity throughout the Corporation, BC Transit has recently implemented a number of initiatives, including an attendance management program, service redesign team and scheduling efficiency initiatives. While we are aware of the value of specific, measurable short-term goals, we also recognize the need to work within the context of the longer-term culture change that will be necessary to sustain the required improvements in the coming years. For that reason, progress is at times slower than we would otherwise prefer.*

*Data comparing BC Transit to other properties (Exhibit 2.1) in some cases is insufficient to support meaningful conclusions. The transit properties are of very different sizes and cover different geographical terrain. In addition, they are governed by different collective agreements with significantly varying work rules. As part of a refocus on customer service, BC Transit has introduced a comprehensive training program which, in the short term, has a negative impact on productivity.*

*BC Transit agrees with the recommendations in the report and, in many cases, has already initiated their implementation. We offer the following specific comments in response to the 15 recommendations made in the report.*

### **Recommendation 1**

***Transit needs to translate its overall goal for the Vancouver region of a yearly 1% improvement in productivity into measurable objectives for each of the major activities in Transit. Further, Transit needs to ensure that the key performance indicators it uses can be clearly seen to measure progress towards attaining those objectives.***

*BC Transit agrees with this recommendation. The required action has been included in the 1997/98 business plan.*

*The requirement of a 1% improvement in productivity will be achieved through a reduction in absenteeism, administrative savings, and an increase in operational efficiency. All initiatives undertaken in support of this goal will be introduced within the context of existing collective agreements.*

**Recommendation 2**

***In the Vancouver region, Transit needs to assign responsibility clearly for the attainment of objectives, by setting sub-objectives and targets for individual business units and staff throughout the organization.***

*BC Transit agrees with this recommendation. As part of the 1997/98 business plan, Vancouver Customer Services is in the process of developing further performance measures that will subsequently be used as the basis of targets for various cost centres within the division. These targets will be in place at the depot level by September 15, 1997.*

**Recommendation 3**

***Transit should provide the scheduling function in the Vancouver region with clear performance expectations, and support the function in meeting these expectations. This support should come from the Board and other key stakeholders, as well as from management.***

*BC Transit agrees with this recommendation. Schedulers are aware that they have the support of senior management in making the difficult decisions necessary to achieve the required productivity improvements for 1997/98. Long-term efficiency goals will be achieved by exercising the full latitude of scheduling options available within parameters set by the existing collective agreement.*

*After implementation of a sheet,\* analysis has been introduced to let schedulers know how well they have responded to performance expectations.*

*\*Sheets define the allocation of work for operators and are produced four times a year.*

**Recommendation 4**

***Transit should determine the additional resources needed to enable the scheduling function in the Vancouver region to meet the expectations for its performance. These resources should be directed to the determination of vehicle running times and passenger load counts, among other things.***

*BC Transit agrees with this recommendation. Three additional schedulers have been added and two vacant analyst positions have been filled in Scheduling. The new schedulers will provide adequate resources and allow the scheduling function the ability to plan on a longer time horizon.*

*The addition of these resources partly addresses the expansion requirement determined by the 5 and 10 Year Plans. It also acknowledges the need for succession planning and the considerable time required to become proficient in the scheduling function.*

Contrary to the audit observation that schedulers only infrequently visit the centres for which they are responsible, efforts have been made to increase their presence and visibility at the operating depots. Schedulers participate in Service Reviews at each of the depots every five weeks. They also participate with operating staff in field trips focused on existing problems and on the planning process, and with field staff in all steps of Sheet Reviews from the preliminary to the final sheet change. Beginning in October 1997, the scheduling function will be decentralized with the move of some schedulers to the depots, where they will have direct involvement in scheduling activity.

The quality of information available to determine vehicle running times and passenger load counts has been improved in recent months. Separate funding was received from the VRTC in 1996/97 to collect traffic checking data, and a pilot project for a bus priority signaling system (AVL - automated vehicle locator), is provided for in the 1997/98 capital funds. Other automation options like APC (automatic passenger count), are also being considered. In addition to automation, BC Transit will use current on-street staff to assist in data collection.

#### **Recommendation 5**

**To help it evaluate the effectiveness of scheduling, Transit should retain records of run-cuts prepared as part of the scheduling process—both those adopted and those that were not—with explanatory notes about the basis of selection.**

BC Transit agrees in principle with this recommendation.

In Vancouver, the final version of run cuts exploring different budget or other initiatives is retained. However, iterations leading up to the final version are not retained.

In Victoria, the scheduler maintains summaries of run-cut development work.

The nature of the scheduling process with TRAPEZE is such that, as a single run-cut is developed, and as inefficiencies materialize, an alternate strategy is employed, and the inefficient run-cut is never fully developed. For this reason, it does not make sense to retain it on file. Fully developed run-cuts that were presented to the sheet committee can and will be retained, along with the modified and adopted final version.

#### **Recommendation 6**

**Transit should implement a transit centre operations system that supports decision-making, eliminates duplication of records, and reports on the efficiency of operations.**

BC Transit, Vancouver region, agrees with this recommendation. The need for automation is acknowledged, and we are currently assessing alternative ways to package requests for DOMS or like system

that strongly emphasize the business rationale for an automated operations system.

The audit report refers to a less costly software alternative to DOMS, (p.48,49). Other than considering a strategy of phased implementation, we are unaware of any software that is less costly than that proposed for DOMS.

In Victoria, existing systems, although believed to be adequate in obtaining the discussed result, are unwieldy and sometimes difficult to use. Work has been underway internally for several months to develop and improve processes which will seamlessly integrate with Victoria scheduling, accounting, personnel and payroll systems. The first phase of the new system is scheduled to be implemented in September 1997.

### **Recommendation 7**

**Transit should explore whether or not there are opportunities for further efficiencies in the way in which daily work is assigned.**

BC Transit agrees with this recommendation. A Manager, Systems Planning and Procedures has been introduced and through proper management, analysis and redeployment of existing resources, spareboard productivity was increased in the April Sheet covering the first quarter of the fiscal year. Further savings will be realized in the future.

The development of a depot office manual has been of great benefit in training work leaders and depot staff. This manual has helped to ensure the consistent application of spareboard rules which may lead to higher productivity.

We are unable to respond to the recommendation concerning a centralized spareboard prior to implementation of an automated operations system (DOMS).

Traditionally, BC Transit head office has prepared charts showing overtime, non-productive standby, and guarantee by pay period. This process was refined recently to be more user friendly, and charts are now prepared by depot staff who have considerable control over allocation of work. This will increase the timeliness of analysis.

BC Transit does not have the right to use part-time workers under the current collective agreement.

### **Recommendation 8**

**Transit should implement a more effective system for monitoring compliance with the National Safety Code in the Vancouver region.**

BC Transit agrees with this recommendation. A key component of DOMS or a like system will address the need for a more effective system for ensuring compliance with the National Safety Code.

**Recommendation 9**

***Transit should implement a comprehensive strategy for attendance management. It should also define more clearly the goals and priorities of the attendance management process, and ensure that these are understood throughout the organization.***

*BC Transit agrees with this recommendation. An Attendance Management Program was implemented in April 1997, and long-term objectives have been set regarding attendance. The underlying philosophy of the program is that if an employee is well, they come to work and if they are not, they stay home. The Attendance Management Program provides a mechanism to manage employees who are absent from work, with a strong emphasis on a comprehensive rehabilitation process. The Program has been communicated to BC Transit's Board of Directors, the Senior Management Team and all Unions.*

*Specific attendance targets will not be identified, as such targets may be interpreted as entitlement even to those with significantly lower sick days.*

**Recommendation 10**

***Transit should conduct a review of operator attitudes to identify the factors most significantly affecting the levels of operator attendance in the organization. Every effort should be made to enlist the support of the union for the survey. On completion, the key results should be shared with all the interested stakeholders. As well, Transit should analyse the current balance of incentives and disincentives in the disability plan to see if the balance is appropriate.***

*BC Transit agrees with this recommendation, and Human Resources will be conducting an employee attitude survey to identify attendance, productivity and other workplace-related issues. However, due to budget constraints, the survey cannot be performed until the fiscal year ending March 31, 1999.*

**Recommendation 11**

***The roles, functions, and values associated with the attendance management program should be articulated more clearly and communicated to managers and supervisors who administer the program.***

*BC Transit agrees with this recommendation. The Attendance Management Program defines the Supervisor's role and clearly defines the responsibilities of the various parties involved in attendance management. This is an ongoing process.*

*The plan has been communicated to managers, supervisors and union representatives.*

*The penultimate paragraph on page 59 talks about the centralized system for managing attendance of all employees and states that the system will provide a reasonably timely record of individual attendance history. It is noted that the information from this system has about a two week delay. Once DOMS or a like system is implemented, this information will be accessible in real time.*

#### **Recommendation 12**

***Transit should establish long-term goals for collective bargaining, and strategies for achieving them. The goals and strategies should reflect the proposed development of the transit system as contemplated in the medium and long-term service plans. Bargaining strategies must be linked to the budget process and to the overall mandate for negotiations.***

*BC Transit agrees with this recommendation. The establishment of long-term goals for collective bargaining may be directly influenced by the outcome of current negotiations between the Province and the regional government concerning the funding and governance of BC Transit.*

#### **Recommendation 13**

***Transit should acquire a contract costing model to assist it in evaluating the impact of proposed contract revisions.***

*BC Transit agrees with this recommendation. Issues related to scheduling represent one of the largest components of labour costs. With the full implementation of TRAPEZE and associated training now underway, scheduling-related costs can be calculated.*

*The potential for implementation of a full contract costing model will be evaluated in the current budget development process.*

#### **Recommendation 14**

***In future contract negotiations, Transit should ensure that the basis of measuring the success of the contract provisions be defined adequately and be capable of being measured accurately. For provisions which may be canceled by either party, success and measurement criteria should be set out clearly in the contract language.***

*BC Transit agrees with this recommendation in part. Automation tools such as TRAPEZE will assist with the measurement of specific contract provisions.*

*BC Transit will ensure that cancellation rights are clear to each party. Such rights may or may not be contingent on measurement of specific contract provisions.*



*The audit report mentions on page 62 that responsibility for the content of management's collective bargaining agenda is not clear.*

*Collective bargaining goals and objectives developed by BC Transit pursuant to Recommendation 12 will include implementation strategies which will clearly define roles and responsibilities for the various departments.*

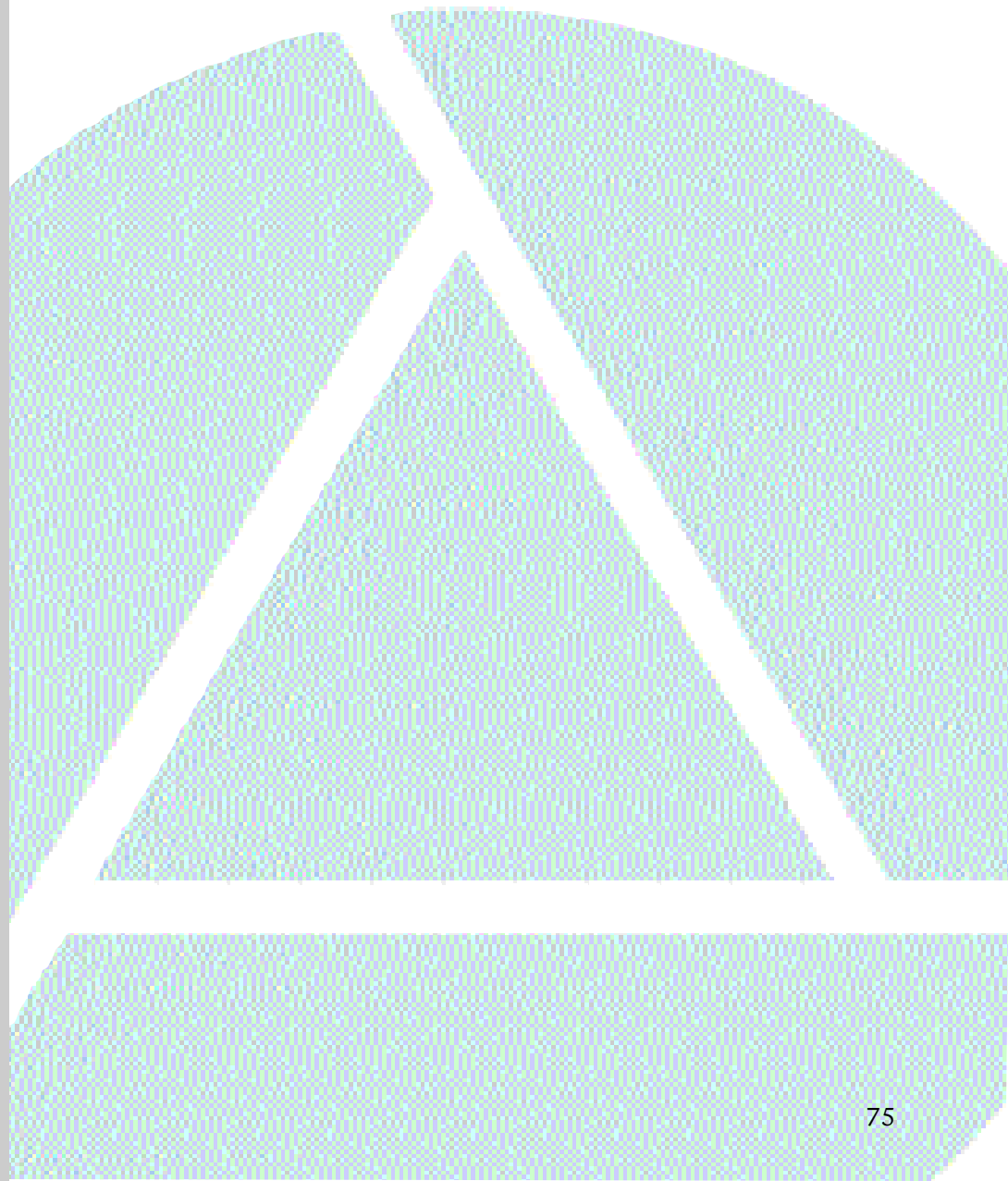
**Recommendation 15**

***Transit should ensure that performance information provided to different groups of stakeholders is accompanied by analysis that is consistent in content and relevant to the interests of the groups concerned.***

*BC Transit agrees with this recommendation, and will provide more consistent and relevant commentary in the future.*



# bc transit: its success as a market-focused organization





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# bc transit: its success as a market-focused organization

*An audit of how well BC Transit has succeeded in its strategic goal of becoming market-focused*

## Audit Purpose and Scope

Like many other organizations, BC Transit faces an increasingly demanding marketplace. In particular, automobile commuters—one of Transit’s strategic target markets—are accustomed to choice, flexibility, and comfort. Transit cannot take for granted that it is supplying what its customers want. It must regularly check to see how well its products and services are working, adjust what is not working, and develop new products and services where needed.

Transit’s plans, and those of its senior stakeholders, call for it to significantly increase its share of the commuter markets in both Vancouver and Victoria. British Columbia’s cities, especially Vancouver, cannot continue to be desirable, vibrant, and economically productive if choked with traffic. Transit systems are key tools in controlling traffic congestion and its related social, economic, and environmental costs, but only if they can increase their share of the travel market, especially the commuter market. This is a difficult goal, and one that BC Transit cannot achieve unless it becomes fully market-focused.

The more commuters Transit can carry, the greater the potential for reducing the economic, social, and environmental costs of traffic congestion. However, to attract new customers, Transit must know and understand their needs, and develop services that can meet those needs.

Transit’s mission statement recognizes this important requirement, calling for it to “excel in the provision of safe, reliable, cost-efficient and **market-focused** public transportation systems that support the social, economic and environmental goals of the customers and communities we serve.”  
[emphasis added]

The purpose of our audit was to assess how well Transit is succeeding at being market-focused.

Our audit looked for answers to the following questions:

- Does Transit have appropriate strategies to guide its market-related activities?

- Are Transit’s market-related functions appropriately organized?
- Does Transit systematically determine what its targeted customers want, assess how well its existing products and services address those wants, and make necessary changes to better address them?
- Does Transit appropriately inform its stakeholders about its market-related performance?

Our audit examined marketing activities carried out by or on behalf of the Vancouver Regional Transit System and the Victoria Regional Transit System.

Some parts of BC Transit were excluded from our audit: West Coast Express, and municipal systems.

Although West Coast Express is part of Transit’s Vancouver operations, it differs from other services in the region by being a project initiated and largely funded by the provincial government. As a result, many of the decisions surrounding its development—whether the right market opportunity was chosen, for example—were policy decisions, and outside the scope of our audit. For this reason, and because of its relatively small size, we did not consider West Coast Express when reaching our audit conclusions about Vancouver Transit, and about Transit as a whole.

We do believe, however, that once Transit had been given the assignment to develop West Coast Express by the provincial government, the way it carried out its work exemplified a market-focused approach. That is why we have included, as Exhibit 3.4, a discussion of West Coast Express as a special situation within Transit, but one in which market-focused concepts were used effectively.

Municipal systems—Transit operations in communities outside the Vancouver and Victoria regions—were also excluded from our audit, because each is small relative to Vancouver and Victoria (the 42 communities together represent about 7% of total Transit expenditures).

Another topic not included in our audit is how drivers contribute to Transit being market-focused. Drivers have an important role in service, as they are Transit’s primary contact with its customers. However, this role forms only part of the larger topic of driver recruitment and training, which we were unable to address within this audit.

Our examination focused on activities in the 1996 calendar year. It was performed in accordance with value-for-money auditing standards recommended by the Canadian Institute

of Chartered Accountants, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

## Overall Conclusion

Overall, we concluded that BC Transit, particularly in Vancouver, has not yet succeeded in becoming a market-focused organization.

Both the Vancouver and Victoria regions have developed high-level plans which define their target markets and set out goals for market share that are clear, challenging, and broadly consistent with the expectations of Transit's government stakeholders. However, Vancouver needs to translate its market goals into well-developed action plans, revise its organizational structure, improve the way it develops new products, and regularly evaluate the attractiveness of its existing products. Above all, it needs to develop a customer-centered approach throughout the organization.

Victoria is further along the way to becoming market-focused than is Vancouver. However, it still needs to refine its use of market information for product development, and to regularly examine its existing products from the customer point of view.

To ensure that its stakeholders support and understand its efforts to become market-focused, BC Transit needs to tell the Legislative Assembly and public more about its marketing goals, and explain its results.

In offering this conclusion, we acknowledge that Transit is accountable to multiple stakeholders (including the Province, and regional and municipal governments) with objectives that may compete or conflict with Transit's ability to be fully responsive to the market. To become fully market-focused will not only require large-scale cultural change within Transit, but also the confidence and support that Transit has to earn from its stakeholders.

## Key Findings

### Five-year goals are clear, but not longer-term goals

Transit and its government stakeholders agree that Transit's primary target market is commuters, and they agree about the five-year market share targets for the Vancouver and Victoria regions. However, there is less agreement on what long-term market share targets Transit should aim for. This may affect



Transit's ability to plan its future resource requirements, and governments' ability to progress with transit-supportive land use and transportation policies.

## Vancouver Transit needs better action plans

In Vancouver, Transit has not translated its high-level goals into action plans, laying out the specific product and service changes required to generate the market share desired, and how these changes will be carried out. Existing one-year plans are not explicitly linked to market goals and do not specify how Transit intends to achieve these goals.

## Vancouver Transit is not organized to be market-focused

Vancouver Transit is not organized to be market-focused. Its performance measures are incomplete, responsibility for performance is not clearly assigned, and resources are insufficient in key market-related areas. These are problems in themselves and also, we believe, signs of Transit needing to change its organizational culture to one in which customer consciousness pervades the organization. To lead this change we believe Transit needs a "voice of the customer"—a senior executive whose primary responsibility is developing, maintaining, and advocating for market focus.

## Transit needs more customer-focused information

Transit does not look at its services as a package, through the eyes of the customer. It does not systematically collect information on why customers leave. While it does collect good survey information on customer satisfaction and attitudes, this information is not fully used. As well, there are significant gaps in other areas of information about customers.

## Performance against marketing goals is poorly reported

Transit does not provide the Legislative Assembly and public with sufficient information to allow them to judge its progress in reaching its market goals. However, it does share with its board and commissions the information it has available, although it does not often provide an analysis of its results in a way that would help them assess its performance.

## Victoria Transit differs from Vancouver in several areas

Victoria, like Vancouver, has a five-year market target agreed to by its major stakeholders (while needing better agreement from them on its longer-term targets). However, Victoria has been more successful in translating targets into effective action plans. Also, Victoria does not have several of Vancouver's organizational problems, since it assigns responsibility for performance, tracks a wider range of performance measures, and appears to have sufficient resources in key marketing-related areas.

Victoria and Vancouver are broadly similar in needing to refine their use of market information in product development, and to regularly examine their existing products from the customer point of view. They are also similar in their need to tell the Legislative Assembly and the public more about their marketing goals and performance.



## summary of recommendations

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### Developing Strategies to Guide Market-related Activities

1. *Transit should work with its regional transit commissions and the provincial government so that the various long-term plans and marketing goals are consistent and attainable.*
2. *The Vancouver region should ensure that its action plans for service improvements clearly support its market goals.*

### Organizing to be Market-focused

3. *Transit should address in its key performance indicators all elements of service that are of importance to customers.*
4. *Transit should assign responsibility for market-related key performance indicators to business units and individuals, in order to promote a stronger focus on customers and on marketing goals.*
5. *Transit should provide units responsible for market-focused activities in Vancouver with organizational stability, resources adequate for the tasks assigned them, and sufficient ranking within the organization to clearly signal that Transit intends to be market-focused.*
6. *Transit should appoint a senior executive whose primary responsibility is developing, maintaining, and advocating market focus throughout the organization.*

### Providing Market-Focused Products and Services

7. *Transit should develop cost-effective methods of measuring, understanding, and addressing customer dissatisfaction and attrition, and consider including such measures in its key performance indicators.*
8. *Transit should ensure that its print information is effective.*
9. *Transit should work with its regional partners to ensure that decisions about bus stops and shelters maximize customer appeal.*
10. *Transit should make full use of customer research in designing its fare structure, including research on price elasticity in the markets it serves.*
11. *Transit should develop appropriate mechanisms for making decisions about vehicle type, design, and appearance that maximize customer appeal.*

12. *Transit should regularly examine the relative cost-effectiveness of its various services (including specific routes) in attracting targeted markets such as car-driving commuters.*
13. *Transit should extract maximum value from its existing market research.*
14. *Transit's development or modification of products and services should be supported by sufficient market research to give reasonable assurance that the products or services will meet customer expectations.*
15. *Transit should work with its marketing research consultants to improve its ability to differentiate its customers in an action-oriented way.*

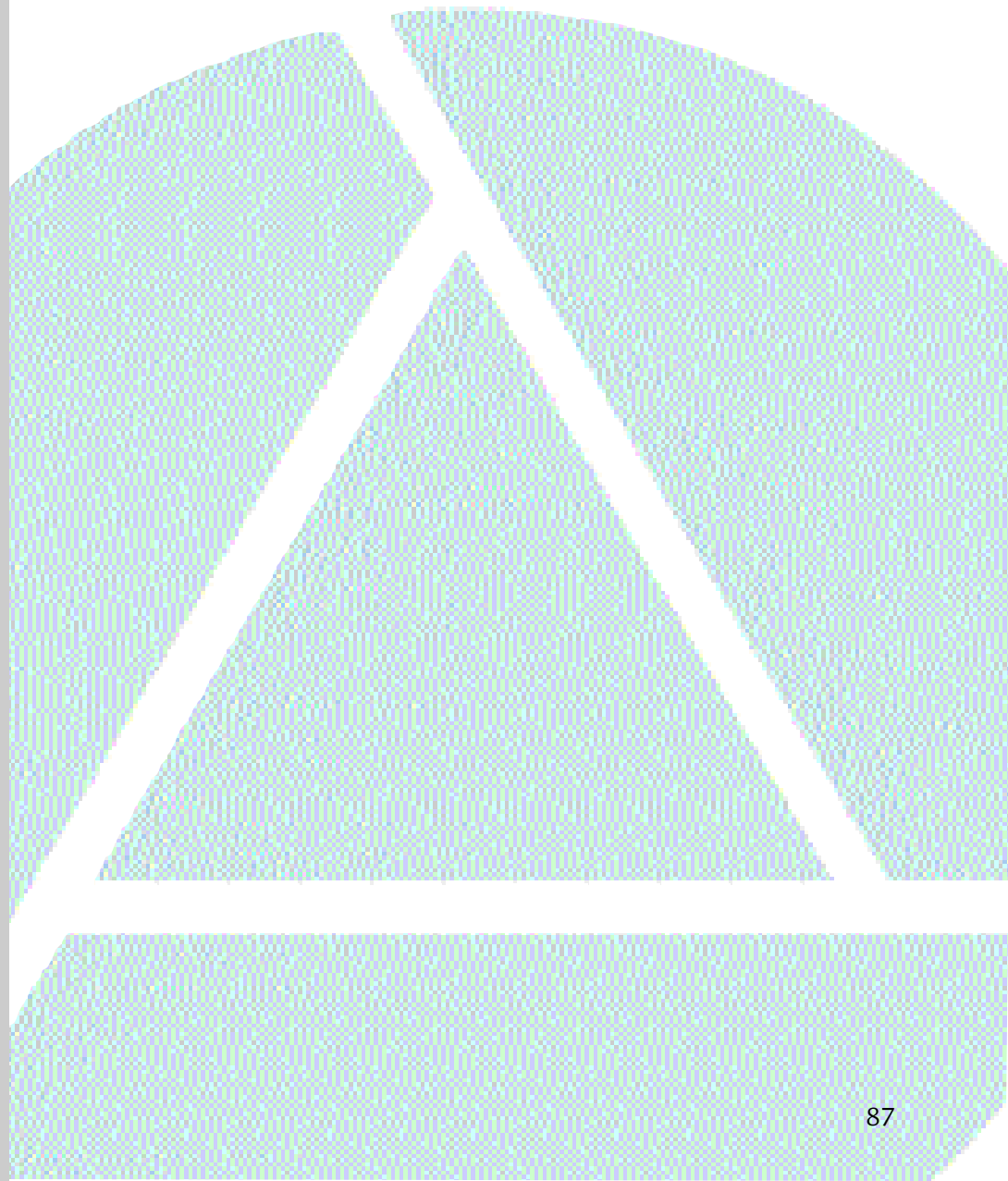
## Reporting on Performance

16. *Transit should include market share as one of its key performance indicators.*
17. *Transit should improve its external reporting through its annual reports by:*
  - *stating clearly that being market-focused is a major goal of the organization;*
  - *stating clearly its marketing goals, including what market segments it will focus on and how it will measure its success;*
  - *reporting on progress towards marketing goals;*
  - *reporting on how new products or services are contributing to the achievement of marketing goals; and*
  - *reporting on how proposed new products or services are expected to contribute to the achievement of marketing goals.*





# detailed report





## background

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### Marketing Is More Than Advertising

It is not uncommon, especially in the transit industry, to think of marketing as another word for advertising. However, marketing encompasses much more than this. Marketing is identifying and analyzing customer needs, grouping customers into target groups with similar needs, determining which target groups the organization can and should serve, and then developing the products and services that best serve those target groups. As Peter Drucker, a respected American authority on management, put it: “Marketing is so basic it cannot be considered a separate function. It is the whole business from the point of view of its final result, that is, from the customer’s point of view.”

A focus on the customer must permeate the culture and structure of the market-focused organization. Staff must understand that the objective is to achieve corporate objectives by creating superior customer value. To do so, business decisions must be made with an understanding of customer needs and the associated costs of satisfying them. This information must be understood and communicated throughout the organization, so that informed decisions can be made at all levels of the organization.

A market-focused organization has a marketing strategy that places the customer at the center. The key questions guiding all action are “How does this decision respond to customer need?” and “How does this decision affect customer value?” The strategy is constantly adapted to meet changing customer needs.

To implement the marketing strategy, action plans are developed after market research has been done and an assessment made of the organization’s operating environment. Each action plan requires the use of a mix of marketing tools—a mix selected to best fit the chosen target market in a cost-effective way.

Market research is a key skill of market-focused organizations, one that assists the organization to understand who its current and potential customers are, their behaviors, and their needs. Using this information, the organization can segment its customers into groups with similar needs and values, and develop products and services that target the specific needs of each group. As well, market research allows an organization to monitor its success in meeting customer needs.



The structure and resources of an organization are critical to the successful implementation of its action plans. Market-focused organizations typically have a senior-level executive responsible for ensuring that everyone in the organization remains focused on the customer and understands his or her role in developing customer value. This is particularly important in service industries, where the service is consumed as it is produced (unlike manufacturing industries, where products can be stockpiled and consumption occurs away from the point of production.)

## Having Measures of Market Success is Important

The essence of a market focus is demonstrating through action that the voice of the customer has been heard. If an organization fails to meet customers' needs and expectations, those customers will find an alternative. Therefore, to assess the effectiveness of its actions, an organization must continually measure customer response. The inability to attract new customers or retain existing ones will leave an organization struggling.

The transit industry is not immune from this risk. In most of the developed world over the past several decades, public transit has lost customers to the automobile, as measured both by ridership and market share. While BC Transit has resisted the trend of declining ridership, this has not translated into increased market share. For example, between 1985 and 1992, population in the Greater Vancouver region increased 21%, and on average each person made 16% more trips during the peak travel period. Transit captured part of the resulting peak travel demand, so its ridership increased by 25%. However, automobiles were more successful at serving these new travel demands—peak period automobile trips increased 48%. In short, Transit's ridership grew, but the ridership of Transit's main competitor, the automobile, grew faster, and Transit's market share did not grow.

## Market Share is Affected by Factors Outside Transit's Control

In various sections of this report, we refer to market share as being a key indicator of Transit's success. While this is true, it is also important to point out that the market share of transit systems is heavily affected by factors outside management control.

One of the key elements that affects transit use is density of settlement in a community: the higher the density, the greater the transit use. So does general community attitudes:

a transit system in a community where most citizens have a basic familiarity with transit (because, for example, they used the bus system as students, or have emigrated from countries where transit is heavily used) will be able to attract riders more easily than one in a community where most citizens have never used transit. Attitudes need not be static. For example, Transportation Demand Management (TDM) programs in a community can help build a pro-transit attitude.

Any special advantages that competing travel modes may enjoy are also important. These might include heavy public investment in freeways, extensive provision of downtown parking, or flat terrain that makes a dense road network easy to build—factors that can give automobile commuting an advantage over public transit. Again, compensatory programs, such as converting some freeway lanes to High Occupancy Vehicle (HOV) lanes, can help even the balance in transit’s favor.

Market share can also be constrained by a shortage of vehicles. Transit management has the responsibility to optimize the value it gets from the existing fleet through efficient operations, and through assignment of vehicles to routes and times where they have the most market value. However, eventually market share cannot be increased without more vehicles. Capacity is a factor to some extent outside Transit’s control, because the final decision to buy more Transit vehicles rests with the provincial government.

For these reasons, market share measures must be understood in context. There is little value in comparing the market share of a transit system in one city to that of another system serving a different city. What is useful is to look at whether market share is increasing and, if it is, how far it is from the target set in local transportation and land-use plans.



## developing strategies to guide market-related activities

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Transit's mission statement states that its goal is:

“to excel in the provision of safe, reliable, cost-efficient and **market-focused** public transportation systems that support the social, economic and environmental goals of the customers and communities we serve.” [emphasis added]

In a large organization like Transit, achieving this goal of being market-focused requires commitment by key stakeholders and senior management, and clear direction about exactly what changes are to be made, how they will be made, and who will make them.

We looked to see if Transit has the required commitment and direction. Specifically, we looked for a high-level plan guiding its market-related activities, one that is consistent with the policy expectations of Transit's senior stakeholders, has measurable goals against which performance can be evaluated, and is accompanied by action plans for achieving the goals.

### Conclusion

Transit and its government stakeholders agree that Transit's primary target market is commuters, and they agree about the five-year market share targets for the Vancouver and Victoria regions. However, there is less agreement on what targets regarding long-term market share Transit should aim for. This may affect Transit's ability to plan its future resource requirements, and governments' ability to progress with transit-supportive land use and transportation policies.

In Vancouver, Transit has not translated its high-level goals into action plans laying out the specific product and service changes required to generate the market share desired, and how these changes will be carried out. Existing one-year plans are not explicitly linked to market goals and do not specify how Transit intends to achieve these goals.

## Findings

### Transit has Measurable, Challenging, Market-related Five-year Goals, Consistent with its Stakeholders' Expectations

Both the Vancouver and Victoria regions of Transit have developed marketing goals and stated them in the form of five-year plans.

Vancouver, with the active participation of local and regional governments, recently completed its five-year plan, *Transaction 2002*, which builds on the Province's *Ten Year Development Plan for BC Transit*. The five-year plan states that commuters are Transit's key target market, and calls for Transit to increase its market share of weekday morning peak hour trips from 12.5 to 13.1% by 2002.

Victoria's *Five Year Plan and Funding Strategy* was approved by the Victoria Regional Transit Commission and the provincial government in 1993. The plan's 1996 update states that "Transit's primary goal is to increase its share of peak hour travel," and it sets a target of a 7.2% share of regional peak hour commuter travel by 2001 (up from a 6.6% share in 1995).

Both five-year goals will require significant effort from Transit if they are to be reached. For example, Vancouver's targeted market share means that it must attract and keep 16% more peak hour customers by 2002.

### Longer-term Goals Are Not Congruent

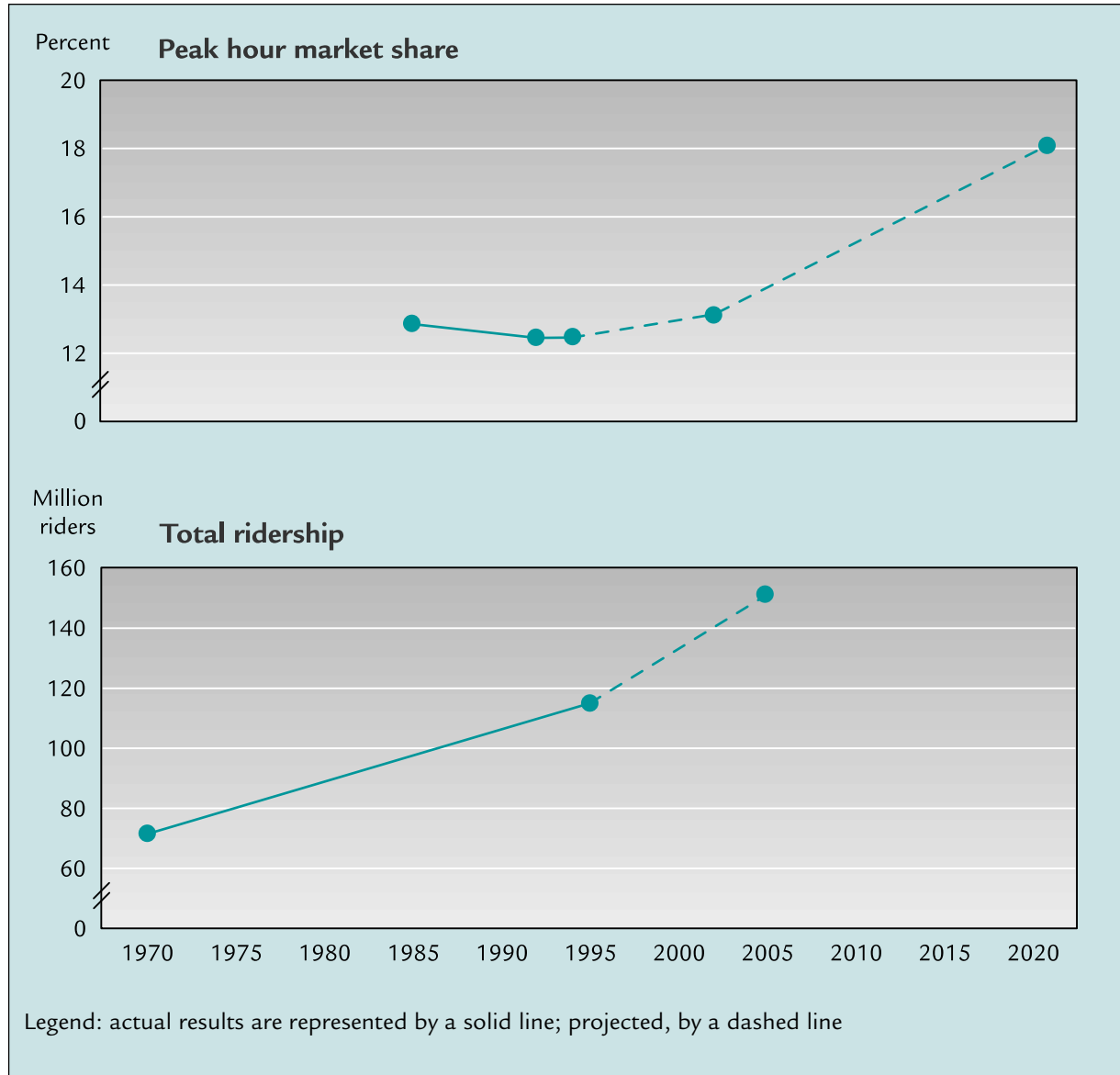
The goals set in longer-term plans are considerably more ambitious than those in Transit's five-year plans.

For example, the Transport 2021 plan jointly developed by the provincial government and the Greater Vancouver Regional District calls for Transit to attain an 18% market share by 2021. Achieving this will require more than doubling the market share growth rate over that called for in the five-year plan (see Exhibit 3.1).

This lack of congruence may affect Transit's ability to plan its resource requirements adequately, and the ability of provincial and local governments to move ahead with consistent transit-supportive land use and transportation policies. We believe that Transit and its stakeholders would

### Exhibit 3.1

### Market Share and Ridership, Actual And Targeted, Vancouver Region



Sources, market share:

- 1985, 1992—Greater Vancouver Travel Survey, Report #6
- 1994—Ten Year Development Plan for BC Transit
- 1996—BC Transit Transaction 2002: Service Plan and Funding Strategy
- 2021—Transport 2021 Report: A Long-Range Transportation Plan for Greater Vancouver

ridership:

- actual—trend line calculated from data in “Vancouver Regional Transit System, Historical Ridership Data,” BC Transit Service Planning, 1990, and in “1996/97 Annual Service Plan,” BC Transit
- 2006—Ten Year Development Plan for BC Transit

benefit from more open and detailed communication about their market goals for Transit, and what support—both monetary, and in terms of policy changes in areas such as land use (see below)—Transit will need, and get, towards achieving these goals.

**Recommendation 1:**

*Transit should work with its regional transit commissions and the provincial government so that the various long-term plans and marketing goals are consistent and attainable.*

### Transit and Land Use Planning

Land use decisions can have profound effects on transit’s market share. BC Transit summarized these effects in a report, *Transit & Land Use Planning* (Long Range Planning, BC Transit, 1994), which it circulated to Lower Mainland municipalities. The report points out that the major elements of transit-friendly design are:

- *Density* — Important elements of population density are its location relative to transit services, and consistent density from origin to destination along a route.
- *Land use mix* — Clustering businesses into a few areas of significant development, rather than scattering employment centers widely, supports the “many-to-one” travel patterns that transit can serve most effectively.
- *Road network* — Reduced automobile dependency and higher transit ridership result from having short walking distances between buildings, narrow streets on a grid pattern with smaller blocks, and more intersections to slow down local traffic. The standard postwar subdivision layout is not transit-friendly, combining meandering residential streets (inefficient and slow bus routes) with arterial roads (unfriendly to pedestrians).
- *Street design* — Pedestrians need safe, comfortable, barrier free, and direct access to the transit route, and buses need roadways that allow transit movements which are competitive with automobile travel time. For example, right-hand-turn channels can be unsafe for pedestrians crossing the intersection, particularly if signal triggers are on an island in the intersection rather than on the sidewalk. Also, they can lead to right lanes being dedicated to turning movement, reducing safe locations for bus stops, and making it hard for buses to get to the stop.
- *Site design* — For example, transit-supportive shopping centers face the street (putting parking at the rear) and so provide easy pedestrian access from transit stops. Placing parking at the front forces the bus patron into a long and unprotected walk across the parking lot in order to reach the stores.
- *Pedestrian amenity* — Transit trips have three stages: the pedestrian experience at the beginning; the transit ride itself; and being a pedestrian again at the end of the trip. The pedestrian experience is as important as the transit ride in motivating people to use transit, and is influenced by closeness of the starting point of the journey to transit, walking distance to the destination, overall street design, and pedestrian amenities on the sidewalk.

## Vancouver Transit's Action Plans Are Not Yet Aligned With Its Goals

Action plans are vital links between high-level plans and actual service to the customer. By laying out in detail what service enhancements will be made and when, action plans demonstrate that:

- the organization is committed to the goals in the high-level plans and has worked out how to achieve them; and
- the goals are feasible (for example, that the expected ridership gains from each of the service enhancements in the action plans add up to the goal for market share in the five-year plan.)

The Vancouver region develops yearly action plans called “annual service plans,” but these do not yet reflect the overall strategic directions of Transit, which are now articulated in the five-year plan. For example, despite the strategic priority given commuter service, only six of Vancouver’s 14 service development projects under way at the beginning of our study period focused clearly on commuters. Similarly, the 1996/97 annual service plan specifies criteria for new service improvements, but of the 11 criteria, only two focus on commuters directly. Three more do so indirectly, proposing general quality improvements that could attract commuters as well as other riders. The remaining six are unrelated to serving commuters.

Victoria region’s action plans we found to be clearly linked to its five-year plan.

### **Recommendation 2:**

*The Vancouver region should ensure that its action plans for service improvements clearly support its market goals.*



## organizing to be market-focused

In a market-focused organization the “voice of the customer” is heard throughout, and meeting customer needs is every employee’s job. To create and maintain this customer-focused culture the organization must ensure it has all the necessary structural components in place: performance measures, assignment of responsibility, and assignment of resources.

We looked for these structural components in Transit.

### Conclusion

Vancouver Transit is not organized to be market-focused. Its performance measures are incomplete, responsibility for performance is not clearly assigned, and resources are insufficient in key market-related areas. These are problems in themselves and also, we believe, signs of Transit needing to change its organizational culture to one in which customer consciousness pervades the organization. To lead this change we believe Transit needs a “voice of the customer”—a senior executive whose primary responsibility is developing, maintaining, and advocating for market focus.

### Findings

#### Transit Has Developed High-level Performance Indicators

Each of Transit’s major activities, such as bus maintenance, has an impact on customers. Therefore, each activity should be expected to contribute to the achievement of overall marketing goals. For example, bus cleanliness is rated as being important by customers and so is likely to affect market share. We expected that Transit would develop performance indicators for each major activity, and monitor performance against expectations.

We found that Transit has developed some high-level key performance indicators for market goals, but the set of indicators is incomplete. We also found that performance measures and expectations were not being derived from these corporate indicators, nor monitored.



## Key Indicators Need to be Expanded to Include More Issues Important to Customers

Only two key performance indicators currently pertain to service elements that are within management control and contribute directly to achievement of market goals. These address service reliability and safety. These two elements, however, are not the only ones that affect the consumer decisions that lead to market success. For example, although Transit always asks customers in its regular surveying process to indicate how important different service elements are to them, most of these elements do not have a corresponding key performance indicator. (Exhibit 3.2 shows what Vancouver bus customers feel are the most important service elements.)

### **Recommendation 3:**

*Transit should address in its key performance indicators all elements of service that are of importance to customers.*

### Exhibit 3.2

#### Elements of System Performance Important to Vancouver Bus Customers<sup>1</sup>

Element	Customer Ranking <sup>2</sup>	Related Key Performance Indicator
Service overall	9.0	reliability: percentage of scheduled service delivered safety: collisions per million kilometers, injuries per million boarded passengers
Being safe from crime onboard	8.9	offenses per million boarded passengers
Good connections	8.7	none
Running often enough	8.6	none
On-time service	8.5	none
Direct routes	8.4	none
Convenient hours	8.2	none
Helpful driver	8.2	none
Speed of the trip	7.8	none
Clean interior	7.4	none
No overcrowding	7.2	none

<sup>1</sup>“BC Transit Rider Satisfaction Study, Quarter 4, 1995/96 Report,” MarkTrend Research, Vancouver, 1996.

<sup>2</sup>Customer ranking is on a 1-10 scale, 10 being highest importance.

## Responsibility for Performance Against the Indicators Is Not Clearly Assigned in Vancouver

For a culture of customer focus to develop within Vancouver Transit it is important that everyone understand what the goals of the organization are, the indicators that measure progress towards those goals, how responsibility for indicators is assigned, and how performance is evaluated.

Currently, responsibility for successful performance is assigned at the mode level (that is, Vancouver bus, Victoria bus, SkyTrain, Seabus, and West Coast Express). However, this approach does not provide sufficient focus for Vancouver bus operations, where there is no individual assignment of responsibility to ensure specific standards are met. For example, since bus service in Vancouver is delivered from transit centers (bus depots), which have distinct geographic service areas, responsibility for certain performance indicators could be assigned to the center managers.

### **Recommendation 4:**

*Transit should assign responsibility for market-related key performance indicators to business units and individuals, in order to promote a stronger focus on customers and on marketing goals.*

## Vancouver Transit Devotes Insufficient Resources to Market-focused Activities

A market-focused organization must assign adequate resources to its market-focused activities to ensure that they continue to meet the needs of its customers.

We found many indications that too few resources are being applied to market-focused activities in Vancouver Transit. For example, there is currently only one product development team—made up of about half a dozen specialists in planning, scheduling, marketing, and other disciplines—responsible for planning and developing all the Transit-initiated service changes within the Vancouver service area. The team’s list of potential projects is growing, yet fewer people are available to carry out projects than before. Relative to the scale of operations, staffing for market-focused functions in Vancouver is lower than that in Victoria Transit and West Coast Express, and lower than that suggested by such industry organizations as the Canadian Urban Transit Association.

The effectiveness of the resources available may also have been diminished by the “turbulence” resulting from repeated reorganizations within a short time. For example, product development teams have been reorganized twice since they were first assembled in 1994. The advertising and market research department has undergone similar organizational turbulence, as has the planning department. Frequent organizational changes have costs: staff must spend time learning their new duties and picking up where their predecessors left off. This is difficult, since much of the knowledge needed to keep large organizations operating is implicit and not documented.

Another organizational difficulty in Vancouver region is the relatively low ranking within the organization of product and service development staff. We believe this weakens their ability to bring about market-focused changes, since in large hierarchical organizations relative rank is an important signal of the organization’s values. For example, much of the work of developing new services, including negotiating the necessary changes within Transit to fit these new services into the existing system, is carried out by the superintendent of service development and his product development team. These individuals are located rather deep within the organization, being four and five levels below the Chief Executive Officer. This is one level below their opposite numbers in Victoria region and two levels below those in West Coast Express. It is also one or more levels below that recommended in the literature on marketing.

We do not have the same concerns about the organization and structure of Transit in the Victoria region. There, a manager responsible for planning, product development, and marketing is part of Victoria’s central management team, and has the clear direction and resources necessary to facilitate a market-focused approach.

**Recommendation 5:**

*Transit should provide units responsible for market-focused activities in Vancouver with organizational stability, resources adequate for the tasks assigned them, and sufficient ranking within the organization to clearly signal that Transit intends to be market-focused.*

## Transit Needs A “Voice of the Customer”—A Senior Executive Whose Primary Job is to Help Focus the Organization on Meeting Customer Needs

A successful market-focused organization sees satisfying customer needs as its *raison d’être*. This focus permeates the organization. We believe that the weak performance measures, unclear responsibility, and insufficient market-related resources in Vancouver Transit are symptoms of a culture that does not have the “voice of the customer” present throughout the organization.

To become market-focused, Vancouver Transit will have to adopt significant changes at all levels within the organization—changes in focus, expectations, and accountability. Change is always uncomfortable, for organizations and individuals alike, and is often resisted. We therefore believe that Transit needs a senior level executive whose primary responsibility is to act as a change agent—someone to facilitate the cultural shift that is required if Vancouver Transit is to become truly market-focused.

### ***Recommendation 6:***

*Transit should appoint a senior executive whose primary responsibility is developing, maintaining, and advocating market focus throughout the organization.*



## providing market-focused products and services

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We examined whether Transit is systematically determining what its targeted customers want, assessing how well its existing products and services address these wants, and modifying existing products and services or developing new ones to better address these wants.

### Conclusion

Transit does not look at its services as a package, through the eyes of the customer. It does not systematically collect information on why customers leave. While it does collect good survey information on customer satisfaction and attitudes, this information is not fully used, and there are significant gaps in other areas of information about customers.

### Findings

It is common in successful marketing-oriented organizations (although less so in the transit industry) to use marketing research extensively in choosing target markets and designing products. Such organizations put much effort into listening to their customers. They value what they hear because they want to be able to think like a customer—to see their offerings from the customer’s point of view. Using this understanding they can then act with confidence, knowing what improvements or innovations are needed and what their likely payoffs will be.

### In General, Transit, Especially in Vancouver, is Weak at Learning From Its Customers

We observed three problems, especially in Vancouver:

- Little attention is paid to dissatisfied customers.
- Transit does not look at its offerings from the customer’s point of view, as an integrated continuum of services.
- Full value is not extracted from the customer information that is collected.

These three problems, we believe, contribute to a lack of innovation in conventional transit operations in Vancouver.

## Transit Needs to Listen Better to its Dissatisfied Customers

Market-focused companies put great effort into learning from customers who have complaints, and customers who stop using their service, because:

- dissatisfied customers are a valuable source of information about how to improve service;
- it is generally less costly to retain existing customers than attract new ones; and
- dissatisfied customers can be a significant source of negative word-of-mouth publicity.

Tracking customer complaints is a good way to begin learning from dissatisfied customers. Market-focused companies go further, however, by collating their information and analyzing trends. They find that for every customer who complains, many more show their dissatisfaction by simply ceasing to be customers, without informing the company. The usual analogy is that of an iceberg: complaints are merely the tip above the waterline; the bulk of disgruntlement is not visible. For this reason, corporations such as British Airways invest significant resources in contacting former customers and finding out why they no longer use the service.

Transit does not currently have formal mechanisms in place for measuring customer attrition or determining the causes. Nevertheless, there are some such efforts under way. In Victoria, for example, a monthly report on the number and types of complaints is circulated to senior management.

### **Recommendation 7:**

*Transit should develop cost-effective methods of measuring, understanding, and addressing customer dissatisfaction and attrition, and consider including such measures in its key performance indicators.*

## Transit Must look at All Parts of its Continuum of Service, From the Customer's Point of View

Market-oriented businesses recognize that today's customers almost never buy a product or service by itself; instead, they buy a related package of goods or services that together meet their needs. This is so much the case in everyday life that we rarely notice it. For example, we say we are "buying a watch", but what the successful retailer offers us is a package: information on what is being offered, so we know where to shop; a range of choice in watches; a range of payment

options; a warranty and repair service; and other related services like battery and strap replacement.

Similarly, a commuter buys more than a bus ride. Here, the package of services are a continuum, from door to door. The first step in the continuum is information. Just as the watch buyer needs first to find out which retailers offer watches for sale, the commuter needs first to find out where and when there is a bus running that meets his or her needs.

The second step is access: for example, getting from home to where the bus to work stops. Access includes bus stops and shelters: are they well-marked; are there maps and schedules to confirm the right stop has been chosen; is the shelter dry, clean, welcoming, comfortable; and so on.

The trip itself is the third step. Here, getting the commuter to his or her destination on time is a vital part of the package, but only part—the customer has further expectations. Is it easy to board and alight? Is it easy to pay the fare? Are the seats comfortable? Is the bus quiet, clean, properly heated and ventilated? Does the interior design of the bus—the layout, the materials, the lighting, the signage, the advertising—make customers feel pleased that they had chosen to ride the bus?

The fourth step is the second, in reverse: getting from where the bus stops to one's destination. But the continuum of service does not end here. To be successful a transit company needs repeat, not one-time, riders: it needs customers for whom the continuum of service is a recurring loop or spiral, not a one-time straight line. Here again information is important. Is there an alternate route that gets me to work faster? If I wait a few minutes for the next bus will I have a better chance to get a seat? Can I work late and still get a bus home? Is there an easier way to pay than putting exact change in the farebox? How can I use transit beyond commuting, for shopping or recreation?

Seeing service in this integrated way, and paying attention to how well each part of the service meets customer expectations, were not qualities we found in the parts of Transit we audited. Our specific findings about some important parts of Transit's service continuum follow.

## Transit has Examined the Effectiveness of its Telephone Information Service, but Not Yet Given Similar Attention to its Printed Information

Customer information includes both telephone information services and printed material, such as the schedules and maps given out to customers and posted at stops. Information is especially important for new and potential customers who may lack the basic knowledge of the system that is second nature to experienced transit users.

Transit's telephone information services have recently been examined and improvements made. However, less attention has been paid to evaluating print information. Our own observations, and comments made to us by Transit staff, suggest that print information should be assessed and revised. Another indication of this need is that Vancouver customers, in open-ended questions on the rider satisfaction survey, not infrequently complain about difficulties in obtaining print information.

### **Recommendation 8:**

*Transit should ensure that its print information is effective.*

## Transit has Little Information About, or Control Over, Its Bus Stops and Shelters

From a new customer's point of view (especially on a rainy November day), the place where the bus is boarded can be either a welcoming entry to the system or a barrier to using it. Surprisingly, these important parts of Transit's service are not regularly evaluated. In fact, Vancouver has only recently been able to develop an inventory and map of the bus stops it uses.

Of course, making sure that stops and shelters meet customer needs would be easier if Transit had more control over them. Currently, most of the bus stops and shelters Transit uses belong to municipalities. Transit has some say in deciding their location and condition, but cannot, for example, direct municipalities to use a consistent design and graphic treatment for shelters. The Capital Regional District, in its recent study, *Healthy Atmosphere 2000*, recognized this problem.

### **Recommendation 9:**

*Transit should work with its regional partners to ensure that decisions about bus stops and shelters maximize customer appeal.*



## Vancouver Fare Decisions Are Not Primarily Market-focused

For market-focused organizations, pricing—how much the customer pays and how that payment has to be made—is an important marketing tool, and one that can help attract customers or drive them away. Decisions about pricing should be supported by information about how they will affect customer choices.

In Transit's Vancouver operations, however, we found that the focus of fare-related decisions is operational rather than market-oriented. For example, in the fare review under way at the time of our audit, the paramount considerations were simple fare collection for bus drivers and a desire to minimize the cost of collecting and counting fares. Some market research had been budgeted for, but it was to be used for testing detailed options once the major decisions were made on operational grounds.

In Victoria, fare structure is more clearly focused on the strategic goal of attracting commuters, and aims to reduce the total social cost of peak-hour travel by shifting longer-distance commuters from car to bus. This is done by pricing bus passes so that two-zone travel with a pass costs no more than one-zone travel, thus attracting commuters from outer suburbs.

We think that the fare-setting process in both Vancouver and Victoria would benefit from further research related to fares, especially on price elasticity. Elasticity quantifies the consumer's normal reaction to a change in price—that is, buying less of a product or service when the price goes up and more when it goes down. Knowing the likely response to price change is critical when setting fares, yet we found that Transit has no recent data on actual elasticity in its own markets. Staff currently use industry averages.

### **Recommendation 10:**

*Transit should make full use of customer research in designing its fare structure, including research on price elasticity in the markets it serves.*

## Transit Does Not Examine How the Type, Design, and Appearance of its Vehicles Contribute to its Marketing Objectives

The automobile industry understands fully how vehicle type, design, and appearance affect customer behavior and choices. The transit industry, on the other hand, generally assumes that these factors are primarily an operational concern. Perhaps predictably, then, we found that Transit

has no mechanisms for examining how the type, design, and appearance of transit vehicles might influence customer response.

In both Vancouver and Victoria, new vehicles are selected by committees that include drivers and mechanics but not customers or their representatives. The external appearance of Transit's vehicles has developed over several years, with little input from market research or other information about customer preferences.

**Recommendation 11:**

*Transit should develop appropriate mechanisms for making decisions about vehicle type, design, and appearance that maximize customer appeal.*

**Transit has Information on Customer Satisfaction with Individual Bus Routes, but Cost-effectiveness Information is Weak**

Vancouver Transit's customer satisfaction surveys (described below) have large enough sample sizes that information on satisfaction with individual routes is available for larger routes (those that carry enough customers that a meaningful sample can be obtained). This is one of the strengths of Transit's surveys.

However, being market-focused means more than just attracting more customers; the key is to do so cost-effectively. Thus, to gauge its success, Transit must be able to measure whether its various services are attracting customers at a sufficiently low cost per ride or per rider. Unfortunately, Transit is handicapped in its ability to measure this, because of deficiencies in both cost and ridership information.

Assigning costs to an individual service—say one bus route or one run on that route—is not a simple matter in an integrated transit system where, for example, one bus may be used on two or three different routes during a day's service. Transit's accounting system does not regularly track costs by route or other similar units of service. Vancouver has a route costing model designed to consider some of the extra costs of serving an important strategic market—peak hour service—but does not often carry out such route costings.

Vancouver also has difficulty collecting information on the number of riders on various routes at various times of day. Until recently it had sufficient traffic counters on staff to allow it to estimate (from sample counts) ridership by route and time. After layoffs for budget reasons, it was left with only

enough traffic counters to check into problems such as overcrowded buses at peak periods, but not enough to estimate ridership on all routes. As a temporary measure, the Vancouver Regional Transit Commission has agreed to pay the whole cost of hiring sufficient traffic checkers for one year (an operating cost that is usually shared with the Province).

Given these limitations on both cost and ridership information, the Vancouver region has not been able to regularly examine the cost-effectiveness of its services. The only overall assessment of services we found was its 1992/93 "critical route review," which ranked routes by their cost per passenger carried. However, this examination treated all ridership equally and did not focus on how well routes were serving targeted markets, especially automobile commuters. This year a similar, but improved, review is planned, but it still will not focus on how effectively each route is serving target markets.

Victoria has been able to maintain sufficient traffic counters to give it information on ridership by route. However, like Vancouver, it does not have a method of regularly examining the cost-effectiveness of individual routes in serving strategic markets.

**Recommendation 12:**

*Transit should regularly examine the relative cost-effectiveness of its various services (including specific routes) in attracting targeted markets such as car-driving commuters.*

## Transit Collects Good Information on Customer Attitudes and Behavior

Vancouver contracts with a market research firm to conduct a quarterly satisfaction survey of a sample of its riders. The survey asks riders to rate their level of satisfaction with attributes such as bus cleanliness, timeliness of service, and frequency of service. Every two years Vancouver also contracts for a usage and attitude survey that samples both riders and non-riders. This survey produces a profile of travel behavior in Greater Vancouver, as well as information on attitudes, values, beliefs, and motivating factors underlying travel behavior. Sample sizes are large enough that customer attitudes toward particular routes can often be pinpointed.

Victoria regularly commissions a survey that includes both riders and non-riders, and combines aspects of Vancouver's rider satisfaction and usage and attitude surveys.

These surveys are supplemented by information from periodic regional transportation surveys, in which Transit is a partner with regional and provincial transportation agencies.

## Information on Customer Attitudes and Behavior Tends to be Used to Confirm Current Choices Rather than to Find New Opportunities

Transit uses customer satisfaction surveys to get confirmation that its broad strategy for improvement is correct. That is, the surveys show that Transit and its customers generally agree on what is most important in good transit service. For example, both give high priority to speed and frequency of service.

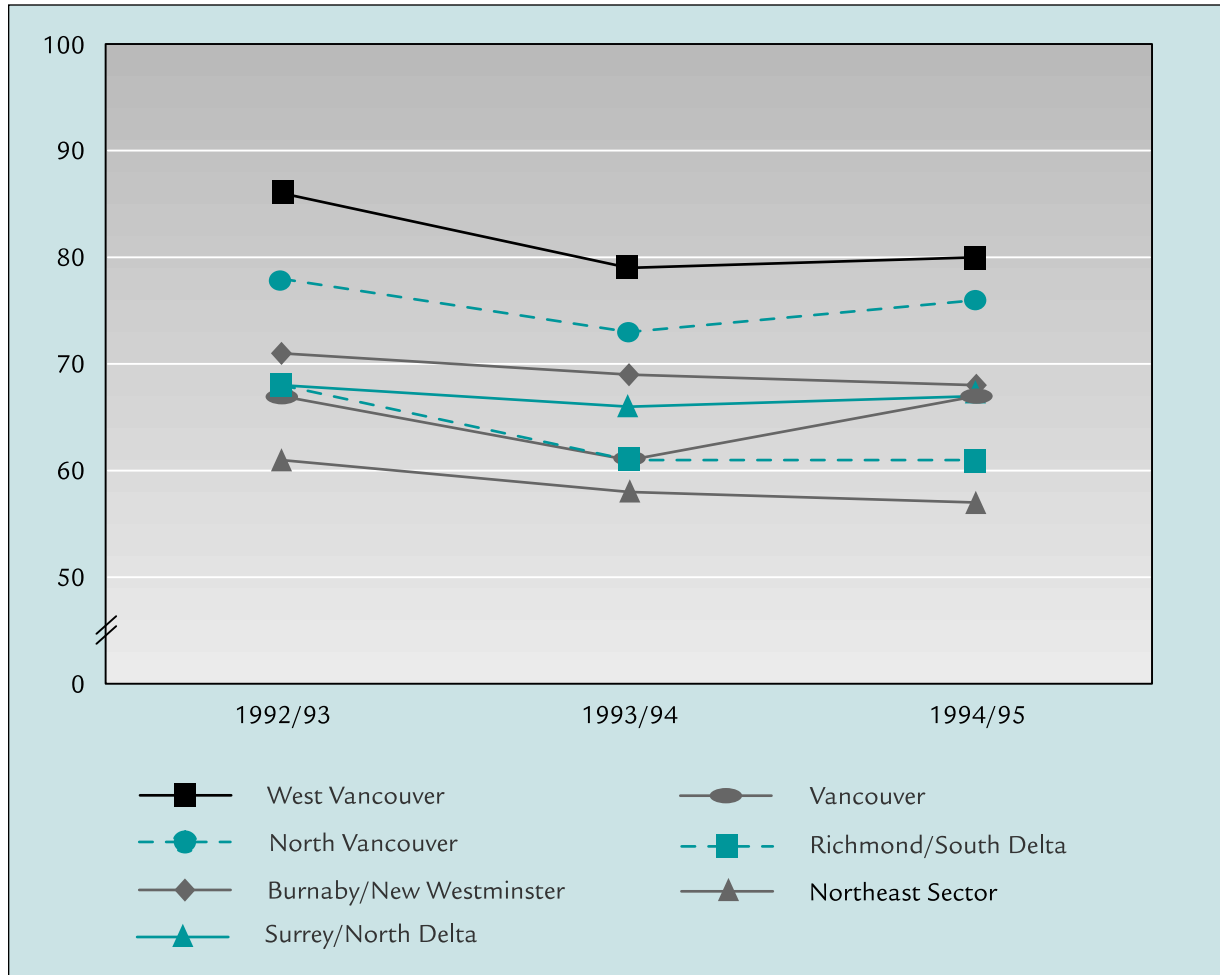
Unfortunately, most means of making significant improvements in the important elements of service are not fully within Transit's control. For example, to improve frequency of service throughout the system would probably require significant capital investment in buses by the Province. Speeding up bus travel would in many cases require municipalities to develop transit priority schemes on their streets. Other stakeholders recognize that Transit cannot succeed on its own. For example, the provincial government's 10-year plan for BC Transit calls for adding more than 250 buses to the Vancouver fleet alone, and Transport 2021, a long-range transportation plan for Greater Vancouver jointly developed by the Province and the Greater Vancouver Regional District, calls for measures that will give buses traffic priority on streets.

This external recognition of the constraints on Transit aside, satisfaction surveys still present Transit staff with an impasse: customers and staff agree on what the most important issues are, but staff realize how difficult it is in the short run to deal with them. We believe that recognition of this impasse should not prevent Transit staff from gleaning more practical and immediate information from their surveys—information that may point to niches where Transit can cost-effectively increase its market share.

For example, customers of the West Vancouver bus system report high levels of satisfaction, higher than would be expected for what the system offers them in terms of speed and frequency of service (Exhibit 3.3). This satisfaction is well-known in Transit; many staff members told us of West Vancouver's anomalous ratings and speculated on why it might be so. However, we found no organized effort by Transit to see if there were customer-pleasing elements in West Vancouver's service that could be adopted elsewhere in the system.

Exhibit 3.3

Percentage of Riders<sup>1</sup> Rating Service as Quite Good or Very Good



Source: Summary prepared by BC transit market research staff from annual Rider Satisfaction Studies in Vancouver region  
<sup>1</sup>Vancouver region only; Victoria conducts a separate satisfaction survey, results of which are not directly comparable with Vancouver's

**Recommendation 13:**

*Transit should extract maximum value from its existing market research.*

Carrying Out More Detailed Customer Research is Not Common

Seeking more specific information than that provided by the regular surveys is not commonly done by Transit. One example of where it did was with the SkyTrain operation. A regular survey found that riders were concerned about security in SkyTrain stations, and visibility of staff. To determine how best to deal with the problem, SkyTrain management did a

follow-up survey of riders who had expressed their concerns, to pinpoint where and when they arose. Responses showed clearly that concerns were focused on just a few stations, in the evening hours. This information was then used in assigning SkyTrain staff to stations and shifts where concerns were highest.

However, using market research to improve services in this way was not the norm in the Vancouver bus system. Existing market research was little used in decision-making on specific projects. (An exception was the expansion of rush hour services to Annacis Island industrial park.) We found no examples of formal test marketing. Rarely did the project staff we interviewed make any reference to research. Rarely, too, did project descriptions and project plans refer to market research that had been used to shape or bolster a decision.

Cost alone did not appear to be the obstacle: Vancouver's regular customer surveys allow adding customized questions at little extra cost. The advertising department, for example, often uses such questions to test response to its advertising campaigns. Service developers, however, hardly ever do.

We concluded that the problem was one of perspective, not information. At present, Transit staff look to their market research for confirmation that their strategic focus is correct. A market-focused perspective goes beyond this, to look for information that may hint at unexpected ways to attract more customers.

***Recommendation 14:***

***Transit's development or modification of products and services should be supported by sufficient market research to give reasonable assurance that the products or services will meet customer expectations.***

**Transit Needs to Improve Its Ability to Differentiate Its Customers In An Action-oriented Way**

Transit makes little use of the concept of market segmentation as a way to extract action-oriented ideas from its survey information.

It is clearly impossible to develop one product that will satisfy everyone. On the other hand, developing a custom product for each customer is uneconomical: target markets have to be large enough to be worthwhile to serve. A first step in choosing which target markets to address and what products to offer is to classify customers into groups with meaningful similarities. This is called market segmentation.

The essential characteristic of market segmentation is the grouping together of potential customers from the customers' own perspective—that is, according to their shared needs or desires. This allows a company to identify what it would have to offer each group in order to convert them to customers, and how much effort it would take to attract them. For example, Transit might want to emphasize a certain set of service characteristics to a group whose shared desire is to protect the environment, and another set to a group whose shared desire is for speed and personal convenience.

Segmentation is thus more than simple classification. It is, of course, essential when designing, say, a commuter service between a suburb and a regional centre, to first determine whether a useful number of people are traveling, by any means, from the suburb to the centre at the appropriate time. Segmentation goes beyond this, to give insights into how many of these potential customers will actually use the service, if the service has characteristics important to them.

Appropriate segmentation thus gives insight into the kind of payoff that would result from developing services for a given market. The biggest payoff does not necessarily come from pursuing the largest segment. A set of differentiated products, each aimed at a smaller but transit-friendly segment, may in total be more cost-effective than pursuing one larger, but more reluctant, segment.

Vancouver and Victoria Transit currently classify their customers on a demographic basis, by characteristics such as age, gender, and location of residence. We believe these classifications should be supplemented by a more effective market segmentation method, one that groups customers by their needs and wants—characteristics that Transit can use to target its services and products.

We noted that the Vancouver region recently received this advice from its market research consultants. They recommended that Transit use a segmentation model based on attitude and behavior. For example, one segment in their suggested model is the “demanding commuter.” Members of this group make many trips for many reasons. They usually have a car, live outside the city of Vancouver, like the privacy of their car, and have a strong need to be in control. They use the transit system for some of their trips and can be motivated to do so more often, but only if service is speedy. What would motivate them most to use transit is access to rapid transit services such as SkyTrain, shorter travel time, more frequent service, more express bus service, and fewer transfers. With this type of

information, the Vancouver region could assess the cost-effectiveness of trying to capture this market segment.

This particular segmentation model may not be the one, or the only one, Transit chooses to use. However, it highlights the need to do further work in this area in order to develop marketing tactics specific to the desires and motivations of each type of customer Transit intends to serve.

**Recommendation 15:**

*Transit should work with its marketing research consultants to improve its ability to differentiate its customers in an action-oriented way.*

**Vancouver Needs to Widen Its Range of Choice When Searching for Solutions To Customer Needs**

We believe that the lack of attention to the voice of the customer discussed above reveals itself as an unwillingness to innovate in Vancouver conventional transit operations. In contrast, the Victoria region has shown itself to be more open to seeking and implementing non-traditional service solutions. Low-floor buses and annual bus passes, for example, are two solutions Victoria initiated, and both were subsequently adopted by Vancouver.

**Victoria has Adopted Non-traditional Service Solutions**

**Low-floor buses**

In 1992, Victoria became the first North American transit operation to offer its customers low-floor buses. The benefits have been both operational and strategic. Operationally, easier boarding is faster boarding, thus speeding up bus service. Strategically, these buses give Transit the ability to appeal to a wider range of customers.

Victoria considered information from the Health and Activity Limitation Survey of Statistics Canada in choosing low-floor rather than lift-equipped buses. The survey showed that wheelchairs were used by only a small percentage of the population, and that the fastest-growing population segment was made up of people who were not in wheelchairs but could not easily climb the steps on conventional buses.

**Annual pass program**

Victoria's annual pass program is a partnership with local employers who want to encourage their employees to use transit as an alternative to single-occupant vehicles. Over 1,600 employees from both the private and public sector now purchase annual bus passes by payroll deduction, and the number is growing as more employers are signed up. In a similar fashion, Victoria also partners with local post-secondary institutions to provide bus passes to commuting students.

The primary benefit of these pass programs is that they selectively attract peak period commuters. Operational benefits include faster boarding and lower-cost fare handling, as more customers switch to using passes.



We found other indications of Vancouver's apparent reluctance to try new service tools. For example, some transit companies have found van pools to be a cost-effective service when homes and work sites are too dispersed to be linked with conventional transit (which describes significant portions of Vancouver's service area). However, Vancouver does not include van pooling in its portfolio of services, and gives only limited support to the existing van pool service offered by the Jack Bell Foundation.

Minibuses are another example of this apparent reluctance. Vancouver introduced minibus service in early 1996 at the request of the Vancouver Regional Transit Commission, which believed enough in the new service that it took the unusual step of funding all the capital cost of the minibuses (usually, the Province pays part of capital costs). In our opinion, Transit was not effective in exploiting the market potential of minibuses. Instead, because the project was not guided by research-based information about customer needs and wants, decisions were made, by default, on operational grounds.

One of the benefits the transit commission saw with a minibus operation was the possibility of serving areas not now serviced, either because full-size buses would not fit on the roads or because residents found full-size buses too intrusive. However, in choosing routes, Transit gave highest priority to achieving operational simplicity, by having all the minibuses operate out of one, or at most two, transit centers. This so restricted the route options that minibuses are simply replacing regular buses on existing routes, rather than offering service in new areas. Since minibuses have fewer seats than regular buses but almost the same operating costs, it is not clear whether the commission has received any real customer benefit from the funds it gave Transit to buy minibuses.

In our opinion, the new service was developed in such a way that it neither exploited the potential customer attractiveness of minibuses nor met commission expectations.



## reporting on performance

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As a large public entity providing an essential public service, Transit needs to report on its overall performance to its stakeholders. As an entity with a goal of being market-focused, it also needs to report on how well it is meeting that objective.

Transit provides accountability information to three major groups of stakeholders: its Board of Directors; the two regional transit commissions; and the Legislative Assembly and the public.

We looked to see whether Transit's stakeholders receive reports, in a form appropriate to their needs, on how well it is meeting its marketing goals. We focused on how Transit reports to its board and regional commissions at their regular meetings, and how it reports to the Legislative Assembly, and thus to the public, through its annual reports.

We examined the records of Transit board and regional commission meetings during the period under audit, as well as major documents tabled at those meetings.

We also examined several years of Transit's annual reports to the Legislative Assembly and the public. Because they were largely similar, we have chosen to limit our discussion in this report to the most recent Transit annual report, 1995/96.

### Conclusion

Transit does not provide the Legislative Assembly and public with sufficient information to allow them to judge its progress in reaching its market goals. It does, however, share with its board and commissions the information it has available, although it does not often provide an analysis of its results in a way that would help them assess its performance.

### Findings

#### Transit Provides Its Board and Commissions With the Information It Has Available on Marketing-focused Activities

The limitations on Transit's information about its market-focused performance have already been discussed in previous sections of this report. In general, however, we found that the information Transit does have available is summarized and appropriately distributed to its board and commissions.

In both Victoria and Vancouver, regional commissions discuss and approve quarterly service changes before they are implemented. Likewise, annual service plans are presented for approval. Key performance indicators are reported to the board and commissions, and major plans (such as the five year plans) are presented to them. Progress on major projects is also reported regularly. The Vancouver commission, for example, received frequent reports on the introduction of mini-buses.

## Key Indicators for the Board and Commissions Need To Be Supplemented

One limitation we noted in the information given to the board and commissions is that Transit's current key performance indicators provide only two high level indicators that directly measure progress towards market goals: revenue passengers (a measure of ridership) and cost per boarded passenger.

As discussed earlier, ridership can grow without necessarily resulting in a change in market share. Accordingly, we believe that ridership alone is not a sufficient measure of marketing achievement—market share should also be reported (say, yearly, by target market). The board and commissions would also benefit from the other extensions to the key performance indicators recommended previously, including the development of an indicator for rider attrition.

### **Recommendation 16:**

*Transit should include market share as one of its key performance indicators.*

## Annual Reports to the Legislative Assembly and the Public Do Not Clearly Communicate Transit's Intention to Become Market-focused

Both the mission statement goal "to excel in the provision of...market-focused public transportation" and the strategic objective to "increase transit use through innovative and improved services" were included in the report, but the presentation gave no sense that market focus was a high-ranking goal. For example, there was as much space devoted to internal matters, such as records management and insurance, as to market-focused activities.

## Progress in Achieving Market-related Goals Is Poorly Reported in Annual Reports

Quantification of market success in the annual report was confined to ridership numbers; no measures of changes in market share were presented. Since ridership can increase simply

because of population growth, it can be a flawed measure of what Transit has actually achieved through its own efforts.

The report shows trends in total ridership for each system (Vancouver, Victoria, and municipal), and includes some discussion of what contributed to changes (for example, “Ridership increased in 1995/96 due in large part to additional service provided by the expanded SkyTrain fleet...”). However, there was no numerical information on, for instance, how much of this ridership gain was the result of the expanded SkyTrain fleet and how much was from other Transit activities. Furthermore, the portion of ridership in target markets, such as commuters, was not stated. (The section of the report on the Victoria system did address both of these topics, but with little quantification.)

## Annual Reports Should Include Information on How Major Projects and Other New Services Contribute to Marketing Goals

Showing how particular initiatives have contributed to results (or how proposed initiatives are expected to do so) is essential in establishing an effective accountability relationship between Transit and the Legislative Assembly. There is an implied contract between the two bodies: in exchange for delegating powers and providing public funds to Transit, the Assembly expects certain results and an accounting of them.

This is especially true for large projects requiring significant public funds. Recently, Transit has launched two such projects (Rapid Bus and LRT), which are expected to affect ridership and market share substantially in the next few years. It is therefore a particularly appropriate time for Transit to improve its reporting on the market impacts of its efforts.

### **Recommendation 17:**

*Transit should improve its external reporting through its annual reports by:*

- *stating clearly that being market-focused is a major goal of the organization;*
- *stating clearly its marketing goals, including what market segments it will focus on and how it will measure its success;*
- *reporting on progress towards marketing goals;*
- *reporting on how new products or services are contributing to the achievement of marketing goals; and*
- *reporting on how proposed new products or services are expected to contribute to the achievement of marketing goals.*

## Exhibit 3.4

### West Coast Express

For many years successive provincial governments had considered the possibility of a commuter rail service to serve the northeast sector of the Lower Mainland, making use of existing rail lines. In 1994, the government of the day assigned Transit the task of developing a commuter rail service between Mission and downtown Vancouver. In turn, Transit set up a project team to develop and manage the service, which later became West Coast Express Ltd. (“WCE”).

The service uses the CP Rail track along the north shore of the Fraser River and south shore of Burrard Inlet. Service is currently provided during peak hours only, aboard five trains, each consisting of four to six cars, inbound to downtown Vancouver in the morning and outbound to Mission during the afternoon rush.

#### **Transit was assigned a ridership target when it was given responsibility for the WCE project**

On being assigned the project, Transit was given specific instructions from government about the route and mode of service, the target market, and ridership estimates.

The ridership estimates were to achieve 9,600 to 11,000 rides per day after 18 months of operation, with two-thirds of rides to be to or from downtown Vancouver and one-third between suburbs along the route.

Once the project began, staff did more detailed market research and concluded that the likely number of rides between suburbs had been over-estimated. The reason was that WCE was restricted in the times it could run trains, because the track owner needed to run its own trains on the line for much of the day. Within the time slot available to it, WCE scheduled trains to best suit the majority of riders—those traveling to and from downtown. This meant that train times were not likely to be convenient for suburban riders who were just traveling one or two stations down the line.

To date, the service’s performance is acceptably close to target for downtown service. After seven months, downtown rides had exceeded the original 12-month target, and the company projects its daily downtown ride level at 18 months will be approximately 6,300 (close to the original target of 6,432).

Inter-suburban business, however, has been disappointing, accounting for only 7% of current rides—well below both the original 33% target assigned to Transit at the outset of the project and the 23% estimate from Transit’s market research.

Nevertheless, WCE has responded to the situation appropriately, we believe, focusing its efforts on attracting more travelers to downtown (which experience suggests is the most fruitful area for growth).

#### **WCE’s organization is appropriate to its market-focused task**

The development and operation of WCE is the responsibility of a small management team consisting of a chief executive officer and four senior managers, one each for finance, marketing/planning (product development), communications, and operations. We believe that this is an appropriate organization for a market-focused transit organization opening up a new market niche.

#### **Market research has been central to the major decisions made**

The project team carried out extensive market research to predict ridership levels, identify target markets, and gather information about what potential customers required from the service. The information gained from this research was used extensively in service development.

From the start, the project team took a market-focused approach, wherever possible basing decisions on information collected about customer needs and preferences. For example:

- The external appearance of the trains, including colors and graphics, was worked out by a professional graphic designer and then tested on customer focus groups.

- Fare levels and fare media were researched with potential customer groups to determine, for instance, whether ticket machines should accept cash or just credit and debit cards.

This last example emphasizes the extent to which market research was central to the development process. The team had planned to accept only card payments, for simplicity and security. However, feedback from the focus groups persuaded them that ticket machines that did not take cash were unacceptable to customers.

### **WCE has a well-organized system for monitoring customer satisfaction**

Once the service was in operation, assessing how well services and service elements continued to fit marketing objectives became one of the management team's major activities.

To monitor ridership, WCE linked its point-of-purchase ticket machines to a central computer, which produces immediate ridership information. This allows management to react to trends quickly.

Customer satisfaction is also monitored constantly. Each day an employee of a market research firm surveys a sample of riders. Each month the survey company sends WCE a summary of its findings. Management reviews the findings and develops strategies for correcting any problems revealed, focusing first on those areas where customers are most dissatisfied. They also circulate to staff and other stakeholders summary reports on major customer dissatisfactions and what is being done to correct them.

Customer surveying has already led to improvements in two areas: refreshment service on board, and comfort and weather protection at stations. Surveying also revealed that train schedules were not convenient for a significant number of riders and potential riders. To examine this further, WCE carried out a special survey, focusing on schedule options alone, and as a result implemented some service changes.

WCE is also taking a proactive approach to learning from disgruntled and ex-customers. It is currently developing a method for following up with customers to find out why they left and to take corrective action if appropriate.

### **WCE reports on its performance**

While the project was under development, WCE reported frequently to Transit's board on its progress in achieving the goals set for it. Now that it is in operation, it continues to report its ridership performance internally to BC Transit and the Board of West Coast Express. It also communicates its goals, strategies, and successes to key stakeholders and the public, through its publication *CommuterNews*. In practice, because of the high degree of interest in the project, it has also been reporting on its performance through the news media.

### **We concluded that WCE is good at being market-focused**

We believe that, overall, the West Coast Express operation has achieved a high degree of success in being market-focused, and in hearing "the voice of the customer."



## bc transit's response to our report

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*BC Transit welcomes the involvement of the Auditor General (OAG), and supports the audit's findings and recommendations. On learning that the OAG would conduct performance audits of BC Transit, we specifically requested a review of the marketing aspects of our business. This area had previously been identified by senior management as one requiring focus and improvement.*

*Indeed, much has happened over the course of the audit to begin addressing the need for a more strategic market-driven approach to our service delivery. By mid-year, we expect to have long-term marketing strategies in place to match the Five Year Plan. This will, in turn, drive the response to the organizational issues raised in the audit. Overall, we feel that significant progress has already been made. The following is our management response to the specific recommendations:*

### **Recommendation 1**

***Transit should work with its regional transit commissions and the provincial government so that the various long-term plans and marketing goals are consistent and attainable.***

*BC Transit agrees with this recommendation. The business goals defined in the Five year Plan (TransAction 2002) have aligned Transit's objectives with the Province's finance parameters, and have been approved by the Vancouver Regional Transit Commission (VRTC). This plan guides the Annual Service Plans which are developed in consultation with local municipalities. The Five Year Plan also provides for an annual evaluation of the Corporation's performance against the defined goals.*

*It is acknowledged by all parties that the Plan moves us only part way toward the region's longer term goals for transit. The current negotiations between the Province and Greater Vancouver Regional District (GVRD) may provide a resolution to the financial and governance barriers to achieving the Livable Region goals.*

*In Victoria, the Five Year Plan objectives and targets are defined and linked directly to the divisional action plans.*

### **Recommendation 2**

***The Vancouver region should ensure that its action plans for service improvements clearly support its market goals.***

*BC Transit agrees with this recommendation. The 1997/98 Annual Service Plan represents the first year of the Five Year Plan. Its initiatives are consistent with the GVRD intent to develop higher density corridors that facilitate transit use. In particular, it emphasizes improvements to highly-used peak routes to encourage transit use for commutes to work and school.*

**Recommendation 3**

*Transit should address in its key performance indicators all elements of service that are of importance to customers.*

**Recommendation 4**

*Transit should assign responsibility for market-related key performance indicators to business units and individuals, in order to promote a stronger focus on customers and on marketing goals.*

**Recommendation 5**

*Transit should provide units responsible for market-focused activities in Vancouver with organizational stability, resources adequate for the tasks assigned them, and sufficient ranking within the organization to clearly signal that Transit intends to be market-focused.*

**Recommendation 6**

*Transit should appoint a senior executive whose primary responsibility is developing, maintaining, and advocating market focus throughout the organization.*

*BC Transit agrees with the intent of Recommendations 3 through 6 to operationalize the focus on customers in terms of internal culture, organizational structure and performance measurement. In 1996, marketing functions within Customer Services were combined under a new Marketing Director with extensive and relevant private sector experience. This move will add stability, cohesiveness and improved coordination with the Corporate Communications Department, and will provide a greater profile to the marketing function.*

*In January 1997, a Marketing Consultant was seconded for one year to prepare a corporate-wide marketing plan to match the Five Year Business Plan. Overall strategies will be recommended to management in May 1997. The approved strategies will, in turn, form the basis of recommendations concerning further changes to structure and resources. It will also facilitate agreement for measurement of accountability, which will create a stronger market focus across the Corporation.*

**Recommendation 7**

*Transit should develop cost-effective methods of measuring, understanding, and addressing customer dissatisfaction and attrition, and consider including such measures in its key performance indicators.*

*BC Transit agrees with this recommendation. Customer and stakeholder input to service planning projects has been expanded through participatory workshops and forums which allow input at an*



earlier stage of the service development process. On an ongoing basis, the quarterly satisfaction survey probes for solutions to rider dissatisfaction, and these results are distributed widely throughout the organization. However, we have not to this point made full use of these results or the feedback received through employees and Customer Information phone lines.

Consequently, Marketing will present a business case for investing in feedback management resources by September 30, 1997. This will coincide with improvements to our capacity to handle more calls through the Customer Information lines. These actions will give management the information on which to base our response to customer issues.

### **Recommendation 8**

***Transit should ensure that its print information is effective.***

BC Transit agrees with this recommendation. Awareness of print information (brochures, newspaper advertisements, etc.) among transit customers is routinely assessed through the ongoing Rider Satisfaction Survey. In addition, some materials are pre-tested with focus groups (e.g. Employee Transportation Administrator (ETA) brochure), and tracking of media effectiveness and distribution are monitored.

Specifically, in 1997, we will undertake a major assessment of the design and distribution of public timetables. New technology options (e.g. Internet, faxback) make it possible for us to be more accessible and cost-effective.

### **Recommendation 9**

***Transit should work with its regional partners to ensure that decisions about bus stops and shelters maximize customer appeal.***

BC Transit currently has no legal jurisdiction over bus stops or shelters and, consequently, little direct control on their location/placement. However, there has been increasing willingness on the part of Municipalities to accommodate requests for stops and shelters. The establishment of dedicated #99 B-Line stops and unique shelters along the Broadway corridor, in cooperation with the City of Vancouver and Seaboard Advertising, is the most recent example of this concerted effort to meet customer needs and expectations.

Discussions are underway to establish more consistency in bus stops across the Lower Mainland, including site location and placement. We will also explore ways to enhance our waiting areas with added services through partnerships with the private sector. Ideas will be tested for viability during the current fiscal year.

*In Victoria, there is now work with all municipalities in the region and the advertising companies and property owners that supply shelters, with the objective of maximizing numbers of shelters, benches and other passenger amenities. More emphasis is now placed on stops. A full bus stop inventory has been in place since 1991.*

#### **Recommendation 10**

***Transit should make full use of customer research in designing its fare structure, including research on price elasticity in the markets it serves.***

*BC Transit agrees with this recommendation and has acted on this for the current rate structure review.*

*As part of the support materials for the VRTC, a representative sample of Lower Mainland residents was surveyed to estimate elasticity of demand. In addition, the surveys sought their preferences on issues ranging from time of use, zones, concession fares, transfers and method of payment. This information will play a major role in the final decision of the Vancouver Regional Transit Commission.*

*In Victoria, new information on fare elasticity of demand is produced constantly and this research is reviewed on an ongoing basis. The next level of analysis which allows more precise tracking of response by market segment involves pricing sensitivity between fare products (e.g. switch from cash to tickets).*

*In addition, Victoria has information on shifts in product use and has looked at the price elasticities displayed during fare increases in the past six years to develop ridership and revenue forecasts for the 1997 fare review process. Industry averages are only used to 'test' the local assumptions used.*

#### **Recommendation 11**

***Transit should develop appropriate mechanisms for making decisions about vehicle type, design and appearance that maximize customer appeal.***

*BC Transit agrees with this recommendation and has increased the voice of the customer in these decisions. The Bus Specification Committee from the Vancouver region now has an ongoing representative from the Marketing Department. In addition, direct customer input is sought prior to purchase of new vehicles, and follow-up research will be conducted after any new vehicle is put into service.*

*Customers will have extensive input to the design of the Light Rail and Rapid Bus vehicles and waiting areas. However, it should be noted that the North American transit vehicle industry produces only a limited range of standard designs and, consequently, vehicle decisions tend to focus on the functional aspects of reliability, safety and capacity.*

**Recommendation 12**

***Transit should regularly examine the relative cost-effectiveness of its various services (including specific routes) in attracting targeted markets such as car-driving commuters.***

*BC Transit agrees with this recommendation. In Vancouver, A Service Design Project has been initiated to maximize efficiencies and optimize effectiveness of BC Transit services, by taking a new look at service design, provisioning and resourcing within the context of customer and stakeholder expectations. The project team will submit their report to the Vancouver Regional Transit Commission in June 1998.*

*Victoria Transit does, in fact, perform individual route costing. However, the complexities of operating detailed costing in a fully interlined system dictate that only average unit operating costs (peak/off-peak) are used. At such time as a more reliable cost-effective system is identified, it will be implemented in Victoria.*

**Recommendation 13**

***Transit should extract maximum value from its existing market research.***

*BC Transit agrees with this recommendation. Although survey results receive wide and timely distribution via e-mail, there is no certainty that the information is regularly reviewed, assessed and acted on. Consequently, the reporting format will be reviewed to ensure that staff make use of the data on a regular basis. Tracking of complaints will use the same format to obtain a preview of trends between quarterly satisfaction surveys. Management will institute a more formal and frequent review of the research. In this manner, we will foster a culture of continuous listening to our customers.*

**Recommendation 14**

***Transit's development or modification of products and services should be supported by sufficient market research to give reasonable assurance that the product or services will meet customer expectations.***

*BC Transit agrees with this recommendation. Further to the response to Recommendation 13, all new projects are required to demonstrate market research in support of their decisions. For example, the development of new service in downtown Vancouver has been preceded by the testing of twelve route variations with customers to determine the most viable option.*

**Recommendation 15**

***Transit should work with its marketing research consultants to improve its ability to differentiate its customers in an action-oriented way.***

*BC Transit agrees that segmentation will help us better understand the motivations of our customers. The recently-released 1996/97 Vancouver region Usage and Attitude Study updated our insight into a different cluster of customers and the varying conditions for their continued/increased use of transit. This will be particularly helpful in targeting those occasional users who will most likely be the source of our increased ridership in the future. The segmentation work will be built into the long term marketing plan for the Vancouver region. It will help set priorities and aid our communication strategies.*

*Victoria has employed a different segmentation structure to evaluate and develop new markets such as large public employers (e.g. Federal Government, Provincial Government, CRD, Health Districts, etc.) and major institutions (UVic, Camosun, Royal Roads, High Schools), working directly with these agencies and their clients to develop travel service designs, travel option programs, pricing incentives and new facilities to meet their specific needs.*

**Recommendation 16**

***Transit should include in its key performance indicators one for market share.***

*Transit agrees with a stronger emphasis on customer service performance indicators, including market share. In practice, however, market share is difficult to measure regularly in a cost-effective manner and is not expected to move dramatically at any one time. It may be more appropriate to focus on some aspect of service that contributes to market share, but is more actionable and easily tracked. This will be resolved on reaching consensus for the marketing plan.*

**Recommendation 17**

***Transit should improve its external reporting through its annual reports by:***

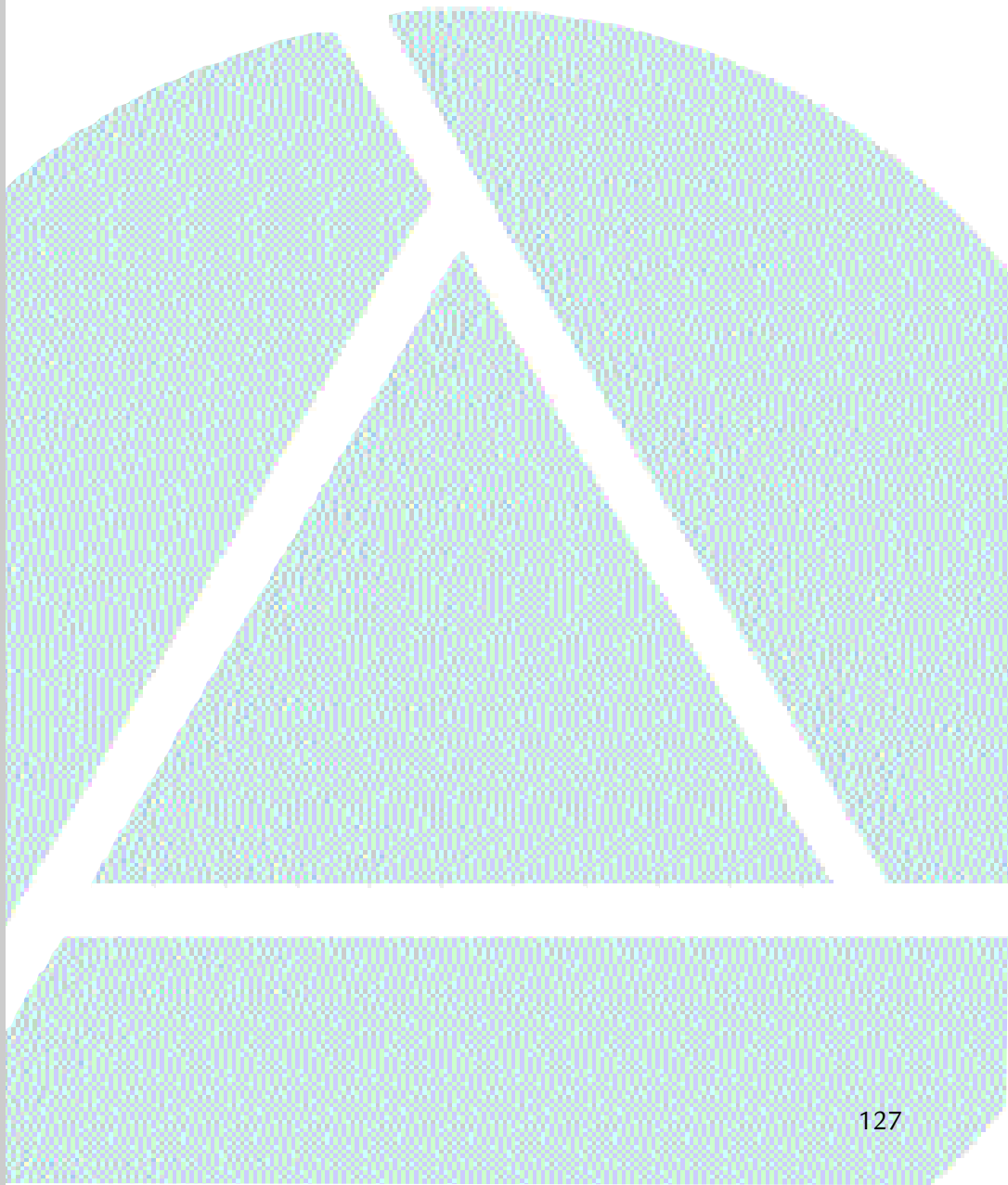
- *stating clearly that being market-focused is a major goal of the organization;*
- *stating clearly its marketing goals, including what market segments it will focus on and how it will measure its success;*
- *reporting on progress towards marketing goals;*

- *reporting on how new products or services are contributing to the achievement of marketing goals; and*
- *reporting on how proposed new products or services are expected to contribute to the achievement of marketing goals.*

*BC Transit agrees with this recommendation and has taken immediate action by reflecting our market focus in the upcoming 1996/97 Annual Report, which will be tabled in the Legislature in June 1997.*



# appendices





## appendix a

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### 1996/97 Reports Issued to Date

*Report 1*

*Performance Audit*

Management of Child Care Grants

*Report 2*

Crown Corporations Governance Study

*Report 3*

*Performance Audit*

Vancouver Island Highway Project: Planning and Design

*Report 4*

*Performance Audit*

Trucking Safety

*Report 5*

A Review of Government Revenue and Expenditure  
Programs Relating to Alcohol, Tobacco, and Gaming

*Report 6*

*Financial Audit*

Report on the 1995/96 Public Accounts

*Report 7*

*Performance Audit*

Management of Travel

*Report 8*

*Performance Review*

Executive Severance Practices: Government Ministries  
and Crown Corporations

*Report 9*

*Performance Audits*

BC Transit: Managing Operator Productivity  
BC Transit: Its Success as a Market-focused Organization





## appendix b

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### Office of the Auditor General: Performance Auditing Objectives and Methodology

Audit work performed by the Office of the Auditor General falls into three broad categories:

- Financial auditing;
- Performance auditing; and
- Compliance auditing.

Each of these categories has certain objectives that are expected to be achieved, and each employs a particular methodology to reach those objectives. The following is a brief outline of the objectives and methodology applied by the Office for performance auditing.

#### Performance Auditing

##### ***Purpose of Performance Audits***

Performance audits look at how organizations have given attention to economy, efficiency and effectiveness.

The concept of performance auditing, also known as value-for-money auditing, is based on two principles. The first is that public business should be conducted in a way that makes the best possible use of public funds. The second is that people who conduct public business should be held accountable for the prudent and effective management of the resources entrusted to them.

##### ***The Nature of Performance Audits***

An audit has been defined as:

*...the independent, objective assessment of the fairness of management's representations on performance, or the assessment of management systems and practices, against criteria, reported to a governing body or others with similar responsibilities.*

This definition recognizes that there are two primary forms of reporting used in performance auditing. The first—referred to as attestation reporting—is the provision of audit opinions on reports that contain representations by management on matters of economy, efficiency and effectiveness.

The second—referred to as direct reporting—is the provision of more than just auditor's opinions. In the absence

of representations by management on matters of economy, efficiency and effectiveness, auditors, to fulfill their mandates, gather essential information with respect to management's regard for value for money and include it in their own reports along with their opinions. In effect, the audit report becomes a partial substitute for information that might otherwise be provided by management on how they have discharged their essential value-for-money responsibilities.

The attestation reporting approach to performance auditing has not been used yet in British Columbia because the organizations we audit have not been providing comprehensive management representations on their performance. Indeed, until recently, the management representations approach to value for money was not practicable. The need to account for the prudent use of taxpayers' money had not been recognized as a significant issue and, consequently, there was neither legislation nor established tradition that required public sector managers to report on a systematic basis as to whether they had spent taxpayers' money wisely. In addition, there was no generally accepted way of reporting on the value-for-money aspects of performance.

Recently, however, considerable effort has been devoted to developing acceptable frameworks to underlie management reports on value-for-money performance, and public sector organizations have begun to explore ways of reporting on value-for-money performance through management representations. We believe that management representations and attestation reporting are the preferred way of meeting accountability responsibilities and are actively encouraging the use of this model in the British Columbia public sector.

Presently, though, all of our performance audits are conducted using the direct reporting model; therefore, the description that follows explains that model.

Our performance audits are not designed to question government policies. Nor do they assess program effectiveness. The *Auditor General Act* directs the Auditor General to assess whether the programs implemented to achieve government policies are being administered economically and efficiently. Our performance audits also evaluate whether members of the Legislative Assembly and the public are provided with appropriate accountability information about government programs.

When undertaking performance audits, auditors can look either at results, to determine whether value for money is actually achieved, or at management processes, to determine

whether those processes should ensure that value is received for money spent.

Neither approach alone can answer all the legitimate questions of legislators and the public, particularly if problems are found during the audit. If the auditor assesses results and finds value for money has not been achieved, the natural questions are “Why did this happen?” and “How can we prevent it from happening in future?” These are questions that can only be answered by looking at the process. On the other hand, if the auditor looks at the process and finds weaknesses, the question that arises is “Do these weaknesses result in less than best value being achieved?” This can only be answered by looking at results.

We try, therefore, to combine both approaches wherever we can. However, as acceptable results information and criteria are often not available, our performance audit work frequently concentrates on managements’ processes for achieving value for money.

We seek to provide fair, independent assessments of the quality of government administration. We conduct our audits in a way that enables us to provide positive assessments where they are warranted. Where we cannot provide such assessments, we report the reasons for our reservations. Throughout our audits, we look for opportunities to improve government administration.

### ***Audit Selection***

We select for audit either programs or functions administered by a specific ministry or public body, or cross-government programs or functions that apply to many government entities. There are a large number of such programs and functions throughout government. We examine the larger and more significant ones on a cyclical basis.

We believe that performance audits conducted using the direct reporting approach should be undertaken on a five- to six-year cycle so that members of the Legislative Assembly and the public receive assessments of all significant government operations over a reasonable time period. Because of limited resources, we have not been able to achieve this schedule.

### ***Our Audit Process***

We carry out these audits in accordance with the value-for-money auditing standards established by the Canadian Institute of Chartered Accountants.

One of these standards requires that the “person or persons carrying out the examination possess the knowledge and competence necessary to fulfill the requirements of the particular audit.” In order to meet this standard, we employ professionals with training and experience in a variety of fields. These professionals are engaged full-time in the conduct of performance audits. In addition, we often supplement the knowledge and competence of our own staff by engaging one or more consultants, who have expertise in the subject of that particular audit, to be part of the audit team.

As performance audits, like all audits, involve a comparison of actual performance against a standard of performance, the CICA prescribes standards as to the setting of appropriate performance standards or audit criteria. In establishing the criteria, we do not demand theoretical perfection from public sector managers. Rather, we seek to reflect what we believe to be the reasonable expectations of legislators and the public. The CICA standards also cover the nature and extent of evidence that should be obtained to support the content of the auditor’s report, and, as well, address the reporting of the results of the audit.



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Compiled and typeset by the Office of the Auditor General of British Columbia  
and published by the Queen's Printer for British Columbia®  
Victoria 1997

