

# **PERFORMANCE AUDIT OF TRANSIT**

## **TECHNICAL REPORT C: STAFFING**



**King County**

Presented to  
the Metropolitan King County Council  
Government, Accountability & Oversight Committee  
by the  
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# EXECUTIVE SUMMARY

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## Introduction

The design of efficient transit service entails finding a balance that ensures scheduling flexibility and reliability without requiring more staff time and equipment than necessary for accomplishing these objectives. It also involves finding a balance between different types of work – full-time, part-time, four-day workweeks, etc., and considering contractual guarantees such as minimum workday lengths, overtime, and the number of part-time operators. This technical report on operator and transit police staffing focuses on how Transit determines and manages its staff resources after service needs and requirements have been established and after service design has been completed.

## **Opportunities Exist within Labor Provisions for Operational Efficiencies**

Transit designs bus service and utilizes staff in accordance with the provisions of the collective bargaining agreement with operators in the Amalgamated Transit Union (ATU) 587. However, various provisions in the collective bargaining agreement, such as processes to manage unplanned absences and the number and use of part-time operators, impact efficient service design and the most cost-effective utilization of staff resources. While recognizing that Transit cannot act unilaterally in changing practices governed by the bargaining agreement, there may be opportunities within Transit's discretion to utilize staff resources more efficiently and to achieve cost savings.

We also find that redesigning information systems to provide information on patterns of operator staff utilization could assist Transit to tie resource costs to performance outcomes, that monitoring and controlling unplanned operator absences could help to reduce overall staffing needs, and that using more exact methods of staffing analysis would help management effectively

plan its Metro Transit Police (MTP) staff coverage, estimate costs, and choose the most efficient staffing options.

The Transit and MTP management and staff who worked with the auditors on this part of our review were professional and knowledgeable, and were responsive to our requests. We appreciate their efforts.



# 1 INTRODUCTION

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## Summary

This chapter focuses on the objectives and methodologies we employed to evaluate Transit's practices related to determining operator and Transit Police staffing levels to meet service requirements. The chapter concludes with a summary of the findings and recommendations related to staffing and discusses areas for potential cost savings.

## Background

**We Examined Bus  
Operator Staffing and  
Transit Police Staffing**

Wages and benefits for Transit bus and trolley operators are approximately \$214 million in 2009, comprising over a third of Transit's \$591 million budget and representing the largest single component of that budget. Although spending on Transit Police is much smaller in comparison (approximately \$13.7 million in 2009), a similarity of these two areas of operation is that in both cases Transit must try to ensure that its staffing resources are available, when needed, to fulfill service objectives – whether this means having enough operators to meet service requirements, or having enough deputies on duty to meet minimum security requirements. The responsibility and challenge for Transit management is to provide the most cost-effective mix of staffing resources to meet these service objectives.

**Operator Wages and  
Benefits Comprise Over  
One Third of Transit's  
Budget**

## Objectives and Methodology

The entire Transit audit spanned multiple areas of work, including Transit's service design practices, financial and capital planning, technology and information management, vehicle maintenance, operator and transit police staffing, and paratransit. This technical report on operator and transit police staffing focuses on how Transit determines and manages its staff resources after

service needs and requirements have been established, and after service design has been completed. We evaluated operator staffing from the perspective of achieving efficiencies and cost savings while considering the objectives of service reliability and conformance with the collective bargaining agreement. The two chapters in this technical report relating to bus operator and Metro Transit Police staffing examine in detail the methods Transit employs to determine and then allocate staffing resources.

Chapter 2, Bus and Trolley Staffing, specifically reviews and addresses the following practices related to operator staff utilization:

- The methods and data Transit is using to determine its coverage, or “relief,” needs;
- Management practices with regard to scheduling planned absences; minimizing impact of unplanned absences; using staff resources most cost-effectively;
- Utilization of overtime; and
- Labor contract provisions in utilizing operators.

Chapter 3, Transit Police Staffing, focuses on staffing for Metro Transit Police (MTP) staffing and operations with an emphasis on the patrol unit function. This chapter reviews and addresses the following matters:

- History of MTP staffing and factors contributing to increased staffing costs.
- Methods used to provide police coverage per its staffing plan, determine “relief” backfill staffing needs, manage absences, and address Light Rail security needs.
- Transit’s long-term planning for MTP.



The detective and bicycle units were not included in the MTP review due to their relatively small sizes and unique responsibilities. However, security functions performed by guards assigned to the transit tunnel and park-and-ride lots under contract by Olympic Security were reviewed.

To achieve these objectives, the auditor's office and its consultants:

- Interviewed Transit leadership, management, and line staff
- Interviewed Sheriff's Office management and staff
- Attended meetings to observe processes
- Visited Transit bases and observed activities
- Participated in a Transit Police ride along
- Surveyed relevant industry literature and best practices
- Reviewed Transit documents and agreements
- Developed a model to calculate the cost of different types of operator staff
- Developed a Transit Police staffing model
- Performed analysis of Transit and other county data including data from operating, personnel, and accounting systems

### **Summary of Findings**

#### ***Bus and trolley operators***

Transit's management of operator staffing is driven by the objective of satisfying three conditions:

#### **Transit Could Utilize Operators More Cost-Effectively**

- Avoiding cancellations and delays;
- Adhering to the requirements of the collective bargaining agreement; and
- Utilizing staff resources in a cost-effective manner.

Regarding service reliability, the relationship between the level of operator staffing and targets to limit cancellations and delays has not been established. This means that service reliability at

different staffing levels and costs cannot be accurately predicted. Modeling such a relationship would be difficult given the large number of constraints and variables that would have to be taken into account, and given the fact that current information systems have not been designed in a way that would facilitate this kind of modeling. A necessary first step in better understanding this relationship would be to redesign information systems to provide information on patterns of staff utilization, systemwide and by base, in relation to run cancellations and delays that were due to operator availability.

We also found that given its service objectives, and the constraints under which it operates, Transit has many strategies and approaches in place for utilizing staff in a cost-effective manner. Examples are described in this report of efforts (successful and unsuccessful) Transit has made to modify labor agreement constraints that limited the efficient use of staff. While recognizing that Transit cannot act unilaterally in changing the practices governed by that agreement, there may be opportunities within Transit's discretion to utilize staff resources more efficiently and to achieve cost savings.

### **Transit Police Staffing Practices Could Be More Precise**

#### ***Transit police***

Over the last decade, Metro Transit Police (MTP) has become a full-time police operation and has expanded its workload and geographical areas of coverage. From a budget of \$6.6 million in 2001, spending has increased to a level of \$13.7 million in 2009. Police workload and productivity have increased substantially, while hours of police service have declined. Passenger satisfaction with safety has improved, although operator assaults and security incidents aboard buses have increased, which MTP is attempting to address.

MTP staffing resource management practices could be strengthened. Using more exact methods would help MTP management effectively plan its staff coverage, estimate costs, and choose the most efficient staffing options. To the MTP's credit, many staffing practices are in place that minimize overtime and align staffing resources with variations in workload levels.

MTP's patrol shift schedule is clearly aligned with Transit's security priorities, and staffing levels are adequate to cover Transit's core geographic service priorities. However, current MTP patrol staffing levels are not adequate to consistently provide Transit's desired level of coverage for its North Seattle and South King county bus routes. In addition, Transit has not developed a cohesive policy framework and plan that describes its long-term police and security goals and explains how ongoing changes in MTP services contribute to its goals. Currently, planning activities are mainly focused on responding to immediate needs and changing conditions. The absence of a long-term plan and related performance measurement activities limits Transit's ability to monitor the progress of its policing activities and to provide cost estimates for future operations.

### **Summary of Recommendations**

#### **Data Is Key to Better Analysis of Performance**

In regard to operator staffing, we recommend that Transit capture data to assist them in analyzing the relationship of staffing to system performance, more effectively manage leave, investigate opportunities and incentives for more extensive use of overtime in lieu of full-time staff, when such use would be cost-effective. They should also evaluate more extensive use of part-time operators to provide coverage for operator absences, and take additional steps to monitor and control operator absences.

In regard to Transit Police staffing, we recommend that Transit use a more statistically accurate approach to calculate its staff coverage needs and costs, use lower cost staffing options when they are consistent with security objectives, and work to control comp time absences. We also recommend that Transit develop a more comprehensive approach to recovering Sound Transit-related costs and develop a long-term plan and performance objectives for its police and security functions.

# 2 BUS AND TROLLEY OPERATOR STAFFING

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## **Better Data Can Identify Potential Efficiencies**

### **Chapter Summary**

This chapter gives background on the level of operator staffing and how operator staffing needs are determined. It discusses constraints to Transit's use of operator staffing resources, and some of the innovative ways Transit has tried to change or work within those constraints. Where possible, the effects of the constraints are illustrated, and examples of cost impacts are quantified. We recommend that Transit redesign or develop data sources in order to analyze the relationship of operator staffing resources to performance outcomes, and to continue to pursue alternatives for potential cost savings through changes in the use of staff, to the extent that such use is permitted or negotiated with the Amalgamated Transit Union (ATU) 587 and is consistent with policy directives.

### **Background**

Transit operators drive buses and trolleys on pre-defined routes and times determined by service planners and schedulers. Currently Transit employs approximately 1300 regular full-time operators and more than 900 part-time operators who have standard workday driving assignments. These operators take vacations, receive training, are sick, off due to industrial injury, and are absent from work for other reasons during the course of the year. To ensure that their driving shifts are covered and that bus service remains reliable, Transit also employs approximately 500 additional full-time operators of two types, Report operators and Extra Board operators, whose assignments vary.<sup>1</sup> A key

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<sup>1</sup> These numbers are approximate because they vary for each scheduling period (shakeup) and as vacancies occur and can be filled during the year. For the spring '09 shakeup, projected numbers were 1307 and 525, respectively. For the summer '09 shakeup, the projected numbers are 1288 and 464, respectively.

**Operator Absences  
Must Be Covered to  
Avoid Cancelling  
Service**

distinction between Report operators and Extra Board operators is that Report operators cover more random, immediate absences, such as operator illness, and must be qualified on at least 75 percent of the routes at their assigned base at the beginning of a shakeup, and then qualified on 100% of routes within 30 days. In contrast, Extra Board operators are given their assignments in advance to the extent possible. Examples include filling in for regular full-time operators who are on vacation or military leave.

As background to operator staffing, it is helpful to understand how Transit develops its bus service. Transit updates its routes three times a year – in February, June, and September. The process of developing and implementing a new schedule is sometimes called a “shakeup.” Transit also takes this opportunity to reallocate buses and routes among the seven bases. After Transit’s bus scheduling, staff take each route and assigns vehicles to it to create “blocks.” The blocks are cut into operator assignments per the labor agreement constraints in a process called “runcutting.” After the runcutting is completed, operators then go through a “pick” process in which they choose pieces of work based on seniority to determine which routes they will drive until the next schedule is developed. These processes are heavily controlled by the labor agreement.

**Size and Utilization of Operator Backup Coverage**

The relationship between the size of the Report and Extra Board staffing and related staff resource use such as overtime, to bus service reliability has not been empirically established. This means that bus service reliability at different staffing levels and costs can’t be accurately predicted. Modeling this relationship would be difficult given the large number of constraints and variables that would need to be taken into account. In addition,

current information systems have not been designed in a way that would facilitate this kind of modeling.

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**RECOMMENDATION C1**

Transit should capture additional data and modify current data sources to aid in the analysis of the relationship of staffing levels and staffing resource utilization to performance.

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**Transit Faces  
Challenges in  
Managing Absences  
and Controlling Related  
Costs**

***Estimating staffing needs***

For each runcutting exercise, Transit calculates the needed number of Report operators and Extra Board operators, utilizing a standard approach, called relief factor, that is found not only among transit agencies but also among other operations (such as prisons, jails, hospitals, police patrol) where having certainty that a minimum number of staff will be available each day or shift is important in order to carry out a determined level of service. The way staffing needs are calculated in a relief factor approach is to divide the time needed for service (e.g., hours per year for a full-time operator assignment) by the time that staff are actually available, taking into account the amount of time absent from work. Planned absences include known absences such as scheduled vacation, holidays, and use of accumulated compensatory time. Unplanned absences include sick leave, unpaid leave of absence, and job injury. As levels of unplanned absences increase, the number and cost of maintaining contingency operators also increases.

Transit's estimates of needed Report operators and Extra Board operators are a reasonable approximation of their actual needs provided that:

1. Planned absences, such as vacation, can be tightly controlled and managed; meaning that the number of staff on leave per day of week does not vary in relation to the number of staff assignments; and

2. Unplanned absences are managed within an effective attendance program.

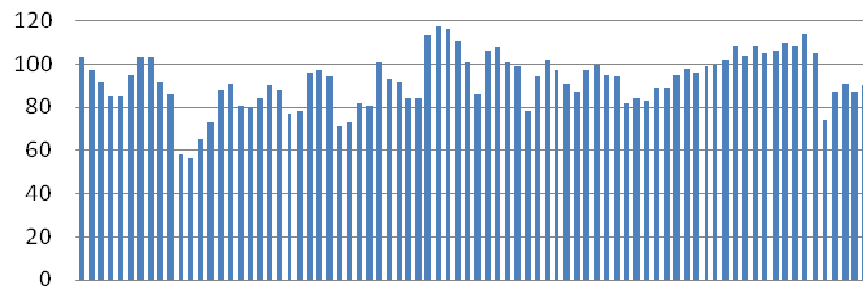
***Planned Absences***

The caveat that planned absences must be tightly controlled by Transit in order for Transit's estimated number of Report operators and Extra Board operators to be accurate is an important one. We found that the major category of planned absences – vacations – cannot be tightly controlled under the constraints of the collective bargaining agreement, which means that Transit's relief factor approach does not work as intended for estimating staffing needs. The following three charts (Exhibit A) show the significant variability in absences for vacation leave days during one sixteen-week period for weekdays and each weekend day.



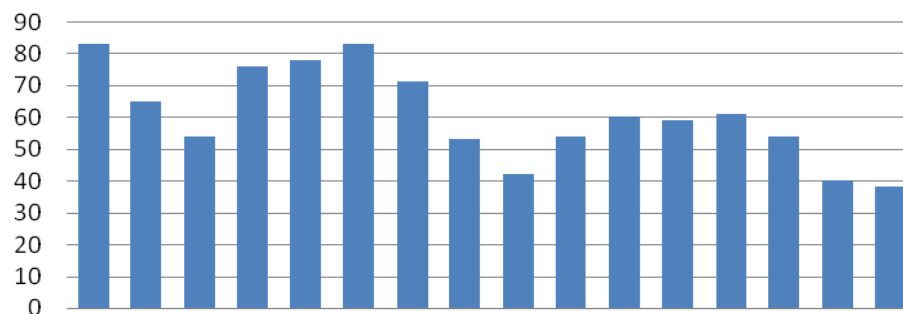
**EXHIBIT A**  
**Vacation Leave Variability, Spring 2009 Shakeup**

Numbers of System-wide Vacations on Weekdays:  
 Spring 2009 Shakeup



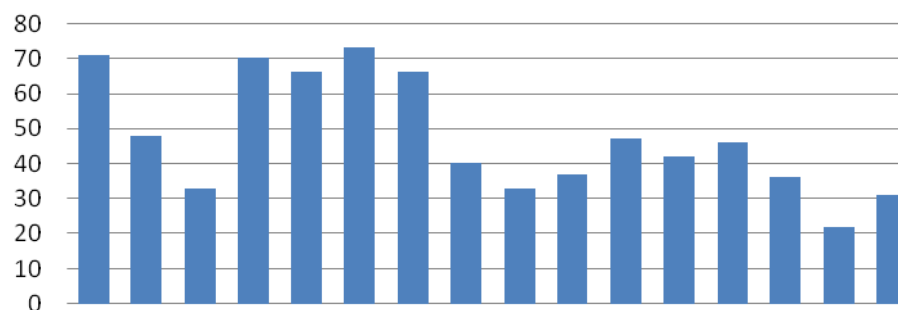
Monday - Friday from 2/9/09 (left) through 5/29/09 (right)

Number of System-wide Vacations on Saturdays:  
 Spring 2009 Shakeup



Bars represent each of the 16 Saturdays during the Shakeup

Number of System-wide Vacations on Sundays:  
 Spring 2009 Shakeup



Bars represent each of the 16 Sundays during the Shakeup

**SOURCE:** King County Auditor's Office

When viewed base by base, as opposed to the systemwide view in the preceding charts, the variations in the number of staff absent on any one day can be even more pronounced.

Transit's current labor agreement states that "Metro shall arrange with employees to take their vacations during the calendar year at such time as will minimize the necessity of calling substitutes to carry on regular work." The agreement goes on to say "Metro shall arrange vacations for employees on such schedules as will least interfere with the function of the division; but which accommodates the desires of the employee to the greatest extent feasible."<sup>2</sup>

**Vacation Leave Varies  
Significantly from Day  
to Day, Which  
Complicates Planning**

Transit identifies vacation blocks for each base that spread vacations across the year, and then operators pick vacation days in January. Those vacation block selections then follow the operators as they change base assignments in the spring, summer, and/or fall shakeups, effectively unbalancing the vacation blocks that were identified at the beginning of the year and creating the need for additional and uneven vacation reliefs. Transit and the ATU union have not been able to reach agreement to keep vacations tied to bases instead of the more expensive practice of following operators as they move from base to base. An even more significant factor is the variation in number of operators on vacation within a base from week to week because vacations are picked by systemwide seniority. A base may have 35 operators on vacation one week and only 15 the next week because of this labor agreement constraint. This makes it difficult to determine an appropriate extra board size for that base.

Working within the collective bargaining agreement, Transit takes several steps to keep planned absences even and predictable,

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<sup>2</sup> 2007-2010 Labor Agreement between ATU #587 and King County Metro Transit, Article 9.2.A.

including varying vacation quotas (total number of vacations that can be selected by period) in order to correspond to the size of the available Extra Board. Transit has also initiated efforts to address planned absence scheduling issues and reduce the cost of the Extra Board by creating a System Board. The System Board is currently limited to 25 operators who are system-centered (can be moved from base to base when needed) as opposed to the base-centered Extra Board. Transit is seeking efficiency and cost savings by focusing efforts on providing flexibility in backfill staffing by creating the System Board. Having this System Board presents the advantage of addressing imbalances in vacation leave taking between bases, and it also presents an opportunity to reduce the overall size of the Extra Board, thus reducing costs.

### **Controlling Unplanned Absences Is a Challenge for Transit and Its Peers**

#### ***Unplanned absences***

Many transit agencies struggle with ensuring efficient staffing and controlling levels of unplanned absences. As a result, many programs for reducing unplanned absences have been developed and tested. The most successful programs consist of a carefully balanced strategy to provide incentives for good attendance and discipline for excessive unplanned absences.<sup>3</sup> Another strategy for effective management of unplanned absences is to eliminate rewards for unplanned absences.

Prior to 2001, Transit required sick leave verification from an employee after the third incidence of absence in a twelve-month period or for any absence exceeding two working days. This provision kept sick leave low. In 2001 the threshold for verification was changed to the 7<sup>th</sup> or 12<sup>th</sup> incident depending on the prior year's incidents (an incident is one or more days). Also

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<sup>3</sup> TCRP Synthesis J-7/Topic SF-06 [Synthesis 33]: Practices in Assuring Employee Availability is the title of a national TCRP analysis investigating practices transit agencies have put in place to ensure the availability of quality employees with a focus on practices to help minimize unplanned absences.

any time an employee had 500 hours of sick leave, no verification was required. Under this provision, sick leave utilization increased at a rate three times faster than the increase in scheduled hours. To try to address this result, separate sick leave bargaining was separated out when the ATU contract was rolled over in 2004. An agreement was reached with ATU just before the interest arbitration hearing. Based on this agreement, Transit can no longer require medical verification from a licensed practitioner except when an employee is out of sick leave or in other limited circumstances. Instead, Transit employees self-certify sick leave. While recognizing that this benefit was bargained for during the labor negotiation process, we found that the current labor agreement impacts Transit's ability to manage excessive sick leave unplanned absences by preventing the agency from requiring medical verification.

**Reducing Two Days of Sick Leave per Full Time Operator Could Save Up to \$1.2 Million per Year**

Based on past practice in Transit Operations, Transit operators who run out of accrued sick leave while absent are defaulted to unpaid leave of absence even though the current labor agreement states that Transit must approve requests for unpaid leave of absence. Compared to other King County labor agreements, Transit's labor agreement is the most restrictive to management and most flexible for labor in regard to sick leave management.

Transit's ability to manage sick leave has also been constrained by the availability of data to monitor and track sick leave usage (e.g., it is not currently possible to obtain data on hours of sick leave by employee full-/part-time status in a previous year). In August 2008, Transit began using HASTUS data to track instances of sick leave usage. Transit has not, however, purchased the HASTUS Employee Performance Manager module (EPM), which assists users in managing disciplinary actions and awards based on rules configured to provisions of

the collective bargaining agreement. Improved access to information like this, whether through EPM or another application that pulls data from HASTUS, would allow staff to better track a range of performance indicators based on rules configured in accordance with collective bargaining agreements. These could include complaints, commendations, service reports, work/non-work hours, absences by type of absence and by operator status (e.g., full-/part-time status), and discipline records.

In order to give an idea of the magnitude of the impact of unplanned absences, we calculated that if sick leave usage for full-time operators were reduced by two days per year, the cost savings could be in the range of \$1 million to \$1.2 million.

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**RECOMMENDATION C2**

In order to more effectively manage the costs of planned and unplanned operator leave, the following issues should be addressed:

- Transit should quantify the cost impacts of leave procedures, and the county's representatives should take these costs into consideration when negotiating the next labor agreement.
- Transit should adjust its payroll procedures so that operators who run out of sick leave do not automatically default to unpaid leave of absence in conformance with the labor agreement; and
- Transit should utilize data available in HASTUS to monitor sick leave usage in accordance with the collective bargaining agreement.

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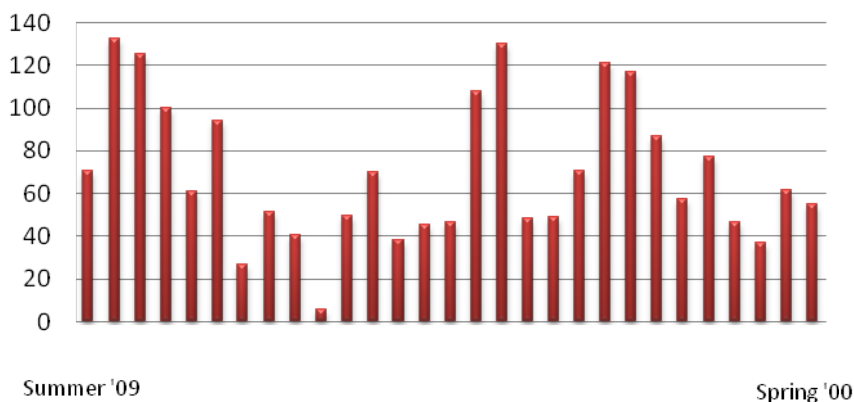
***Managing the size of report and extra board***

For the spring 2009 schedule change, the actual size of Report and Extra Board staffing was approximately 525, which was 132 operators more than the calculated need at the beginning of the

**Having a Larger Pool of  
Coverage Operators  
Than Needed Costs  
\$0.5 to \$11.5 Million  
Each Year**

schedule change. This represents the largest difference at the beginning of a shakeup between actual versus calculated need for the twenty-nine shakeups that have occurred since spring 2000 as shown in Exhibit B. During this period the range has been from 6 to 132, with an average per shakeup of 70 operators more than the calculated need. Translated into current dollars, the range in actual versus calculated need on an annualized basis is approximately \$0.5 million to \$11.5 million, with the average of 70 representing approximately \$6.1 million.<sup>4</sup>

**EXHIBIT B**  
**Difference between Actual Extra Board and Calculated Need**



**SOURCE:** King County Auditor's Office

One reason the actual number exceeds the calculated need is due to the emphasis on ensuring that sufficient staff resources are available to minimize the number of cancelled or delayed runs. Other factors that are considered when planning Extra Board sizes include trends in unplanned absences, training needs, anticipated attrition rates, part-time recruitment trends, and vacation quotas. When planned service increases do not occur, or attrition rates drop (as happened beginning in late 2008) it creates a situation where there is a surplus of full-time

<sup>4</sup> Based on spring 2009 costs. The difference between the actual and calculated needs can also be expressed in terms of the difference at the end of the shakeup or an average of beginning and end. Our calculations of the other two ways yielded dollar figures roughly equal in magnitude to the dollars cited above.

operators. The labor agreement impacts Transit's ability to quickly reduce the fulltime workforce. In the past 30 years, Transit reports that they have never laid off a Transit operator, either part time or fulltime. Transit does take immediate steps if there are more operators than required, such as allowing operators to take off accumulated compensatory time. Transit managers also react to fluctuations in attrition rates, service cancellations, spikes in absentee rates, etc., based on their years of previous experience in determining operator staffing levels.

**Bus Cancellations May  
Be Due to Factors  
Other Than the Number  
of Coverage Operators**

Systemwide, bus trip cancellations may be due to factors other than the number of Report and Extra Board operators.<sup>5</sup> We conducted an analysis that looked at the relationship between the size of the Report and Extra Board staffing and the occurrence of cancelations due to the unavailability of full-time and part-time operators. We included part-time operators because Report and Extra Board operators may also backfill for those staff. As might be expected, the number of bus trip cancellations at a base decreases as the size of the Report and Extra Board staffing at the base increases, but when analyzed statistically, the relationship is not particularly strong.

***Overtime use and backfill choices***

What our analyses suggest is that while the size of the staffing for backfill is important, providing a relatively large number of Report and Extra Board operators may not be the most cost-effective way of meeting the goal of avoiding cancellations. As previously mentioned, the relationship between the size of the Report and Extra Board staffing, and related staff resource use such as overtime, to any performance target for cancellations or

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<sup>5</sup> We used data for 49 months for which we could match the actual-versus-need Extra Board staffing (staffing difference) to the occurrence of cancelations due to the unavailability of operators. We used three ways of identifying the difference in relation to the number of cancelations per month: At the beginning of the shakeup, at the end of the shakeup, and the mean of the beginning and ending differences. The highest calculated R<sup>2</sup> (coefficient of determination) was .36, which means that the complement of this value, .64 (or almost two-thirds) is the remainder that would not appear to be explained size of the staffing difference.

delays has not been empirically established. This means that service reliability at different staffing levels and costs cannot be accurately predicted. This is an area that merits further review by Transit.

In addition to having an Extra Board that is larger than the calculated need, Transit employs several other approaches to avoid service cancelations and delays, including the use of overtime when there is not enough staff on duty. Due to the provisions in the current labor agreement, Transit does not use part-time operators on overtime for backfilling other than vacation relief, and reports that use of overtime is unreliable due to provisions barring forced overtime<sup>6</sup> other than what is built into operator assignments.

Constraints on the use of overtime and part-time operators come at cost:

**The Cost of Staff**  
**Options for Backfilling**  
**Absences Varies Widely**

- Based on our analysis, the hourly cost for a full-time operator on overtime is approximately \$49.26, whereas the cost of a full-time operator, *including backfill need*, is almost the same, \$49.11.<sup>7</sup> A potential benefit of using overtime is that in most cases, elimination of idle time, often called “bonus time,” is possible. For example, when the Extra Board is used to backfill for part-time operators, they may be paid for more time than they are needed since they are paid for a minimum of eight hours.
- The following is an example of the cost of each option for backfilling a part-time assignment and shows that backfilling a part-time assignment with a full-time operator can be the most expensive option.

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<sup>6</sup> Source: Transit’s comments as part of their technical review of this report.

<sup>7</sup>Based on costs during the spring 2009 shakeup.



The length of a typical assignment for a part-time operators who were 0.5 FTE or greater and had single assignments was about 5 hours and 21 minutes.<sup>8</sup> The options and costs for backfilling this length assignment would have been:

<b>Using Full Time Staff to Provide Coverage for Part Time Staff Can Be the Most Expensive Option</b>		<b>Cost per Day</b>
	Backfill w/ a part-time operator	\$242.54
	Backfill w/ an Extra Board operator receiving a minimum 8-hour pay	\$392.91
	Backfill w/ a full-time operator working overtime	\$262.83
	Backfill w/ a part-time operator working overtime	\$238.60

In the cases of part-time assignments that are filled by operators who are less than .5 FTE, the relative cost of using the Extra Board is greater, unless more than one part-time assignment can be backfilled. For these part-time operators, the length of a typical assignment in spring 2008 was about 3 hours and 8 minutes.

Transit is utilizing full-time Extra Board operators and Report operators to fill in for part-time operators 65 percent of the time<sup>9</sup>, which implies that there were numerous instances when less expensive overtime or part-time backfill could have been used, if these types of backfill had been available and permitted. This backfilling for part-time absences represented approximately 16 percent of all the backfill assignments performed by the Extra Board and Reports.

More extensive use of part-time operators, who could provide backfill in lieu of using the Extra Board, could result in cost savings. Currently, the number of part-time operators is capped

<sup>8</sup> This assignment length was during the spring 2008 shakeup. The range was from 5 hours to 6 hours and 48 minutes. For the most recent Shakeup in February 2009, for part-time operators who were 0.5 FTE or greater and had single assignments, the average was about 5 hours and 23 minutes, which is almost the same as the spring 2008 average.

<sup>9</sup> According to a staff utilization analysis conducted by Transit in support of this performance audit, for a recent full-year period (summer 2007 – spring 2008).

by the collective bargaining agreement at 45% of the total number of full-time Transit operators,<sup>10</sup> and part-time operators are not allowed to work on Saturdays and Sundays.<sup>11</sup>

Recently, Transit attempted to introduce a new type of operator who would work a minimum 25 hours per week, but could have a flexible numbers of hours within the range above 25 hours, and who could work weekend assignments. By one estimate from Transit, use of such staff might save roughly \$2.5 million systemwide annually. Transit and the union could not agree on this change.

In the opinion of Transit management, more fully utilizing part-time operators would allow Transit to offer a better employment opportunity in the competitive marketplace for employees. If part time operators can work more hours, Transit believes that the quality of operator hired will improve and absenteeism will decline.

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**RECOMMENDATION C3**

Transit should further investigate opportunities and incentives for more extensive use of overtime in lieu of full-time staff, when such use would be cost effective, and more extensive use of part-time operators to provide backfill in lieu of using the Extra Board.

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<sup>10</sup> Each part-time operator assigned to a Dual Tripper assignment is counted as two part-time operators for purposes of establishing the 45% cap. Agreement between Amalgamated Transit Union 587 and King County, p. 70.

<sup>11</sup> Ibid. p.95.

# 3 TRANSIT POLICE STAFFING

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## Chapter Summary

This chapter provides information on the recent increase in staffing and expenditures of the Metro Transit Police (MTP). The staffing methods used by MTP are discussed, as well as the comparative costs of using different types of staff resources. Also covered is Transit's cost-recovery method for light-rail related police staffing, and long term planning efforts for police services. We recommend that the MTP use statistical methods to more accurately project staff coverage needs and work with its employees to mitigate the cost of comp time absences. We recommend that Transit consider comparative staffing options for providing transit security, use a more comprehensive approach to cost-recovery for Sound Transit related expenditures, and that it develop a long-term plan for its police and security functions.

## Background

### **Transit Contracts With the Sheriff's Office and Olympic Security**

The Metro Transit Police (MTP) provides police and security services for transit operations, facilities, and equipment. Transit contracts with the King County Sheriff's Office for police services and with Olympic Security for security guard staffing in the downtown Seattle Transit Tunnel and at some park-and-ride lots. MTP also provides security services for Transit-operated Sound Transit buses, and shares the cost of transit tunnel operations and security with Sound Transit.

MTP employs 70 staff, including 61 commissioned police officers, five communications specialists in the Sheriff's Office 911 Communication Center, and four Transit administrative support personnel. The mix of MPT staffing is shown in Exhibit C, below. MTP's primary police functions are as follows:

**Patrol Unit:** Deputies patrol several transit corridors within King County responding to calls for assistance from bus operators and proactively address threats to operator and passenger security.

**Bicycle Emphasis and Enforcement Squad (BEES):** Bike units have primary responsibility for the Transit Tunnel and Central Business District. The units are intended to be mobile enough to intervene and respond to security issues on the streets or sidewalks and within the tunnel stations and mezzanines.

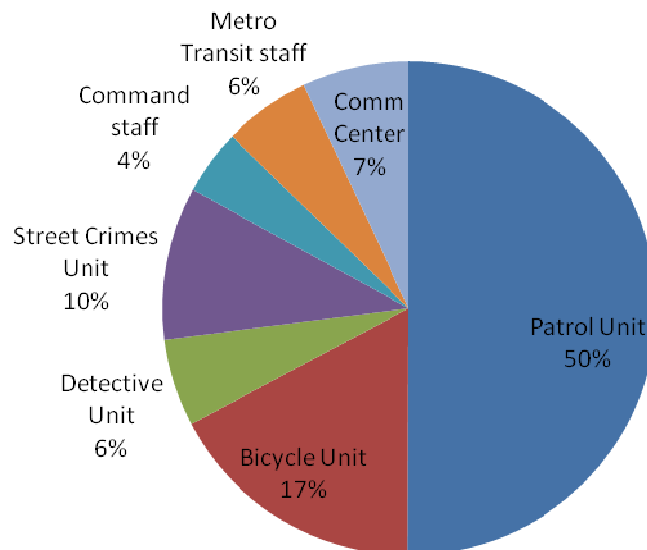
**Plain Clothes Proactive Detective Unit:** Undercover detectives perform proactive activities such as riding buses and addressing chronic security issues.

**Detective Unit:** This unit, similar to the Criminal Investigations Division (CID) of the Sheriff's Office, performs follow-up investigations following arrests and other incidents.

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**EXHIBIT C**  
**Mix of Metro Transit Police Staffing, 2009**

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**SOURCE:** King County Auditor's Office

**Council Directed  
Transit to Contract  
with Sheriff's Office for  
Police and Security**

Historically, MTP functions were carried out by temporary off-duty Seattle Police Guild officers that Transit hired on a temporary part-time basis. In 1993, the Metropolitan King County Council passed an ordinance stating its intent for the King County Sheriff's Office to manage and provide transit police services and phase out the use of off-duty police officers entirely if needed. The stated intent of this policy was to improve transit security and increase productivity through the development of a full-time, dedicated transit police function. Consistent with the council's intent, Transit began contracting with the King County Sheriff's Office to manage the police and security functions that were staffed primarily by off-duty Seattle Police Guild officers.

In 2003, the Metropolitan King County Council adopted a set of policies and passed a motion that again directed Transit to further reduce the use of part-time, off-duty officers and increase the use of full-time Sheriff's Office officers. The balance between full-time and temporary off-duty officers was to be determined by Transit, by weighing the productivity and flexibility of full-time officers with the benefits of part-time officers. Transit gradually increased the use of Sheriff's Office personnel since 2003 and completely discontinued the use of the off-duty officers in May of 2009.

**"Best Practices" for Staff Resource Planning**

Certain staffing management practices can be considered best practices for work environments in which a "post" must be staffed for fixed hours each day including:

1. Placing a limit on the number of employees who can take vacation leave at the same time. This is considered an effective practice because it spreads vacation leave throughout the year to minimize the operational and cost impacts of employee absences by:
  - Allowing management to plan hiring and staffing needs,

and overtime budgets, around planned annual leave absences, and

- Preventing spikes in employees taking annual leave simultaneously that would require the need for excess backfill overtime to cover absences.
2. Using a larger pool of employees to cover employee absences, rather than a limited number of employees. Similar to #1, this also minimizes the extent to which management has to use overtime to cover a post.
  3. Calculating post coverage needs and using employee absence rates to determine the number of employees needed to cover the post. The traditional method of doing this is the “relief factor” method, which works well for large groups. However, a more statistically rigorous approach should be used for groups smaller than 100 to estimate the likelihood employees will be absent.
  4. Clearly documenting the rationale for planned staffing levels and adjusting staffing levels to align with periods of higher and lower workload volumes.
  5. Using the most efficient types of staff resources to meet operational needs.

### **Transit Police Costs Have Doubled in the Last 10 Years**

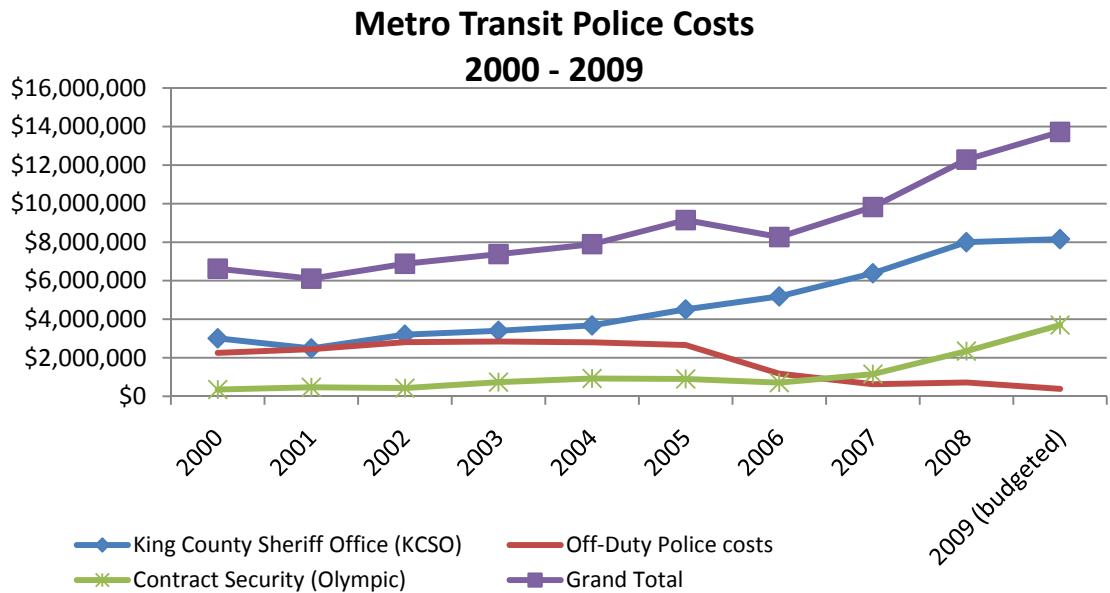
#### **Transit Police Costs**

Metro Transit Police’s costs have increased substantially in recent years due to policy decisions made by Transit and the King County Council. As illustrated in Exhibit D below, costs more than doubled between 2000 and 2009, from \$6.6 million to an estimated \$13.7 million.<sup>12</sup>

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<sup>12</sup> When expenses reimbursed by Sound Transit are accounted for, costs have increased by 75% to \$11.2 million.

**EXHIBIT D**  
**Metro Transit Police Costs, 2000 - 2009**



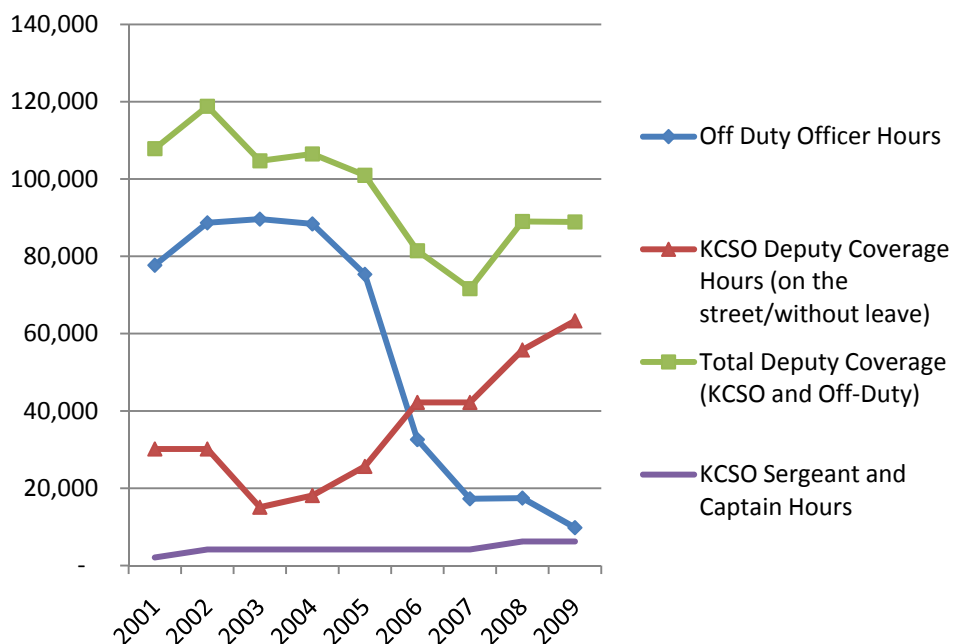
**SOURCE:** King County Auditor's Office

**Full Time Transit Police  
Organization Has  
Replaced Use of  
Temporary Off-Duty  
Officers**

This increase in costs is largely a result of a 1993 council ordinance and 2003 motion that directed Transit to develop a full-time transit police organization using full-time King County Sheriff's Office deputies and to gradually discontinue its practice of using temporary off-duty officers from the Seattle Police Officer's Guild. The intent of this policy was to provide for improved security and increased productivity through a dedicated police organization. Police and security guard costs have also increased to support Light Rail operations within the transit tunnel, totaling approximately \$2.5 million in 2009; these expenditures are revenue backed by Sound Transit.

Since the early 2000s, full-time Sheriff's Office deputies were gradually assigned the hours previously worked by off-duty officers until the use of off-duty officers was fully discontinued in May 2009. Exhibit E below illustrates how the proportion of hours of service provided by the Sheriff's Office and the temporary off-duty officers has changed.

**EXHIBIT E**  
**Comparison of Deputy Coverage Hours**  
**KCSO and Off-Duty Officers**  
**2001-2009**



**SOURCE:** King County Auditor's Office

Transit's general approach to developing the full-time MTP police force was to replace the service hours provided by the temporary off-duty officers with hours worked by full-time MTP deputies. However, as can also be seen in the chart above, the total hours of direct police coverage provided declined about 19,000 hours between 2001 and 2009, an 18% decrease.<sup>13</sup>

### **Full-Time Deputies Are More Expensive Than Temporary Officers**

Most of the increased cost is attributed to the higher cost of employing full-time deputies rather than temporary off-duty police officers. Full-time deputies receive days off each week, paid vacation and sick leave that needs to be backfilled, and other county benefits such as health care and a police vehicle.<sup>14</sup> The

<sup>13</sup> Includes deputy coverage only. Sergeants and captains are not included in the total coverage figure.

<sup>14</sup> The car-per-officer (CPO) program provides a take-home police vehicle to all commissioned sheriff's officers. This policy was created by council motion.



hourly rate for off-duty officers is \$39.96 compared to an approximate hourly rate for KCSO officers is \$86.00, which includes benefits and an assigned patrol vehicle. Because Transit attempted to retain roughly the same level of police coverage using Sheriff's deputies as it did with temporary off-duty officers, its overall costs for police coverage increased.

Our review of the security guard contract and staffing plan indicates that it is an efficient way to deliver security service. Because it is a contracted service and the guards are not county employees, Transit is not directly paying for additional costs such as employee leave, backfill, health care benefits, and retirement that is paid for the sheriff's deputies. The hourly rates of the guards, who provide security services in the transit tunnel and in many county's park-and-rides, are less than those of the off-duty police officers who formerly provided these services<sup>15</sup> and are significantly less than Sheriff's Office deputies.

The table below shows the comparative cost of staffing resources used by the MTP.

<b>Metro Transit Police Comparative Staffing Resource Costs</b>	
<b>Staffing Type</b>	<b>Cost per Hour</b>
Olympic Security Guards	\$14.99 - \$15.87
Off-Duty Police Officer (Seattle Police Guild)	\$39.96
KCSO Transit Police Deputy	\$86.00 <sup>16</sup>

As the table shows, the cost of KCSO deputies is considerably higher than that of temporary off-duty officers and Olympic Security guards. Transit and the MTP have demonstrated that in some cases, such as security within the transit tunnel, less

<sup>15</sup> Metropolitan Police Agent rates: Guild Pay Rate Letter – MPA Hourly Pay Changes.htm, and Off Duty rates 2008.doc.

<sup>16</sup> This estimate figure includes the fully loaded cost of an officer charged to Transit by the Sheriff's Office, plus the costs of a police vehicle and radio equipment. When backfill costs for deputy leave is taken into account, the cost rises to \$118 per hour.

expensive staffing resources can be used to meet Transit's security objectives. Additionally, as found in past audits of the Sheriff's Office, using existing deputies working overtime to provide additional coverage can be a much less expensive staffing option compared to hiring additional full-time employees. Deputies working overtime already have their assigned patrol cars, paid health benefits, and annual leave. These three cost advantages outweigh the fact that deputies working overtime earn one and one-half times their regular pay.

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**RECOMMENDATION C4**

Transit and Metro Transit Police management should identify opportunities to use lower cost staffing options when they are consistent with security objectives.

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**Operational Changes  
Contributed to Cost  
Increases**

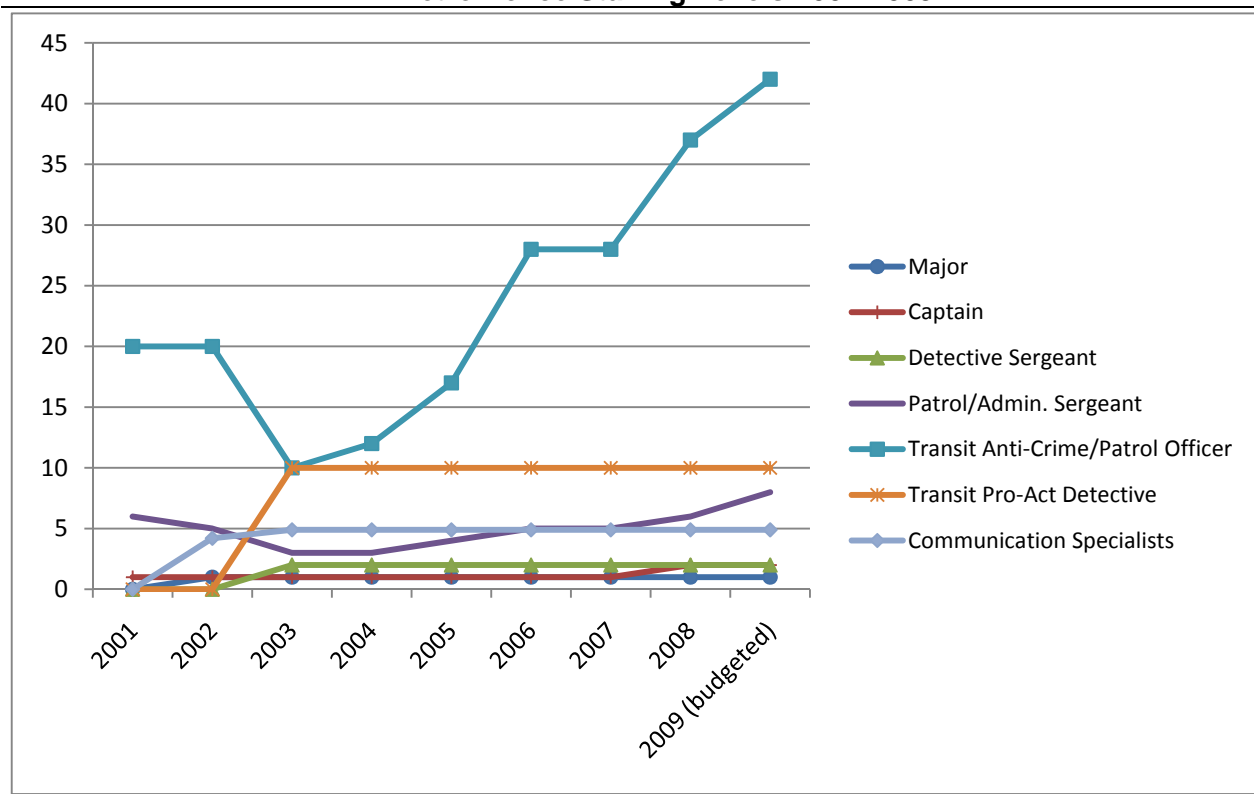
As Transit gradually replaced off-duty officers with full-time sheriff's deputies, operational changes were made that also contributed to cost increases:

- 2004-2005: Added a Bicycle Emphasis and Enforcement Squad to meet the increased use of the Third Avenue Transit Corridor when the transit tunnel was closed for retrofitting.
- 2007: Retained and augmented the Bicycle Unit when the tunnel reopened to ensure adequate staffing around the facility. While this was an expansion of police services, the costs were offset by the replacement of off-duty officers with contracted security guards within the transit tunnel itself.
- 2007-2008: Continued providing transit police patrols along Rainier Valley and North King County bus routes, and added staff to provide some coverage to South and East King County routes when feasible, with full-time transit deputies instead of part-time off-duty officers.
- 2009: transit tunnel operational hours increased from 5 to 7 days per week and from 14 to 21 hours per day to

accommodate Light Rail. To provide security for Light Rail operations and the extended tunnel hours, police staffing hours were extended for the Transit Tunnel and Central Business District through the addition of a night shift, additional sheriff deputies were hired and temporary off-duty officers discontinued, and security guards were added.

- Added a dedicated bomb dog handler to address system security for Transit's infrastructure.
- Added supervision and command staff in the form of captains and sergeants.

**EXHIBIT F**  
**Metro Police Staffing Levels 2001-2009**



**SOURCE:** King County Auditor's Office

### ***Transit police activity and performance***

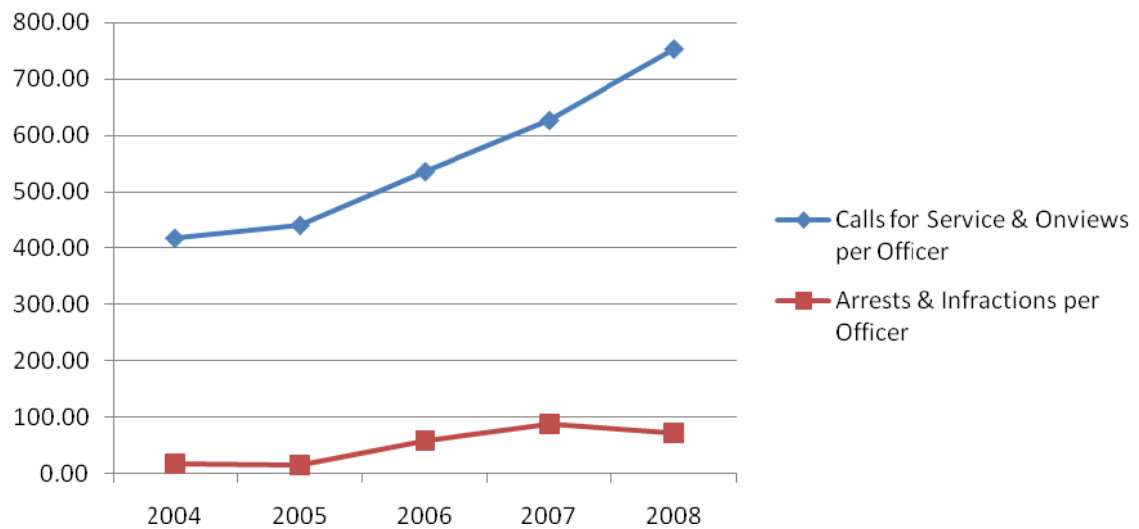
MTP workload and activity has increased substantially, especially over the last three years. Primary measures of officer activity

**Transit Police  
Workload and  
Productivity Per  
Deputy Has Increased**

include responses to 911 calls (also called “calls for service”) and “on-view” incidents that deputies see and react to while on patrol. These measures indicate that calls for service and on-views handled per MTP officers (full-time and temporary) have increased 80 percent since 2004.

Another indicator of workload and performance is the number of arrests made and infractions (tickets) issued by both the full and temporary off-duty MTP officers. The number of arrests and infractions per officer has increased nearly 300 percent since 2004. Over this same period the number of police coverage hours provided has declined. MTP deputies are currently responding to more calls for service and handling more arrests and infractions per officer than in 2003, as shown in Exhibit G below.

**EXHIBIT G**  
**Transit Police Activity per Officer, 2004 - 2008**



**SOURCE:** King County Auditor's Office

The increase in activity per officer coincides with the growth in full-time MTP officer staffing and large scale reduction of part-time, off-duty officers that occurred in 2006. One of Transit's and the Council's goals of establishing a full-time transit police force was to improve the safety of the transit environment for bus operators and passengers through more proactive policing and increased productivity. MTP workload and Transit performance data suggest that productivity goals are being met.

### *Performance*

#### **Transit Passengers Report Feeling Safer**

Transit and the MTP currently track measures such as passenger satisfaction with the safety of their transit experiences, assaults aboard buses, and security incidents reported by bus operators. Passenger opinion surveys conducted by Transit indicate that passengers feel safer now than they did 10 years ago. The table below demonstrates this increase in categories including riding and waiting for the bus and using park-and-ride lots.

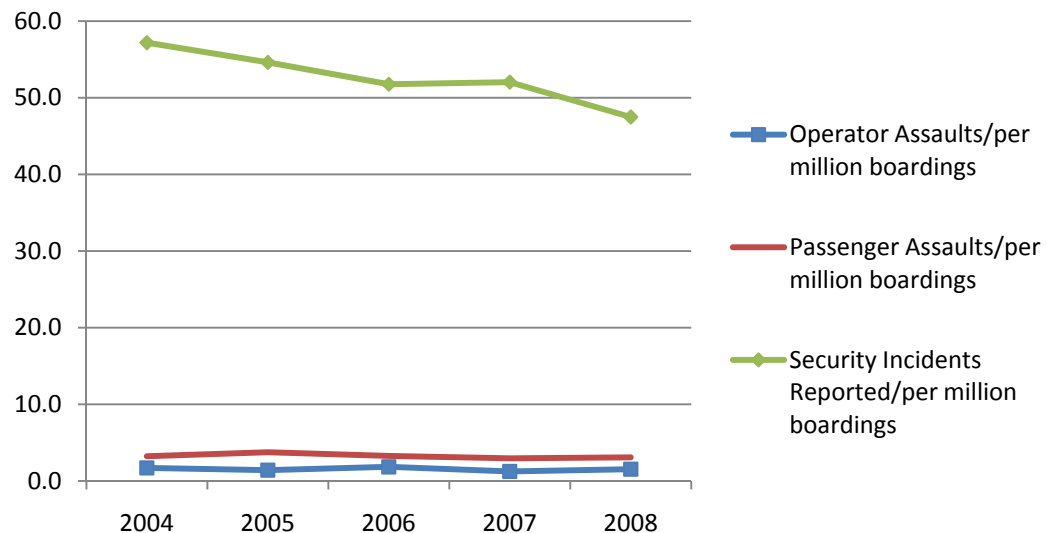
<b>Passenger Satisfaction Survey Results 1999 to 2008</b>									
	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
	<b>% Very Satisfied</b>								
<b>Safety waiting for bus during the day</b>	64%	66%	61%	67%	72%	73%	70%	74%	77%
<b>Safety at park-and-ride lots</b>	na	na	na	44	52	52	51	68	66
<b>Security of automobile at park-and-ride lots</b>	na	na	na	33	34	31	34	44	43
<b>Personal safety on the bus at night</b>	24	24	28	29	29	34	32	34	41
<b>Safety waiting for bus at night</b>	18	18	21	20	24	29	25	31	33

SOURCE: King County Auditor's Office

**Assault and Incident  
Rates Per Passenger  
Boarding Have  
Declined**

A review of Transit's performance data including operator and passenger assault rates and operator-reported security incidents shows that these events are increasing in number. Between 2004 and 2008, the number of operator assaults increased by 10 percent, passenger assaults by 17 percent, and security incidents by two percent. However, the number of Transit passenger boardings also increased 23 percent during this time period from 97 to 119 million. When these events are considered per passenger boarding, the number of operator assaults has decreased by 10 percent, passenger assaults by five percent, and security incidents by 17 percent, as shown in Exhibit H below.

**EXHIBIT H**  
**Transit Security Events Per One Million Boardings, 2004 - 2008**



**SOURCE:** King County Auditor's Office

Operator assaults are currently the focus of a special project of Transit and MTP management. The circumstances around these assaults are evaluated to identify potential patterns with regard to specific routes and operators with a goal of reducing their frequency.

**Transit Police Staffing Methods**

This analysis focused on the staffing methods used by the MTP to plan their staffing needs and manage planned and unplanned absences. Detailed staffing coverage analysis was conducted specifically for the patrol function within MTP.

**Overtime Staff  
Planning Methods Are  
Too General**

Our analysis found that the MTP is employing a “relief factor” approach to estimate the number of deputies needed to backfill, or provide coverage, when other deputies are on vacation or sick leave. This approach uses *average* absence rates to determine these backfill needs. While this approach can be accurate for larger groups of employees (100 plus), the use of average leave rates is not statistically accurate for estimating the number of daily absences for small groups of employees like MTP has on each shift.<sup>17</sup> In addition, the relief factor approach does not take into account the inevitable need for overtime when planned staffing is not adequate to cover unexpected sick leave absences.

MTP currently estimates that officers are available to work an average of 1,465 hours per year out of a possible 2,080 after accounting for their days off, vacation, sick leave, and unplanned absences such as disability and military leave. This is the figure used by the Sheriff’s Office to plan its regular patrol staffing needs, but is not based on actual absence rates of MTP deputies. Audit staff researched MTP absence rates and backfill needs based on their schedule and found that this estimate of available hours is fairly accurate. On average, MTP deputies are available approximately 1500 hours a year, about 40 hours more per year than planned, or the equivalent of about one extra officer per year.

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<sup>17</sup> Statistically, the smaller the group, the more variability will be experienced around the mean (average).

However, these numbers are estimates based on overall averages, and as discussed in the next section, this is too general a method for determining staffing needs for the small number of deputies used by the MTP. An approach that can be more accurate for small numbers of employees is binomial analysis. This statistical approach estimates the coverage needs for unpredictable absences due to sick and other unplanned leave, and estimates the number of days that cannot be covered with scheduled staffing. This approach, which improves the accuracy of staffing resource estimates (staffing levels and overtime),<sup>18</sup> was used in the second part of this analysis to compare the MTP's planned coverage to its actual coverage.

**Transit Police Is Taking  
Appropriate Action to  
Prevent Unnecessary  
Overtime and Align  
Staffing With Workload  
and Priorities**

To MTP's credit, other management practices are in place. MTP is using measures to prevent unnecessary overtime such as establishing minimum staffing levels by shift rather than by geographic area. This practice enables the MTP to draw from a wider pool of deputies when an absence needs to be filled, rather than automatically triggering the need for overtime. Other examples include limiting the number of deputies who can take vacation simultaneously, drawing from detective staff to backfill for patrol deputies when coverage is needed, and scheduling training on overlap days when staffing levels are above the minimum. MTP management is also using cost-effective staffing practices such as establishing clear staffing priorities for deploying deputies, aligning its staffing plan with these priorities, and adjusting staffing levels according to security needs and times of high and low workload.

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<sup>18</sup> Annual amounts of vacation leave are determined and the number of deputies needed to cover these absences are calculated. This amount can be determined ahead of time and will have very little variability if leave is closely managed. Historical sick leave rates and planned staffing levels are used to statistically estimate the likelihood that enough deputies will report for work to provide the planned level of shift coverage and to estimate the number of shift hours that cannot not be covered with scheduled staff.



One area of ongoing concern is that of Compensatory Time (comp time). As found in previous audits of the Sheriff's Office, deputies receive "comp time on demand," which means that management must grant their requests to use their earned comp time even if very short notice is given. Although not in the collective bargaining agreement, this is an established practice that limits management's ability to plan for absences and reduce overtime expenditures. If a comp time absence must be covered by another deputy then this results in an additional cost to Transit; however, there is no extra cost if the absence does not need to be backfilled. MTP management could mitigate the cost impacts of comp time by getting advance notice when possible and by scheduling employee comp time absences when extra scheduled staff are already available.

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**RECOMMENDATION C5**

The Metro Transit Police should strengthen its staffing management practices by employing a more statistically sound approach to planning its staffing needs and by regularly updating its employee absences to reflect actual absences and backfill needs of Metro Transit Police Officers.

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**RECOMMENDATION C6**

The Metro Transit Police should work with its employees to schedule their comp time absences and avoid the need to backfill whenever possible.

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**Patrol Staffing Plan**

MTP patrol deputies provide coverage for several transit corridors within King County to respond to calls for assistance from bus operators and proactively address potential threats to bus passenger safety and security. Transit tunnel and central business district, as well as specific bus routes and locations that Transit has prioritized. MTP deputies are allocated according to

these geographic areas in this priority order:

1. Downtown Seattle Transit Tunnel (DSTT)
2. Seattle Central Business District (CBD) generally along the bus corridor between 1<sup>st</sup> and 7<sup>th</sup> Avenues, from the International District Station to the Convention Place Station
3. Rainier Valley
4. North Seattle
5. South King County

Audit staff used staff absence rates and statistical analysis to assess the MTP's ability to provide police coverage according to its staffing plan. Using this binomial analysis, we calculated the extent to which MTP is able to meet its minimum staffing levels on each shift and to provide coverage above these minimums to areas beyond the core downtown areas.

**In 2008, Police Staffing Levels Did Not Provide Desired Coverage in Some Areas**

The analysis indicates that MTP staff resources and shift plan are enabling it to achieve scheduled staffing levels for the transit tunnel, Central Business District, the Rainier Valley, and to a lesser extent North Seattle and South King County areas during the busy afternoon swing shift. Staffing coverage is more limited at other times especially outside of downtown. Although staff were added to provide additional coverage for South King County patrols in 2008, analysis shows that staffing was not adequate to provide the level of coverage desired. This is likely a result of using the general "relief factor" approach to estimate staffing needs rather than a more statistically based approach, as this approach typically underestimates the backfill staffing needs of very small groups. Transit and MTP report that they have been unable to provide the desired level of police coverage to the North and South King County areas due to insufficient staffing.

**Recovery Calculations  
for Police Services  
Supporting Sound  
Transit Should Be More  
Precise**

**Sound Transit Reimbursement**

MTP's activities support Sound Transit buses (which are operated by Transit drivers) as well as the transit tunnel. The services MTP provided to Sound Transit accounted for approximately nine percent of total Transit police costs in 2008 and an estimated 19 percent in 2009. The increase is a result of the extended tunnel operating hours to support Light Rail operations as well as Sound Transit bus service. Sound Transit reimburses Transit for the cost of these services.

Our review of the cost-allocation method used to calculate costs of providing MTP staffing for the transit tunnel indicate that it appears to be reasonable for general planning, but should be refined for cost-recovery purposes. The method used to estimate staff resources allocated to Sound Transit services is the same method used to plan MTP staffing coverage, which, as noted in the previous section, is not the most precise method to use for small groups of staff. Finally, as discussed, the use of an overall average amount of available deputy time for post coverage purposes is not a statistically accurate means of estimating staffing needs. The method used to calculate Sound Transit's share of MTP deputy costs could be strengthened by using binomial analysis to model and calculate actual staffing needs.

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**RECOMMENDATION C7**

Transit should develop a more precise approach to calculating and charging for Sound Transit's portion of tunnel-related police costs.

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**Transit's Planning Efforts**

Our review found that Transit does not have a long-term plan for the MTP function that describes what its priorities and long-term goals are for the organization. Transit's efforts over the last decade have focused on responding to immediate needs such as operating changes in the tunnel, Light Rail implementation, and transitioning its Transit police force to a permanent, full-time transit police organization. Important policy decisions have also been made about Transit's top security priorities that have impacted operational decisions and greatly increased costs.

Examples include:

- Attempting to maintain historical police coverage levels despite the increased cost of full-time officers
- Adding a bicycle unit
- Expanding coverage from five to seven days a week, 24 hours a day, to accommodate Light Rail.

This audit did not evaluate the need and rationale for these changes. However, audit staff found that Transit has not developed a coherent policy framework and plan that puts these operational decisions in context and provides a roadmap for the future.

**Transit Needs a Long-Term Vision and Plan to Guide Metro Transit Police**

As noted above, Transit and MTP are tracking some performance data and workload levels, and MTP establishes annual goals and objectives each year consistent with management direction from Transit. However, Transit has not developed specific goals, performance measures, or targets to guide MTP and security activities. This limits Transit's ability to monitor the effectiveness of its policing activities.

Transit would benefit from having a clear long-term plan for MTP with goals, objectives, performance measures, and targets. Such a plan would guide internal planning and prioritization of security

activities and resource use decisions and be used to monitor and evaluate progress towards meeting Transit's security-related goals. It would also be a useful tool to communicate information on goals, priorities, activities, and resource use with outside stakeholders such as Transit's ridership, the general public, and county decision-makers.

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**RECOMMENDATION C8**

Transit should develop a long-term vision and plan for the Metro Transit Police that includes a vision, goals, and objectives, as well as measures and targets to track progress towards achieving these goals and objectives. This should be integrated with Transit's strategic plan.