Office of the Auditor General/ Bureau du vérificateur général

AUDIT OF THE OC TRANSPO SCHEDULING
PROCESS FOR BUS OPERATORS

2011

VÉRIFICATION DU PROCESSUS D’OC TRANSPO
D’ÉTABLISSEMENT DES HORAIRES DES CHAUFFEURS
D’AUTOBUS
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EXECUTIVE SUMMARY

Introduction
The Audit of the OC Transpo Scheduling Process for Bus Operators was originally included in the 2010 audit work plan received by Council on June 23, 2010. Based on Legal/Labour Relations advice, the audit was not tabled with our office’s 2010 annual report. On December 20, 2011, based on Legal/Labour Relations advice, our office agreed to follow the direction of the Mayor and the Chair of the Audit-Sub-Committee and defer tabling of this audit until after OC Transpo completed their contract negotiations.

Background
OC Transpo is one of the City of Ottawa’s largest, complex and labour-intensive business units. The 2010 OC Transpo gross operating expenditure budget was $367 million. The “Operations” budget line of the 2010 budget - which includes all bus operator costs - was $142 million. OC Transpo delivers transit and para-transit services across an expansive catchment area of more than 442 square kilometres. The OC Transpo system delivers approximately 90 million passenger trips annually, the fleet includes more than 1,000 active service buses, and the bus service features 250+ bus routes with approximately 6,400 stops. OC Transpo services are primarily delivered by approximately 3,000 mostly unionized employees. The logistics, labour relations, and financial management challenges associated with planning and scheduling the work of OC Transpo bus operations/operators within this complex and dynamic transit system are significant.

The City-wide 2008 transit strike generated significant negative outcomes for Ottawa residents and businesses in terms of service interruption, traffic congestion and lost/deferred commercial activity/revenues. While acknowledging these negative strike outcomes, the City’s collective bargaining approach was motivated in part by an opportunity to secure financial and operational flexibility/control following the strike. Public expectations developed during the strike, and subsequent arbitration process, around a significant cost savings dividend viewed as compensation for public hardship. This financial dividend was supposed to flow from an enhancement of management’s enhanced control and improved flexibility over bus operator scheduling.

To better understand what the City won through Arbitration, the Figure ES-1 below illustrates the before-and-after scheduling conditions, anticipated efficiency and anticipated outcome.
Figure ES-1: What Was Won and the Anticipated Benefits

<table>
<thead>
<tr>
<th></th>
<th>Pre-strike</th>
<th>What was Won: Post-Arbitration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who has control of the day?</td>
<td>Bus Operators: Bus operators manually choose the runs that make up their shifts, so that some bus operators can maximize their pay but minimize the actual hours they work</td>
<td>Management: Using computer software, various bus runs are assembled into shifts, which enables management to minimize the hours of unpaid work by bus operators</td>
</tr>
<tr>
<td>What is the anticipated system efficiency?</td>
<td>Inefficient: A sizable portion of work is not getting done for the hours being paid by OC Transpo</td>
<td>Efficient: Paid work is optimized to the needs of the system</td>
</tr>
<tr>
<td>What is the anticipated long-term outcome?</td>
<td>Increasing costs: On-going increases in total salary costs due to inefficiencies</td>
<td>Cost management: A cost savings of approximately $3 million</td>
</tr>
</tbody>
</table>

Figure ES-2 provides a diagram of the pre-strike and post-strike scheduling practices.
The planning and execution of the 2010 Audit of Bus Operator Scheduling has focussed on the actual opportunity for management – emphasizing results to-date – to secure a post-strike cost savings dividend, and also generate bus operator scheduling process improvements.

**Audit Scope**

The audit plan focussed on the following:

1. Assess the current degree of progress, and future probability, of management securing the forecasted/approved bus operator scheduling cost savings. These forecasted cost savings revolve around restructured work scheduling rules for bus operators, new improved scheduling processes implemented by
management, and management’s accountability driven implementation of a “change management” critical path for measurable operational efficiency results improvement;

2. Evaluate scheduling control implementation and work rules – examining the execution of the scheduling core process critical path before and after the arbitration settlement. Evaluate the probability of go-forward process improvement in subsequent scheduling cycles;

3. Review OC Transpo cost management due diligence efforts – focussing on how scheduling cost savings have been forecasted, and evaluate the go-forward critical path for implementing ongoing systemic cost management/savings;

4. Determine the extent of management’s exercise of rights as obtained from the Arbitrator’s decision;

5. Execute an evidence-based assessment of OC Transpo scheduling performance results from an operational perspective – a metrics driven “Ottawa versus Ottawa” time series analysis. This evidence based analysis will utilize key OC Transpo performance indicators, and address system performance on a quarterly basis before-and-after the post-strike arbitration settlement; and,

The audit’s objectives are best understood once they are organized into the following three chronological themes used throughout this report:

1. Assessment of management’s collective bargaining and arbitration process cost saving’s modeling, risk based savings expectations, and quality of communication/analytical support to Council;

2. Determine management’s exercise of rights, systemic scheduling design and process execution issues impacting cost management and operational efficiency; and,

3. Assess current and go-forward cost management expectations and the critical path for achieving forecasted savings.

Summary of Key Findings

Audit Objective Theme: Past Critical Path

There are a series of inter-related activities that shape the critical path historic timeline set out for cost management. These activities include:

1. Federal regulatory changes impacting the number of hours that drivers are allowed to work;

2. The milestones related to the arbitration of the strike including on-going negotiations post-arbitration grievances;
3. The quarterly changes to OC Transpo’s bus schedules including the period to plan and book drivers to the schedules;

4. The process of signing-up drivers to the scheduled routes;

5. The upcoming negotiations and pending expiry of the current Collective Agreement; and,

6. Future implementation of new booking software.

Key observations taken from the critical path include the following:

1. The post-strike arbitration process has been long and drawn out with a January 2010 milestone but has not been concluded;

2. Latitude for management to secure bus operator scheduling related cost savings has been quite narrow - given the uncertainties of implementing decisive “control of the scheduling day” measures in an uncertain environment of arbitration related appeals;

3. Only four scheduling cycles are executed annually, with the summer cycle always characterized by unique diminished ridership and resourcing requirements. Rationalizing the scheduling process is therefore a multi-year undertaking;

4. The August 2010 Memorandum of Agreement (MoA) negotiated with the Union Executive represented a strategic acknowledgement by management that the content of the Keller arbitration reduced the probability of securing the scheduling cost savings once thought to be achievable during the strike; and,

5. Based on our review of management’s communication to Council, it is our opinion that it was adequate and professional.

**Audit Objective Theme: The Existing Situation Facing OC Transpo Today**

**Eroding Scheduling System Efficiency**

We found on-going systemic inefficiencies associated with the bus operator scheduling process at OC Transpo. There has been escalating ratios of “Paid Hours to Total Vehicle Hours” and “Paid Hours to Revenue Vehicle Hours” from 2000 to 2009. The 2010 post-strike arbitration award will not reverse this eroding productivity trend.

**Labour Intensive Approach for the Booking of Drivers to Routes**

The booking of drivers to routes remains a highly labour intensive process which requires that all drivers go to the OC Transpo Booking Office four times a year to select the shifts and manually strike off their selections from a paper board, as
shown on Figure ES-3 and Figure ES-4. Considering the scale and complexity of OC Transpo, there is a need to modernize this system.

Figure ES-3: Paper Booking Boards with Sunday Bus Runs

Figure ES-4: Size of the Room Required for the Manual Booking System

Courval¹ Peer Review Conclusions
We corroborated Courval Scheduling’s municipal Peer Review findings with other transit systems to ensure overall validity. Courval’s Peer Review documented that OC Transpo was the only transit system in the sample allowing operators to combine pieces of work to create their scheduled day. Based on this research, there are no examples of a North American transit system which has delegated the ability to “control the day” to its unionized employees.

¹ Courval Scheduling is a Montreal-based firm specializing in the application of the Hastus workscheduling software package for municipal transit clients. On behalf of OC Transpo, it undertook the design and development of work assignment scenarios.
Keller Arbitration Panel Impacts and Financial Modeling

We are of the opinion that the 2009 Arbitration Panel may have went beyond the federal legislation governing collective bargaining by awarding i) a maximum of three runs within a 12-hours spread, ii) an increase of the guarantee pay time from 6 to 7.5 hours and iii) that all rules should apply to all bus operators equally. Neither OC Transpo management nor the union was supportive of this award. OC Transpo management accepted the Award, but as already noted the Union has grieved its implementation.

We have conducted a summary of spreads and guarantees. A 12-hour spread is common and so it may appear that a 12-hour spread is appropriate, but when the demands of the transit system are considered – the transit rush hours start earlier and end later in Toronto and Ottawa than they do in Calgary, Edmonton, Winnipeg or Mississauga – this confirms our opinion that the 12-hour spread limitation imposed by the Keller arbitration award needs to be rectified.

Courval Scheduling was instructed by OC Transpo to subject the 2009 Arbitrator’s Award to extensive financial modeling. The financial modelling strongly suggests that the work rules imposed by the Award materially impact OC Transpo cost of service, operational efficiency and effectiveness. The net result trends negatively, such that previously forecast cost savings of $3.1 to $4.5 million would not be realized. In support of this observation, our comparison of fall\(^2\) 2008, 2009, and 2010 bus operator sign-ups show no material improvement of efficiency and productivity. Nor does the modeled data imply any go-forward probability of future process improvement to secure the previously modelled savings.

Modeling of August 2010 Tentative Agreement with Union Executive

Management and the Union Executive did undertake the negotiations in good faith, and arrived at a tentative revision to the Collective Agreement dated August 20, 2010. This revision agreement entailed the following pertinent aspects:

- Raise the arbitrator’s imposed daily guarantee from 7.5 to 8 hours; and,
- Raise the arbitrator’s imposed 12-hour spread to 12.5 hours.

Courval Scheduling was asked to project/model these newly negotiated rules by use of the Hastus scheduling software. We reviewed these Courval projections, and concluded that the August 2010 agreement would have resulted in more efficient work days for the drivers and cost savings for the City – but at the expense of increased guaranteed pay costs. This tentative agreement was rejected by the union membership comprising bus operators and mechanics. The proposal by management’s position and strategic negotiation stance also implied that the original $3.1 to 4.5 million cost savings forecast developed during the strike, was no longer a primary objective of post-arbitration negotiations.

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\(^2\) The fall schedule for OC Transpo is from September to December.
We received and reviewed all of the pertinent scheduling and financial impact projections prepared by Courval Scheduling, and find them to be in keeping with established industry practice.

The tentative negotiated changes to the collective agreement from August 20, 2010, which were turned down by the union membership would have improved OC Transpo’s ability to achieve operational efficiency. However the proposal would have failed to generate cost savings, since it increases the amount and cost of the daily guarantee. We acknowledge that OC Transpo management must manage the transit system within the constraints of the Arbitrator’s Award, as opposed to the savings expectations that preceded the Award.

The impact/risk to OC Transpo is that any future required cost savings under the current 12-hour spread maximum and 7.5-hour guarantee must be found elsewhere than bus operator scheduling.

The most significant work-piece ridership and scheduling load on the OC Transpo system occurs roughly between 6:00 a.m. and 6:30 p.m. - representing a 12.5-hour spread. The Arbitrator’s Award for a 12-hour spread – in very simplistic terms – means that the shift of on-duty operators that started work for the morning rush hour cannot remain on the job to service the approximately 600 runs between 6:00 p.m. and 6:30 p.m. during the late afternoon rush hour. In order for OC Transpo to manage the flow of daily service demand while also minimizing the amount of paid guarantee, the Hastus software’s algorithms divides up the scheduled workday much differently than was the case during pre-strike conditions. The arbitrator-imposed shorter spread results in significant system scheduling inefficiency.

To those outside the industry, it may seem unusual/non-intuitive that sophisticated computer software such as Hastus would not be able to rationalize the schedule to create a more efficient system than the one currently in place. However, based on our research and discussions with other transit systems, the documented scheduling inefficiencies are in fact expected.

**Audit Objective Theme: Go-Forward Strategies**

**Review of Go-Forward Financial Modeling (Hastus Simulations)**

In terms of potential new work rules, management has recently made an attempt to negotiate an increase of the spread to 12.5 hours, and increase the guarantee to 8.0 hours. In this scenario, management would retain control of the day, but modify scheduled pieces of the workday to improve the work environment of its senior, intermediate and junior bus operators. This attempt to modify go-forward work rules was expressed in the Memorandum dated August 20, 2010 with the Union Executive, but was not accepted by the union membership comprising operators and mechanics.
New work rules are not being considered currently because management has limited ability to implement any changes at this time. The current Collective Agreement expired on March 31, 2011. As of April 2011, formal negotiations have not yet commenced.

This audit should not prejudice management’s ability to bargain both strategically and in good faith. However, a strategic decision does need to be made soon as to whether the scheduling and booking issues should be managed internally or externally to the bargaining of the collective agreement. If the strategy is to manage scheduling within the collective bargaining process, then scheduling matters are exposed to all of the wider negotiated trade-offs across issues within the collective bargaining process. If scheduling is to be dealt with externally, management risks inconsistent application of scheduling provisions due to the actions of the union membership.

We reviewed the Hastus modelling assumptions and the anticipated outputs from the Hastus Software, and find them to be acceptable. Specifically, in terms of the current situation, and the August 2010 go-forward proposal, we note that:

- The Arbitrator’s Award using the 7.5-hour guarantee / 12-hour spread modelled by Hastus provides the expected result of fewer guaranteed hours, more ‘broken up’ pieces of work, and no improved future propensity for cost management, as compared to the pre-strike situation;

- The August 2010 go-forward proposal using the 8.0-hour guarantee / 12.5 hour spread modelled using Hastus provides the expected result of more guaranteed hours, fewer ‘broken-up’ pieces of work, and is cost neutral, as compared to the current post-Arbitration working situation. There is no improved future propensity for cost management, as compared to the pre-strike situation; and,

- The August 2010 go-forward proposal would have provided an improvement of drivers’ work conditions, since drivers generally look to optimizing “straights” and minimizing splits - particularly multiple splits. Morale and operational culture improvement could well have resulted from adoption – and could still do so if adopted on a go-forward basis.

**Go Forward Cost Savings Opportunities**

There are three issues/activities that have the potential for future cost savings to be achieved, namely:

1. Upcoming Round of Collective Bargaining Negotiations;
2. Improvement of Morale and Reduction in Absenteeism; and,
3. Future Implementation of New Booking Software.
Collective Bargaining Negotiations
OC Transpo management has three basic alternatives in the approach to negotiations:

1. Attempt to negotiate its last pre-strike position (6 hour guarantee, maximum spread);  
2. Attempt to negotiate its August 2010 Memorandum of Agreement position (8 hour guarantee, 12.5 hour spread); or,  
3. Attempt to negotiate an entirely new position of an unknown guarantee and spread - within the limits of the prevailing legislation.

It may be prudent and appropriate for management to attempt to negotiate back to its August 2010 Memorandum of Agreement position, since this package of scheduling changes was unanimously accepted by the Union Executive and provides better pieces of work for the drivers than those currently being offered. This scenario may be achievable due to the improved quality of life being offered for a small increase in the guarantee from 7.5 hours to 8 hours. It is also prudent, since it is reflective of the Union Nominee’s comments in the Keller Award of October 9, 2009, which states, “…the daily guarantee will need to be moved to the more normative 8 hours.”

Cost Savings via Reduced Absenteeism
The probability of improving unionized employee morale and reducing absenteeism can be assessed by considering past versus current levels of absenteeism as a proxy indicator of morale.

Since the proxy for morale in previous years was higher (i.e., absenteeism was lower) than it is currently, management should aim to improve morale and lower the incidence of absenteeism to at least pre-strike averages. Fewer bus operators are required for the spare board when there is lower absenteeism, which translates into cost savings.

The estimated cost savings if absenteeism levels are improved to 2008 levels could be approximately $1.1 million per year.

Cost Savings via Internet Based Scheduling Sign-up Software
Management has deemed it appropriate to investigate the investment into new booking software. This software would allow drivers the opportunity to request their blocks of work through an Internet-based portal, so drivers could complete the sign-up process without having to be on-site. This technology based booking process re-engineering opportunity should improve the efficiency of the driver sign-up process and shorten the sign-up turn-around period to less than the current six weeks.

3 The spread has been constrained to 14 hours due to a change in federal regulations.
This software is not in widespread use throughout the municipal transit industry, and the probability of management making the investment in this software is being determined through its current discussions with software providers to the transit industry, such as Hastus and Trapeze. Potential timing of this technology driven re-engineering opportunity is unclear.

Management indicates that a new Internet based booking software solution may also lead to some operational cost savings. The cost savings emanate from creating efficiencies in two elements of the sign-up process:

1. Reducing the number of clerks involved in the driver sign-up process; and,
2. Reducing the relief runs when on-duty drivers have to be called in to complete their booking based on their seniority.

Based on quarterly cost estimates provided by management, we estimate that the annual cost savings could be approximately $350,000 per year; however, it should be recognized that this cost saving could be offset by the expense of the new software, and the true benefit to the system is a more efficient booking process.

**Recommendations and Management Responses**

**Recommendation 1**

That the upcoming collective bargaining process be considered by management as a strategic opportunity to reduce/remove the financial and operational deficiencies associated with the work scheduling model.

**Management Response**

Management agrees with this recommendation.

Management will continue to plan the most efficient operation within scheduling/booking rules it now has at its disposal within the constraints of the final Keller decision of July 22, 2011. Future negotiations may provide opportunities should both parties wish to explore additional efficiencies. As a result of route optimization and the introduction of double-decker buses, our service curve and workforce needs are changing. Options to reduce the cost per hour of service will be incorporated based on service demands of the future.

**Recommendation 2**

That management utilize the Hastus scheduling software package for evaluating all proposals put forward during collective bargaining, including a background cost impact template and a “control of day” work design impact template.
Management Response
Management agrees with this recommendation.

OC Transpo has been utilizing Hastus scheduling software for the purpose of evaluating scheduling-related proposals dating back to the 2008 collective bargaining process. This process includes a comparative cost template for different bargaining scenarios. Using Hastus software, bus runs are assembled into shifts to optimize paid work to the needs of the system while minimizing unpaid work.

Management will continue to leverage Hastus to improve our efficiency, taking full advantage of booking rule changes as a result of the on-going arbitration process, thereby maximizing management control of the day. This will be implemented during the next collective bargaining process.

Recommendation 3
That management apply due diligence to the construction of scheduled workdays that optimize driver hour efficiencies and minimize costs. Annual performance reports to the new Transit Commission should be required to demonstrate the impact of existing scheduling processes and rules on key transit system performance metrics – such as the ratio of Paid Operator Hours to Total Service Hours.

Management Response
Management agrees with this recommendation.

Management will examine which metrics can be extracted that would capture the effect of implemented changes in scheduling processes and rules on system performance. Selected performance measures will be incorporated into annual performance reports starting in 2011. Implementation will be complete by June 2012.

Recommendation 4
That management proactively monitor bus operators’ selection of scheduled work, and implement ongoing “quality control reviews” by non-union staff to ensure compliance and overall scheduling efficiency.

Management Response
Management agrees with this recommendation.

Management currently monitors operator selection of work, and has been doing so since July 2009. Following the booking process, non-unionized staff review work selection and make adjustments as required in order to maximize system efficiency.
Management will continue to analyze, study and adjust booking to booking to maximize efficiency and ensure management control of the day. The next implementation of this will take place for the fall 2011 booking, as we incorporate the changes resulting from the route optimization process.

**Recommendation 5**
That management ensure new non-unionized hires in the scheduling group are recruited with a view of optimum analytical, computer modeling and mathematical skills, given recent and imminent staff retirements within the scheduling group at OC Transpo.

**Management Response**
Management agrees with this recommendation, and it has been implemented.

In April 2011, Transit Services hired one non-unionized staff member in the scheduling group that possesses the necessary skills and qualifications, including analytical, computer modeling and mathematical skills. Management will continue to recruit qualified staff to perform these functions.

**Recommendation 6**
That management investigate the degree to which its current six-week scheduling period is longer than the period for comparator transit systems. Management should explore and execute business process re-engineering opportunities, within the limits of the Collective Agreement, to shorten the scheduling period from the six current weeks to a benchmarked industry standard period of time.

**Management Response**
Management agrees with this recommendation.

Management is currently exploring electronic booking options in an effort to reduce booking time. The implementation of an electronic booking system is planned as part of the approved Technology Roadmap by Council, but is contingent upon the implementation of other elements of IT infrastructure. Management will strive to work on the process in 2012 and once more information is available, will establish a firm timeline for completion.

**Recommendation 7**
That management explore the efficiency, cost, and union relations implications of potentially assigning drivers to distinct districts or garages for fixed periods of time. Work assignments should be limited to routes and work within the assigned district.
Management Response
Management agrees with this recommendation.

Research will be undertaken to compare operating costs, service reliability, and the characteristics of work times for operators under the current model and under a model that would group service into different districts of the city.

Management notes that as the current model is geared to minimizing operating cost and the number of staff and buses required, any additional constraints introduced into the optimization process would likely increase resource requirements. In that case, a comparison would be made between any identified benefits in improved service reliability or improved quality of work against any identified increased costs or other drawbacks. If a conclusion is reached that increased costs were justified to achieve other valuable benefits, then a recommendation would be made to the Commission in a future business plan and budget.

This review will be complete by Q4 2012.

Recommendation 8
That management investigate automated alternatives to the existing manual booking board process.

Management Response
Management agrees with this recommendation.

Management is currently exploring electronic booking options. The implementation of an electronic booking system is dependent on budget and Information Technology Services availability. Management would like to have an electronic booking system in place in 2012. Once more information is available, management will establish a firm timeline for completion of this initiative.

Recommendation 9
That management undertake performance metric based monitoring of OC Transpo’s improved scheduling quarterly for two years (i.e., eight scheduling cycles) following the completion of the collective bargaining process.
Management Response

Management agrees with this recommendation.

Management analyze and monitor all data associated with each cycle of booking regardless of the status of the outstanding arbitration, and have been doing so on an on-going basis. However, within the context of the recommendation, a two-year cycle of performance metric based monitoring will commence with the next booking (fall 2011), to be completed by the summer of 2012 (Q2 2012 – 8 booking cycles). Impacts of the arbitration process, route optimization and collective bargaining will be assessed, as applicable, as part of this review.

Conclusion

The Audit of the OC Transpo Scheduling Process for Bus Operators has documented the following performance issues/observations regarding the 2008 transit strike, the subsequent arbitration process, and the hampering of OC Transpo to secure targeted cost savings and process improvement opportunities:

- Management entered into the collective bargaining process preceding the strike with a set of operational objectives focussed on “controlling the day” from a scheduling perspective. The scheduling principle of “controlling the day” was seen to be an industry-standard management model, as well as a vehicle to secure operational savings in the range of $3.1 million to $4.5 million depending on the source and time of the estimate.

- A public perception developed during the strike that on-going scheduling cost savings would act as compensation for residential and non-residential taxpayers who endured strike-driven service interruptions and business losses. Management’s operational objectives, and the public perception regarding available cost savings, persevered through the period of the strike and into the arbitration settlement period.

- The Keller arbitration award after the strike did not create the expected “control of the day” operational model envisioned by management; however, the reduction of the day “spread” from 13 hours as allowed by federal regulations to 12 hours has negatively impacted the system. The resulting impact is sub-optimal work piece design and systemic inability to generate the targeted savings. Management has received “control” of a scheduling day that hinders its ability to optimize the system and we have diligently reviewed and confirmed the dilution of the cost savings opportunity.

- In the case of the Keller arbitration award, the impact for management and Ottawa property taxpayers has been significant. A less operationally efficient, more expensive and somewhat inflexible new scheduling model has been imposed on OC Transpo management. Control of the day granted to management has not been able to offset the arbitration-imposed constraints on that scheduling day.
• The impact of the arbitration is a systemically inefficient scheduling model that nullified management’s cost savings opportunities envisioned during collective bargaining negotiations and the strike. It is critical from a public accountability perspective that these arbitration-imposed circumstances are independently acknowledged to Council and taxpayers via this audit. This independent acknowledgement is critical - in order to avoid an inaccurate perception that management “owes” the public overdue/achievable cost savings. Management is systemically constrained from delivering achievable scheduling-based cost savings at this time, and the go-forward likelihood of doing so is unclear.

• In the medium-term future, meaningful scheduling process improvement and technology based re-engineering are precursors for any successful effort by OC Transpo to secure significant cost saving targets. OC Transpo bus operator scheduling changes only four times per year. Each schedule change is preceded by a three to four week period for management to design the schedule, and a six-week period to book drivers to the routes. Once management has determined that it will enact a potential process improvement change, it can only implement the change at the next available quarterly cycle when it begins the process of designing the schedule. All things being equal, the earliest that management can realize any cost savings is three quarters from when the original decision to initiate a process refinement or “work piece” modification is made. Therefore the lag time to secure scheduling cost savings in the future will likely be substantial.

• Delay in implementing arbitration granted “control of the day” rights has created a problem concerning implementation. The arbitration process has not been concluded so meaningful bus operator scheduling process “re-engineering” designed to secure cost savings has not yet been designed or undertaken by management, due to unavoidable system design constraints imposed by the arbitration award substance and appeals process.

• The tentative negotiated changes to the collective agreement from August 20, 2010, which were turned down by the union membership would have improved OC Transpo’s ability to achieve operational efficiency. However it would have failed generate cost savings, since it increases the amount and cost of the daily guarantee. We acknowledge that OC Transpo management must manage the system within the constraints of the Arbitrator’s Award, as opposed to the cost savings expectations that preceded the Award.

Acknowledgement
We wish to express our appreciation for the cooperation and assistance afforded the audit team by management.
RÉSUMÉ

Introduction
La vérification du processus d’OC Transpo d’établissement des horaires des chauffeurs d’autobus avait d’abord été incluse dans le plan de vérification pour 2010 reçu par le Conseil le 23 juin 2010. Après réception des avis des Services juridiques/Relations de travail, le rapport de vérification n’a pas été inclus à notre rapport annuel de 2010. Le 20 décembre 2011, toujours selon l’avis des Services juridiques/Relations de travail, notre bureau a convenu de suivre les directives du maire et du président du Sous-comité de la vérification et de reporter le dépôt du rapport de cette vérification jusqu’à ce que les négociations collectives soient terminées à OC Transpo.

Contexte
OC Transpo est une des unités fonctionnelles de la Ville d’Ottawa les plus importantes, complexes et exigantes en main-d’œuvre. En 2010, le budget des dépenses d’exploitation brutes d’OC Transpo était de 367 millions de dollars. Le poste budgétaire « opération » du budget 2010, qui inclut tous les coûts associés aux chauffeurs d’autobus, s’élevait à 142 millions de dollars. OC Transpo dispense des services de transport en commun et de transport adapté dans une vaste zone de desserte de plus de 442 kilomètres carrés. Le réseau d’OC Transpo assure environ 90 millions de déplacements de passagers par année, le parc de véhicules comprend plus de 1 000 autobus actifs, et le service d’autobus se fait sur quelque 250 circuits d’autobus et comporte environ 6 400 arrêts. Les services d’OC Transpo sont principalement dispensés par environ 3 000 employés qui sont pour la plupart syndiqués. Dans le contexte d’un réseau de transport en commun dynamique et complexe, la planification et l’établissement des horaires des chauffeurs d’autobus et des déplacements de véhicules présentent de nombreux défis liés à la logistique, aux relations de travail et à la gestion financière.

La grève générale du transport en commun en 2008 a eu d’importants résultats négatifs pour les résidents et les entreprises d’Ottawa en termes d’interruption de service, de congestion et de pertes ou de reports d’activités commerciales et de revenus. Tout en reconnaissant les résultats négatifs de la grève, la Ville a adopté une démarche dans ses négociations collectives qui allait lui permettre d’obtenir une souplesse et un contrôle financier et opérationnel accru une fois la grève réglée. Pendant la grève et le processus d’arbitrage qui a suivi, le public a eu le temps de se forger une opinion quant au dividende important, sous forme d’économies, qu’il allait recevoir en contrepartie des difficultés éprouvées par les usagers. La direction comptait obtenir une plus grande souplesse et un meilleur contrôle sur l’établissement des horaires des chauffeurs d’autobus, ce qui pour elle devait constituer la récompense financière.
Vérification du processus d’OC Transpo d’établissement des horaires des chauffeurs d’autobus

Pour mieux comprendre les gains que la Ville a réalisés pendant le processus d’arbitrage, la figure ES-1 ci-dessous présente les conditions de l’établissement des horaires avant et après ainsi que l’efficacité prévue et les résultats prévus.

**Figure ES-1 : Gains obtenus et avantages prévus**

<table>
<thead>
<tr>
<th>Qui a le contrôle des opérations quotidiennes?</th>
<th>Avant la grève</th>
<th>Gains obtenus : après l’arbitrage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chauffeurs d’autobus : les chauffeurs d’autobus choisissent manuellement les trajets qu’ils feront durant leur quart de travail, ainsi certains chauffeurs peuvent maximiser leur paie tout en réduisant le nombre d’heures de travail réel.</td>
<td>Direction : divers trajets d’autobus sont regroupés en quart, au moyen d’un logiciel, ce qui permet à la direction de réduire le nombre d’heures de travail non payées des chauffeurs d’autobus.</td>
<td></td>
</tr>
</tbody>
</table>

| Quelle est l’efficacité prévue du système? | Inefficace : une part importante du travail n’est pas exécutée, mais les heures sont payées par OC Transpo. | Efficace : le travail rémunéré est adapté le plus possible aux besoins du système. |


La figure ES-2 présente un diagramme des méthodes d’établissement des horaires utilisées avant et après la grève.
La planification et l’exécution de la vérification de 2010 de l’établissement des horaires des chauffeurs d’autobus, en faisant ressortir les résultats obtenus à ce jour, se sont focalisées sur la possibilité réelle qu’avait la direction de réaliser des économies de coûts après la grève et d’améliorer le processus d’établissement des horaires des chauffeurs d’autobus.
Portée de la vérification

Le plan de la vérification était axé sur les éléments suivants :

1. évaluer l’étendue actuelle des progrès réalisés ainsi que la probabilité future que la direction réalise les économies prévues associées à la nouvelle méthode d’établissement des horaires des chauffeurs d’autobus approuvée. Ces économies prévues découlent essentiellement de la nouvelle structure de règles établies pour l’établissement des horaires des chauffeurs d’autobus, des nouveaux processus améliorés d’établissement des horaires mis en place par la direction et de la mise en œuvre axée sur la responsabilisation de la direction d’une stratégie de gestion du changement afin d’améliorer les résultats mesurables de l’efficacité fonctionnelle;

2. évaluer la mise en œuvre du contrôle de l’établissement des horaires ainsi que les règles de travail, en examinant notamment l’exécution du processus principal d’établissement des horaires avant et après la décision d’arbitrage. Évaluer la probabilité que d’autres améliorations soient apportées au processus dans les cycles d’horaires suivants;

3. examiner si OC Transpo a exercé la diligence voulue dans ses efforts de gestion des coûts, en mettant l’accent sur les moyens utilisés pour établir les prévisions en matière d’économies réalisables et évaluer le chemin critique futur choisi pour la mise en œuvre d’une gestion des coûts/des économies systémiques constantes;

4. déterminer l’étendue des droits que peut exercer la direction après la décision de l’arbitre;

5. exécuter une évaluation factuelle du rendement d’OC Transpo en matière d’établissement des horaires du point de vue opérationnel : une analyse des séries chronologiques « Ottawa par rapport à Ottawa ». Cette analyse fondée sur des données probantes utilisera les principaux indicateurs de rendement d’OC Transpo pour évaluer le rendement trimestriel du système avant et après la décision d’arbitrage;

Il sera plus facile de saisir les objectifs de la vérification une fois qu’ils auront été regroupés sous les trois thèmes chronologiques utilisés dans le présent rapport :

1. évaluer la modélisation effectuée par la direction concernant les économies réalisables à l’issue des négociations collectives et du processus d’arbitrage, les prévisions en matière d’économies fondées sur le risque et la qualité des communications avec le Conseil et du soutien analytique fourni;

2. déterminer l’étendue de l’exercice des droits de la direction, les problèmes systémiques liés à la conception de l’établissement des horaires et à l’exécution du processus qui ont une incidence sur la gestion des coûts et l’efficacité opérationnelle;
3. évaluer les attentes actuelles et futures de la direction et le chemin critique à suivre pour concrétiser les économies prévues.

**Sommaire des principales constatations**

**Objectif de la vérification : sur le thème du chemin critique antérieur**

Nous avons relevé une série d’activités interreliées qui définissent la chronologie historique du chemin critique antérieur établie pour la gestion des coûts. Ces activités sont :

1. modifications à la règlementation fédérale qui ont eu une incidence sur le nombre d’heures de travail permis pour les chauffeurs;
2. les étapes liées à la procédure d’arbitrage de la grève notamment les négociations en cours concernant les griefs formulés après l’arbitrage;
3. les modifications aux horaires d’autobus qu’OC Transpo apporte tous les trimestres, notamment la période de planification des horaires et d’assignation des chauffeurs;
4. le processus d’assignation des chauffeurs aux trajets prévus;
5. les négociations futures et l’échéance prochaine de la convention collective actuelle;
6. la mise en œuvre future du nouveau logiciel d’assignation.

Les observations tirées du chemin critique sont les suivantes :

1. le processus d’arbitrage qui a suivi la grève a été long, très long; la date fixée pour le règlement était janvier 2010, mais elles se poursuivent;
2. la direction n’avait qu’une faible marge de manœuvre pour réaliser les économies liées à l’établissement des horaires des chauffeurs d’autobus, compte tenu des incertitudes associées à la mise en œuvre de mesures décisives relatives au « contrôle de la programmation des opérations quotidiennes » dans un environnement incertain causé par les appels liés à la décision l’arbitrale;
3. seulement quatre cycles d’établissement des horaires sont effectués par année, le cycle estival étant toujours caractérisé par la diminution de l’achalandage et des besoins en ressources. La rationalisation du processus d’établissement des horaires est donc une entreprise qui s’étend sur plusieurs années;
4. le protocole d’entente négocié en août 2010 avec les dirigeants syndicaux était une concession stratégique de la part de la direction qui reconnaissait ainsi que le contenu de la décision de l’arbitre Keller réduisait la possibilité de matérialiser des économies liées à l’établissement des horaires qui avaient été envisagées durant la grève;
5. Selon notre examen des communications entre la direction et le Conseil, nous sommes d’avis qu’elles étaient adéquates et professionnelles.

**Objectif de la vérification : sur le thème de la situation avec laquelle OC Transpo doit traiter aujourd’hui**

**Dégradation de l’efficacité du système d’établissement des horaires**

Nous avons constaté plusieurs carences systémiques dans le processus d’établissement des horaires des chauffeurs d’autobus d’OC Transpo. En effet, il y a une augmentation des ratios « heures payées et total des heures-véhicules » et « heures payées et revenus par heures véhicules » de 2000 à 2009. La décision arbitrale de 2010 ne renversera pas cette tendance de diminution de la productivité.

**Démarche exigeante en ressources pour l’assignation de chauffeurs aux circuits**

L’assignation des chauffeurs aux circuits demeure un processus très exigeant en main-d’œuvre qui oblige tous les chauffeurs à se rendre au bureau des assignations d’OC Transpo quatre fois par année pour choisir leurs quarts et biffer manuellement leur choix sur un tableau en papier, comme le montrent les figures ES-3 et ES-4. Compte tenu de l’ampleur et de la complexité d’OC Transpo, il est évident qu’il faut moderniser le système.

**Figure ES-3 : Tableaux d’assignation en papier pour les trajets d’autobus du dimanche**
Conclusion de l'examen des pairs 4 de la société Courval

Nous avons corroboré les conclusions de Courval Scheduling par suite de l’examen des pairs effectué en comparaison avec les données d’autres réseaux de transport en commun pour garantir la validité totale. Dans l’examen des pairs de Courval, on a constaté que le réseau d’OC Transpo était le seul réseau de tout l’échantillon choisi qui permettait aux chauffeurs de combiner divers éléments pour créer leur journée de travail. Selon cette étude, il n’y a pas d’autre exemple de réseau de transport en commun en Amérique du Nord qui aurait délégué la capacité de « contrôler les opérations quotidiennes » à ses employés syndiqués.

Incidence de la décision du groupe d’arbitrage présidé par Brian Keller et modèle financier

Nous sommes d’avis que le groupe d’arbitrage formé en 2009 pourrait avoir dépassé les exigences de la loi fédérale sur les négociations collectives en accordant i) un maximum de trois trajets pendant une période d’étalement de 12 heures, ii) l’augmentation du nombre d’heures payées garanties qui passe de 6 heures à 7,5 heures et iii) que toutes les règles devraient s’appliquer également à tous les chauffeurs. Or, ni la direction d’OC Transpo ni le syndicat n’étaient favorables à une telle décision. La direction d’OC Transpo a accepté la décision, mais comme il a été mentionné, le syndicat a déposé un grief à l’égard de sa mise en œuvre.

Nous avons effectué le résumé de la répartition du travail et des garanties. Une période d’étalement de 12 heures est chose courante et donc, cet étalement de 12 heures devrait être approprié, mais lorsque les demandes du réseau de transport en

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4 Courval Scheduling est une société de Montréal spécialisée dans l’utilisation du progiciel de programmation du travail Hastus à l’intention de sa clientèle de sociétés de transport en commun municipales. La société a entrepris la conception et la mise au point de scénarios d’attribution des tâches au nom d’OC Transpo.
commun sont prises en compte (la période de pointe pour le transport en commun commence plus tôt et se termine plus tard à Toronto et Ottawa qu’à Calgary, Edmonton, Winnipeg ou Mississauga), nous obtenons la confirmation que la limite d’un maximum de 12 heures consécutives imposée par l’arbitre Brian Keller doit être modifiée.

OC Transpo a demandé à Courval Scheduling de soumettre la décision rendue par l’arbitre en 2009 à une importante modélisation financière. La modélisation financière suggère fortement que les règles de travail imposées par la décision ont une incidence considérable sur les coûts des services, l’efficacité opérationnelle et l’efficience d’OC Transpo. Les résultats nets suivent une pente à la baisse, de telle sorte que les économies de 3,1 à 4,5 millions de dollars prévues à l’origine ne seront pas réalisées. En confirmation de cette observation, notre comparaison des inscriptions des chauffeurs à l’automne 2008, 2009 et 2010 n’indique aucune amélioration importante de l’efficacité et de la productivité. Les données de la modélisation n’indiquent pas non plus de possibilité future d’amélioration du processus qui permettrait de concrétiser les prévisions établies précédemment en matière d’économies.

**Modélisation de l’accord de principe d’août 2010 avec les dirigeants syndicaux**

La direction et les dirigeants syndicaux ont entrepris les négociations de bonne foi, et sont arrivés à une révision provisoire de la convention collective datée du 20 août 2010. Cette révision englobait les aspects pertinents suivants :

- Allonger le maximum d’heures garanties par jour imposé par l’arbitre de 7,5 à 8 heures;
- Prolonger la période d’étalement imposée par l’arbitre de 12 heures à 12,5 heures.

OC Transpo a demandé à Courval Scheduling de réaliser des projections/un modèle à l’aide du logiciel de programmation du travail Hastus et selon ces nouvelles règles. Nous avons pris connaissance des projections élaborées par Courval et conclu que l’accord d’août 2010 se serait traduit par des jours de travail plus efficaces pour les chauffeurs et des économies pour la Ville, mais aurait occasionné une hausse des coûts associée à l’augmentation du nombre minimum d’heures de travail garanti. Cet accord provisoire a été rejeté par les chauffeurs et mécaniciens syndiqués. La proposition en fonction de la position de la direction et de la perception des négociations stratégiques laissait sous-entendre que les prévisions d’économies de 3,1 à 4,5 millions de dollars élaborées durant la grève ne constituaient plus un objectif principal dans le cadre des négociations d’après arbitrage.

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5 L’horaire d’automne d’OC Transpo est établi pour septembre à décembre.
Nous avons reçu et examiné toutes les projections pertinentes relatives aux horaires et aux répercussions financières préparées par Courval Scheduling, et avons conclu qu’elles sont conformes aux pratiques exemplaires de l’industrie.

Les modifications proposées à la convention collective le 20 août 2010, qui ont été refusées par les syndiqués, auraient certainement amélioré la capacité d’OC Transpo d’instaurer l’efficacité opérationnelle de ses activités. Cependant, la proposition n’aurait pas permis de réaliser des économies, car elle augmentait le nombre d’heures garanties et donc, leur coût. Nous sommes conscients que la direction d’OC Transpo doit gérer le réseau de transport en commun selon les contraintes fixées par la décision de l’arbitre, par opposition aux prévisions en matière d’économies qui ont été formulées avant la décision.

Pour OC Transpo, il y a un prix à payer qui s’enonce sous forme de conséquence et de risque : désormais, si la société doit trouver des moyens de faire des économies, elle devra les trouver ailleurs que dans les horaires des chauffeurs d’autobus en raison de l’imposition de la période d’étalement maximale de 12 heures et de la garantie d’un minimum de 7,5 heures payées.

La période de 12 heures la plus importante dans une journée, relativement à l’achalandage et à l’horaire, pour le réseau d’OC Transpo, se situe à peu près de 6 h à 18 h 30, soit un étalement de 12,5 heures. Plus simplement, la décision de l’arbitre qui impose un étalement de 12 heures signifie que les chauffeurs qui ont commencé leur journée avec la période de pointe du matin ne peuvent être disponibles pour effectuer les quelque 600 trajets qui s’effectuent à la fin de la période de pointe de l’après-midi, soit de 18 h à 18 h 30. Pour qu’OC Transpo soit en mesure de gérer les fluctuations de la demande en service quotidien tout en minimisant le nombre d’heures payées garanties, les algorithmes du logiciel Hastus ont divisé la journée de travail de manière totalement différente aux conditions prévalentes avant la grève. L’étalement plus court imposé par l’arbitre s’est traduit par des carences importantes dans l’établissement des horaires du service.

Pour ceux qui ne sont pas du secteur, il peut sembler inhabituel, voire incompréhensible, qu’un logiciel évolué comme celui d’Hastus ne permette pas de simplifier l’horaire pour créer un système plus efficace que celui actuellement en place. Toutefois, selon les conclusions de notre analyse et de nos discussions avec d’autres sociétés de transport en commun, les carences dans le processus d’établissement des horaires sont en fait prévisibles.

**Objectif de la vérification : sur le thème des stratégies futures**

**Examen du modèle financier futur (simulations Hastus)**
En ce qui a trait à de nouvelles règles de travail possibles, la direction a tenté récemment de négocier l’allongement de l’étalement des heures à 12,5 heures et d’augmenter le nombre d’heures garanties à 8 heures. Dans ce scénario, la direction conserve le contrôle des opérations quotidiennes, mais modifie les pièces de
l'horaire de la journée de travail afin d’améliorer le milieu de travail de ses chauffeurs les plus anciens, intermédiaires et les moins expérimentés. Cette tentative de modifier les règles de travail a été signifiée dans un mémoire d’entente daté du 20 août 2010 adressé aux dirigeants syndicaux, mais n’a pas été acceptée par les membres syndiqués, soit les chauffeurs et les mécaniciens.

La direction n’a pas élaboré d’autres règles de travail depuis, en raison de sa capacité limitée de mettre actuellement en œuvre toute forme de changement. La convention collective actuelle est échue depuis le 31 mars 2011. En avril 2011, les négociations officielles n’avaient pas encore commencé.

La présente vérification ne doit pas porter préjudice à la capacité de la direction de négocier de manière stratégique et de bonne foi. Cependant, une décision stratégique devra bientôt être prise à savoir si les problèmes d’horaire et d’assignation doivent être abordés pendant la négociation collective ou en-dehors de celle-ci. S’il est décidé d’intégrer la négociation concernant l’établissement des horaires aux négociations collectives, alors toutes les questions d’horaire seront inclues dans le vaste processus de négociations avec sa cohorte de compromis négociés et de questions abordées. Si par contre, on décide de tenir la négociation des horaires en dehors des négociations collectives, la direction court le risque d’une application non uniforme des règles d’établissement des horaires en raison d’actions des membres du syndicat.

Nous avons examiné les hypothèses du modèle Hastus et les résultats prévus par le logiciel et les considérons comme acceptables. Plus précisément, dans la situation, et selon la proposition du mois d’août 2010, nous avons relevé que :

- La décision de l’arbitre, traduite dans un modèle Hastus utilisant un nombre minimal de 7,5 heures garanties et un étalement de 12 heures, donne les résultats escomptés soit une diminution des heures garanties, des blocs de travail « morcelés » et aucune amélioration dans l’aptitude future à gérer les coûts, en comparaison avec la situation d’avant la grève;

- Le modèle Hastus relatif à la proposition prospective d’août 2010 a utilisé un minimum de 8 heures garanties et un étalement de 12,5 heures et ne présente pas non plus de surprises quant aux résultats : nombre supérieur d’heures garanties, et moins de blocs de travail « morcelés » et pas de variation de coûts, comparativement à la situation de travail actuelle après l’arbitrage. La situation ne confère pas une aptitude accrue pour la gestion des coûts, par rapport à la situation d’avant la grève;

- La proposition d’août 2010 aurait permis d’améliorer les conditions de travail des chauffeurs, car ils recherchent généralement des quarts « sans interruptions » et tentent de minimiser le fractionnement, surtout lorsqu’ils sont multiples. L’adoption de cette proposition aurait pu se traduire par une
amélioration de la culture opérationnelle et du moral des troupes, et le pourrait encore si elle était être adoptée à l’avenir.

Possibilités futures de réaliser des économies
Nous avons relevé trois secteurs/activités qui présentent des possibilités d’économies futures, soit :

1. prochaine série de négociations collectives;
2. amélioration du moral et réduction de l’absentéisme;
3. mise en œuvre future du nouveau logiciel d’assignation.

Négociations collectives
La direction d’OC Transpo a trois possibilités à exploiter dans sa démarche de négociations :

1. tentative de négocier sa dernière position d’avant la grève (minimum de 6 heures garanties, étalement maximal\(^6\));
2. tentative de négocier la position adoptée et décrite dans le mémoire d’entente d’août 2010 (minimum de 8 heures garanties, étalement de 12,5 heures);
3. tentative de négocier une toute nouvelle position, dont le minimum d’heures garanties et l’étalement sont inconnus, tout en respectant les limites de la loi en vigueur.

Il pourrait être prudent et approprié pour la direction de tenter de négocier la position adoptée dans le mémoire d’entente d’août 2010, puisque cet ensemble de modifications à l’horaire avait été accepté à l’unanimité par les dirigeants syndicaux et qu’il permet de proposer de meilleurs blocs de travail aux chauffeurs que ceux actuellement offerts. Ce scénario pourrait bien être réalisable, car il représente une amélioration de la qualité de vie des travailleurs, en contrepartie d’une légère hausse du nombre d’heures garanties soit de 7,5 heures à 8 heures. De plus, il est également prudent, car il tient compte des commentaires du représentant syndical dans la décision du 9 octobre 2009 de l’arbitre Keller, qui stipule « ...le minimum nombre d’heures garanties devra être changé en 8 heures ce qui serait plus conforme à la norme. » (traduction libre)

Économies réalisées grâce à la réduction de l’absentéisme
Le potentiel d’amélioration du moral des employés syndiqués et de réduction de l’absentéisme peut être évalué en comparant les taux d’absentéisme passés avec les taux actuels, comme indicateur suppléatif du moral.

Comme l’indicateur suppléatif du moral des années précédentes était plus élevé (c.-à-d. que le taux d’absentéisme était plus faible) que l’indicateur actuel, la direction

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\(^6\) L’étalement est limité à 14 heures en raison de modifications à la loi fédérale.
doit chercher à améliorer le moral et à diminuer l’absentéisme pour qu’ils atteignent au moins les niveaux moyens en vigueur avant la grève. Lorsque l’absentéisme diminue, le besoin en chauffeurs inscrits au tableau de remplacement est moindre, ce qui entraîne des économies de coûts.

Si les taux d’absentéisme sont ramenés au niveau de 2008, l’économie de coûts estimative pourrait atteindre environ 1,1 million de dollars par année.

Économie de coûts au moyen du logiciel d’inscription aux fins de l’établissement des horaires par Internet

La direction a jugé qu’il était approprié d’envisager un investissement dans un nouveau logiciel d’assignation. Ce logiciel permettrait aux chauffeurs d’autobus de demander leur quart de travail par l’intermédiaire d’un portail Internet et d’effectuer le processus d’inscription sans être sur place. Cette possibilité de refonte de la technologie du processus d’assignation devrait améliorer l’efficacité du processus d’inscription des chauffeurs et raccourcir la période de rotation qui est actuellement de six semaines.

Ce logiciel n’est pas couramment utilisé dans l’industrie du transport en commun municipal, et la probabilité que la direction investisse dans ce logiciel dépend des discussions actuelles avec les fournisseurs de logiciels à l’industrie du transport en commun, comme Hastus et Trapeze. On ne sait pas avec certitude quand cette refonte technologique pourra être mise en œuvre.

Selon la direction, une nouvelle solution logicielle d’assignation par Internet pourrait également entraîner une économie des coûts opérationnels qui serait générée par l’efficacité accrue de deux des éléments du processus d’inscription :

1. la réduction du nombre de commis qui interviennent dans le processus d’inscription des chauffeurs;

2. la réduction des trajets de relève lorsque les chauffeurs en service sont mis à contribution pour compléter le tableau d’assignation en fonction de leur ancienneté.

Selon les estimations de coûts trimestrielles fournies par la direction, nous prévoyons que l’économie de coûts annuelle pourrait atteindre environ 350 000 dollars par année. Cependant, il faut reconnaître que cette économie de coûts pourrait être annulée par l’achat du nouveau logiciel, et que le véritable avantage du système est une efficacité accrue du processus d’assignation.

Recommandations et réponses de la direction

Recommandation 1

Que la direction considère le processus de négociation collective à venir comme une possibilité stratégique de réduire ou d’éliminer les lacunes financières et opérationnelles associées au modèle d’établissement des horaires.
Réponse de la direction
La direction est d’accord avec cette recommandation.


Recommandation 2
Que la direction utilise le progiciel d’établissement des horaires Hastus pour évaluer toutes les propositions mises de l’avant pendant la négociation collective, notamment un modèle pour estimer l’effet des coûts en contexte et un modèle mesurant l’incidence du concept de travail axé sur le contrôle des opérations quotidiennes.

Réponse de la direction
La direction est d’accord avec cette recommandation.

OC Transpo utilise le logiciel d’établissement des horaires Hastus pour évaluer des propositions liées à l’établissement des horaires depuis les négociations collectives de 2008. Ce processus comprend un modèle de comparaison des coûts pour différents scénarios de négociation. Au moyen du logiciel Hastus, les trajets d’autobus sont regroupés en quarts de travail pour optimiser les heures travaillées en fonction des besoins du réseau tout en réduisant les heures non travaillées.

La direction continuera d’avoir recours au logiciel Hastus pour améliorer l’efficacité et de tirer pleinement parti des modifications apportées aux règles d’assignation par suite du processus d’arbitrage toujours en cours et, par conséquent, de maximiser le contrôle des opérations quotidiennes par la direction. Ces mesures seront mises en œuvre au cours du prochain processus de négociation collective.
Recommandation 3
Que la direction fasse preuve de diligence raisonnable dans l’établissement de journées de travail qui optimisent l’efficacité des heures travaillées par les chauffeurs et minimisent les coûts. Il faudrait exiger que des rapports de rendement annuels soient déposés auprès de la nouvelle Commission du transport en commun pour démontrer l’incidence des règles et des processus d’établissement des horaires actuels sur les mesures de rendement clés du réseau de transport en commun, comme le ratio des heures payées aux chauffeurs et du total des heures de service.

Réponse de la direction
La direction est d’accord avec cette recommandation.

La direction examinera les mesures qui peuvent servir à mesurer l’incidence des modifications apportées aux règles et aux processus d’établissement des horaires sur le rendement du réseau. Les mesures de rendement sélectionnées seront intégrées aux rapports de rendement annuels à compter de 2011. La mise en œuvre sera achevée en juin 2012.

Recommandation 4
Que la direction surveille de manière proactive la sélection des horaires de travail des chauffeurs d’autobus et mette en œuvre des procédures continuelles de contrôle de la qualité qui seront effectuées par des membres du personnel non syndiqués pour assurer la conformité aux règles du processus d’établissement des horaires et l’efficacité de l’ensemble de ce processus.

Réponse de la direction
La direction est d’accord avec cette recommandation.

À l’heure actuelle, la direction surveille la sélection des horaires de travail des chauffeurs, et ce, depuis juillet 2009. Une fois le processus d’assignation achevé, les membres du personnel non syndiqués examinent la sélection des horaires de travail et font des rajustements au besoin afin de maximiser l’efficacité du réseau.

Recommandation 5
Que la direction s’assure que les nouvelles recrues non syndiquées dans le groupe d’établissement des horaires possèdent les compétences optimales en analyse, en modélisation informatique et en mathématiques, compte tenu du départ à la retraite récent et imminent de membres du personnel du groupe d’établissement des horaires d’OC Transpo.

Réponse de la direction
La direction est d’accord avec cette recommandation, laquelle a été suivie.

En avril 2011, le Service de transport en commun a ajouté du personnel non syndiqué possédant les compétences et les qualifications nécessaires, y compris des compétences en analyse, en modélisation informatique et en mathématiques, au groupe d’établissement des horaires. La direction continuera de recruter du personnel qualifié chargé d’exécuter ces fonctions.

Recommandation 6
Que la direction détermine à quel point la période d’établissement des horaires actuelle étalée sur six semaines est plus longue que la période utilisée par d’autres sociétés de transport en commun comparables. La direction doit évaluer les possibilités de refonte des processus opérationnels et les mettre à profit, dans les limites de la convention collective, afin de raccourcir la période d’établissement des horaires pour la faire passer des six semaines actuelles à une période qui est la norme dans l’industrie.

Réponse de la direction
La direction est d’accord avec cette recommandation.

À l’heure actuelle, la direction évalue des options d’assignation électronique dans le but de réduire la période d’assignation. La mise en œuvre d’un système électronique d’assignation est prévue dans le cadre de la Feuille de route technologique approuvée par le Conseil municipal, mais est conditionnelle à la mise en œuvre d’autres éléments de l’infrastructure des TI. La direction s’efforcera de lancer le processus en 2012 et, lorsqu’elle disposera de plus amples renseignements, établira un calendrier ferme pour sa réalisation.

Recommandation 7
Que la direction évalue l’efficacité, les coûts et les incidences sur les relations avec le syndicat associés à la possibilité d’affecter des chauffeurs à des districts ou à des garages distincts pendant des périodes déterminées. L’assignation serait limitée à des circuits et à du travail qui doit être effectué dans le district assigné.
**Réponse de la direction**
La direction est d’accord avec cette recommandation.

Une étude sera entreprise permettant de comparer les coûts opérationnels, la fiabilité du service et les caractéristiques des horaires de travail des chauffeurs en vertu du modèle actuel et en vertu d’un modèle regroupant les services dans différents districts de la Ville.

La direction souligne que, comme le modèle actuel vise à minimiser les coûts opérationnels et le nombre d’employés et d’autobus requis, toute contrainte additionnelle intégrée au processus d’optimisation augmenterait probablement les besoins en ressources. Dans ce cas, il faudrait comparer les avantages découlant de l’amélioration de la fiabilité du service ou de celle de la qualité du travail avec l’augmentation des coûts dégagée ou d’autres inconvénients. Si l’on parvient à la conclusion que l’augmentation des coûts est justifiée par d’autres avantages appréciables, une recommandation serait formulée à la Commission dans un plan d’affaires et le budget futurs.

Cet examen sera parachevé d’ici le quatrième trimestre de 2012.

**Recommandation 8**
Que la direction évalue des solutions automatisées de remplacement au processus actuel d’assignation manuelle.

**Réponse de la direction**
La direction est d’accord avec cette recommandation.

La direction évalue à l’heure actuelle des solutions électroniques d’assignation. La mise en œuvre d’un système électronique d’assignation dépend du budget et de la disponibilité du Service de technologie de l’information. La direction souhaite que le système électronique d’assignation soit mis en place en 2012. Lorsque de plus amples renseignements seront disponibles, la direction établira un calendrier ferme pour l’achèvement de ce projet.

**Recommandation 9**
Que la direction assure une surveillance fondée sur des mesures de rendement du processus d’établissement des horaires trimestriels amélioré sur deux ans (c.-à-d. huit cycles d’établissement des horaires) d’OC Transpo une fois le processus de négociation collective terminé.

**Réponse de la direction**
La direction est d’accord avec cette recommandation.

La direction analyse et surveille toutes les données associées à chaque cycle d’assignation, peu importe l’avancement de l’arbitrage en cours, et ce, sur une base continue. Cependant, dans le contexte de la recommandation, un cycle de

**Conclusion**

La vérification du processus d’OC Transpo d’établissement des horaires des chauffeurs d’autobus a permis de formuler les observations suivantes et de relever les problèmes suivants en matière de rendement concernant la grève de 2008, le processus d’arbitrage subséquent et l’impossibilité pour OC Transpo de réaliser les économies de coûts visées et les occasions d’améliorations du processus :

- La direction s’est lancée dans le processus de négociations collectives qui ont précédé la grève après avoir établi une série d’objectifs opérationnels axés sur la nécessité de « contrôler les opérations quotidiennes » dans la perspective de l’établissement des horaires. Le principe visant à obtenir le « contrôle des opérations quotidiennes » était considéré comme un modèle de gestion qui est une norme dans l’industrie, et était aussi un outil pour OC Transpo lui permettant de réaliser des économies de coûts de l’ordre de 3,1 millions de dollars à 4,5 millions de dollars, selon la source et le moment de l’estimation.

- Pendant la grève, un concept a fait son chemin au sein des membres du public à savoir que les économies de coûts réalisées dans l’établissement des horaires serviraient de compensation aux contribuables, résidents comme entreprises, qui ont subi les inconvénients des interruptions de service et des pertes de revenus. Les objectifs opérationnels de la direction et la perception du public concernant les économies possibles ont persisté pendant toute la grève et la période de règlement par arbitrage.

- La décision rendue par l’arbitre Keller après la grève n’a pas permis de créer le modèle opérationnel axé sur le « contrôle des opérations quotidiennes » envisagé par la direction; cependant, la réduction de l’étalement du nombre d’heures travaillées dans une journée, qui est passée de 13 heures, tel que permis par la loi fédérale, à 12 heures, a eu des répercussions négatives sur l’exploitation du réseau. Le résultat est une conception des blocs de travail sous-optimale et une incapacité systémique de générer les économies visées. La direction a obtenu une forme de « contrôle » de la programmation des opérations quotidiennes qui nuit à sa capacité d’optimiser le réseau; nous avons examiné la situation avec la diligence voulue et confirmé la dilution des possibilités de réaliser des économies de coûts.

- Pour ce qui est de la décision de l’arbitre Keller, il faut souligner que son incidence pour la direction et les contribuables d’Ottawa a été considérable. La direction d’OC Transpo s’est fait imposer un nouveau modèle opérationnel
Vérification du processus d’OC Transpo d’établissement des horaires des chauffeurs d’autobus

moins efficace, plus onéreux et plutôt rigide. Le contrôle des opérations quotidiennes qui lui a été accordé n’a pas suffi à contrebalancer les contraintes imposées par l’arbitrage sur la programmation des opérations quotidiennes.

• Il résulte de l’arbitrage un modèle d’établissement des horaires systématiquement inefficace qui anéantit toute possibilité d’économies des coûts envisagée par la direction pendant les négociations collectives et la grève. Du point de vue de la responsabilité publique, il est essentiel que ces circonstances imposées par l’arbitrage soient communiquées au Conseil et au public par l’intermédiaire du présent rapport de vérification. La réception de cette information est essentielle si l’on veut éviter que le public demeure avec la perception que la direction « doit » mettre en œuvre des économies de coûts qui sont réalisables et qui auraient dû être appliquées depuis longtemps. La direction subit systématiquement des contraintes qui l’empêchent de réaliser des économies de coûts maintenant, et la probabilité future de pouvoir y arriver est incertaine.

• À moyen terme, des améliorations importantes aux processus et la réingénierie technologique constituent des précurseurs pour tous les efforts qu’OC Transpo entreprendra afin d’atteindre ses objectifs en matière d’importantes économies. OC Transpo modifie les horaires des chauffeurs d’autobus seulement quatre fois par année. Chaque modification est précédée par une période de trois ou quatre semaines pendant laquelle la direction élabore l’horaire et une période de six semaines qui permet d’assigner les chauffeurs aux trajets. Lorsque la direction met au point des changements qui serviront à améliorer les processus, elle ne peut mettre en œuvre ces changements qu’au prochain cycle trimestriel, quand elle commence la conception de l’horaire. Toutes proportions gardées, la direction ne pourrait réaliser des économies projetées qu’au troisième trimestre suivant la date où la décision est prise d’améliorer un processus ou de modifier un « élément de travail ». Donc, le délai nécessaire pour réaliser des économies à l’avenir ne peut qu’être important.

• Le délai encouru dans l’exercice des droits accordés par décision arbitrale de « contrôler les opérations quotidiennes » a créé un problème préoccupant relativement à la mise en œuvre. Le processus d’arbitrage n’étant toujours pas terminé, l’importante réingénierie du processus d’établissement des horaires des chauffeurs d’autobus conçue en vue de réaliser des économies n’a pas encore été élaborée ni entreprise par la direction, en raison des contraintes inévitables imposées sur le réseau par le contenu de la décision arbitrale et le processus d’appel.
• Les modifications préliminaires proposées à la convention collective le 20 août 2010 qui ont été refusées par les syndiqués auraient certainement amélioré la capacité d’OC Transpo d’obtenir l’efficacité opérationnelle de ses activités. Cependant, la proposition n’aurait pas permis de réaliser des économies, car elle augmentait le nombre d’heures garanties et donc leur coût. Nous sommes conscients que la direction d’OC Transpo doit gérer le réseau de transport en commun selon les contraintes fixées par la décision arbitrale, par opposition aux prévisions en matière d’économies qui ont été formulées avant la décision.

**Remerciements**

Nous tenons à remercier la direction pour la coopération et l’assistance accordées à l’équipe de vérification.
1 INTRODUCTION

The Audit of the OC Transpo Scheduling Process for Bus Operators was originally included in the 2010 audit work plan received by Council on June 23, 2010. Based on Legal/Labour Relations advice, the audit was not tabled with our office’s 2010 annual report. On December 20, 2011, based on Legal/Labour Relations advice, our office agreed to follow the direction of the Mayor and the Chair of the Audit-Sub-Committee and defer tabling of this audit until after OC Transpo completed their contract negotiations.

2 BACKGROUND

OC Transpo is one of the City of Ottawa’s largest, complex and labour-intensive business units. The 2010 OC Transpo gross operating expenditure budget was $367 million. The “Operations” budget line of the 2010 budget - which includes all bus operator costs - was $142 million. OC Transpo delivers transit and para-transit services across an expansive catchment area of more than 442 square kilometres. The OC Transpo system delivers approximately 90 million passenger trips annually, the fleet includes more than 1,000 active service buses, and the bus service features 250+ bus routes with approximately 6,400 stops. OC Transpo services are primarily delivered by approximately 3,000 mostly unionized employees. The logistics, labour relations, and financial management challenges associated with planning and scheduling the work of OC Transpo bus operations/operators within this complex and dynamic transit system are significant.

The City-wide 2008 transit strike generated significant negative outcomes for Ottawa residents and businesses in terms of service interruption, traffic congestion and lost/deferred commercial activity/revenues. While acknowledging these negative strike outcomes, the City’s collective bargaining approach was motivated in part by an opportunity to secure financial and operational flexibility/control following the strike. Public expectations developed during the strike, and subsequent arbitration process, around a significant cost savings dividend viewed as compensation for public hardship. This financial dividend was supposed to flow from an enhancement of management’s enhanced control and improved flexibility over bus operator scheduling.

At various stages of the strike and arbitration process, the City’s collective bargaining team estimated annual on-going savings in the range of $3.1 million to $4.5 million associated with enhanced management control of bus operator scheduling and work piece design.
Prior to the 2008 strike, the bus operators union in Ottawa had secured a degree of scheduling control/autonomy exceeding typical transit industry standards in North America. The bus operators’ self-scheduling historic model generated a series of problematic service delivery performance issues. Since amalgamation, transit scheduling processes have generated workplace safety concerns regarding largely unregulated/excessive hours of work by some unionized employees; sub-optimal work piece design and scheduling; and, eroding system performance metrics and efficiency ratios.

By the time of the 2008 strike, Ottawa’s post-amalgamation dispersed service model for transit was in the process of being replaced by the consolidated operational model that is more prevalent across the North American municipal transit industry. Significant change management and organization restructuring was being undertaken by management – while simultaneously addressing the difficult/complex collective bargaining issues associated with the strike.

Simultaneous attempts at cultural transformation, efforts to consolidate and restructure operations, and the need to engage in arbitration settlement implementation/execution may well be generating a post-arbitration change capacity deficit within OC Transpo’s non-union management resources. OC Transpo’s internal non-union resources and staffing around strategic change management and financial analysis are limited, therefore requiring externally contracted analytical resources.

During the strike, public expectations developed around securing a post-strike financial dividend. This dividend was seen to flow from a perceived enhancement of management’s control and improved flexibility over bus operator scheduling. These expectations may or may not reflect the actual degree of management scheduling control/flexibility actually secured via the arbitrated conclusion of the strike.

The post-strike arbitration settlement and the subsequent arbitration process reached a milestone in January 2010. Until the arbitration process ran its course, implementation of management’s new scheduling authority to secure cost savings may or may not have been constrained or diminished versus expectations.

To better understand what the City won through Arbitration, Figure 1 illustrates the before-and-after scheduling conditions, anticipated efficiency and anticipated outcome.
Figure 1: What Was Won and the Anticipated Benefits

<table>
<thead>
<tr>
<th></th>
<th>Pre-strike</th>
<th>What was Won: Post-Arbitration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who has control of the day?</td>
<td>Bus Operators: Bus operators manually choose the runs that make up their shifts, so that some bus operators can maximize their pay but minimize the actual hours they work</td>
<td>Management: Using computer software, various bus runs are assembled into shifts, which enables management to minimize the hours of unpaid work by bus operators</td>
</tr>
<tr>
<td>What is the anticipated system efficiency?</td>
<td>Inefficient: A sizable portion of work is not getting done for the hours being paid by OC Transpo</td>
<td>Efficient: Paid work is optimized to the needs of the system</td>
</tr>
<tr>
<td>What is the anticipated long-term outcome?</td>
<td>Increasing costs: On-going increases in total salary costs due to inefficiencies</td>
<td>Cost management: A cost savings of approximately $3 million</td>
</tr>
</tbody>
</table>
Audit of the OC Transpo Scheduling Process for Bus Operators

Figure 2 provides a diagram of the pre-strike and post-strike scheduling practices.

**Figure 2: Pre-Strike and Post-Strike Scheduling Practices**

**PRE-STRIKE: BUS OPERATORS CONTROL THE DAY**

1. Management designs each bus run and creates the “Booking Board”

2. Bus operators select individual bus runs from the booking board to build their work day

   i.e., 4:02h & 2:59h

   7:01h Work day

3. Some bus operators were creating work days that minimize their work but maximize their pay

   7:01h Time Worked

   7:30h Pay Guarantee

   0:29h Paid but not worked

**POST-STRIKE: MANAGEMENT CONTROLS THE DAY**

1. Management designs each bus run, groups runs together for efficiency, and creates the “Booking Board”

2. Bus operators select work days from the booking board

   i.e., 2:09h & 5:18h

   7:27h Work day

3. Management achieves cost-efficiency by controlling the day and reducing time paid but not worked

   7:27h Time Worked

   7:30h Pay Guarantee

   0:03h Paid but not worked

The complex, effort intensive bus operator scheduling cycle is executed four times yearly. Therefore, only four bus operator-scheduling cycles have been executed since the arbitration settlement appeals process milestone of January 2010. Management implementation of the arbitrated settlement is therefore a work in progress. Scheduling work processes are still being refined and restructured to reflect the new post-arbitration realities. The observations and findings associated with this audit have been shaped by the “work in progress” reality of scheduling restructuring.
3 AUDIT SCOPE, OBJECTIVES AND APPROACH

3.1 Overview of Scope and Objectives

In terms of scope, the audit plan focussed on the following:

1. Assess the current degree of progress, and future probability, of management securing the forecasted/approved bus operator scheduling cost savings. These forecasted cost savings revolve around restructured work scheduling rules for bus operators, new improved scheduling processes implemented by management, and management’s accountability driven implementation of a “change management” critical path for measurable operational efficiency results improvement;

2. Evaluate scheduling control implementation and work rules – examining the execution of the scheduling core process critical path before and after the arbitration settlement. Evaluate the probability of go-forward process improvement in subsequent scheduling cycles;

3. Review OC Transpo cost management due diligence efforts – focussing on how scheduling cost savings have been forecasted, and evaluate the go-forward critical path for implementing ongoing systemic cost management/savings;

4. Determine the extent of management’s exercise of rights as obtained from the Arbitrator’s decision;

5. Execute an evidence-based assessment of OC Transpo scheduling performance results from an operational perspective – a metrics driven “Ottawa versus Ottawa” time series analysis. This evidence-based analysis will utilize key OC Transpo performance indicators, and address system performance on a quarterly basis before-and-after the post-strike arbitration settlement.

Three key objectives are as follows:

1. Assessment of management’s collective bargaining and arbitration process cost saving’s modeling, risk based savings expectations, and quality of communication/analytical support to Council;

2. Determine management’s exercise of rights, systemic scheduling design and process execution issues impacting cost management and operational efficiency;

3. Assess current and go-forward cost management expectations and the critical path for achieving forecasted savings.

In terms of methodology, the audit plan included:

1. Metric and data-based historic and current performance assessment which is quantifiable/measurable;
2. Risk based assessment of go-forward cost savings and process improvement achievement;

3. Process and critical path mapping leading to identification of improvement opportunities; and,

4. A blend of quantitative and qualitative assessment tools.

The audit plan methodology components include the following:

1. Review and due diligence assessment of financial modeling software simulations and confirmation of modeling calculations re: forecast cost management (addresses Audit Objective #1);

2. Structured interviews to obtain insights on management’s rights, changes in work rules, work rules execution cycles, and implementation of current and go-forward management control mechanisms (addresses all Audit Objectives);

3. Review of confidential reports to obtain insights on management’s rights pre-and post-arbitration (addresses Audit Objective #2);

4. Metric and data driven time-series analysis of OC Transpo scheduling processes and efficiency results. Comparative analysis of key performance metric/indicator data for comparable booking periods (addresses Audit Objectives #2 and #3);

5. Critical path mapping and due diligence review of past and future scheduling process changes, and forecasting of potential savings (addresses Audit Objectives #1 and #3);

6. Critiques of transit industry peer reviews and comparison of OC Transpo to industry best practices (addresses Audit Objectives #2 and #3); and,

7. Go forward risk assessment re: scheduling savings achievement and scheduling process improvement.

4 OBSERVATIONS AND RECOMMENDATIONS

For purposes of clarity in presenting the audit’s observations, findings and recommendations, these are grouped into “themes”. These “themes” are centered on i) understanding the chronological critical path of what has transpired, ii) the existing work scheduling situation/realities confronting OC Transpo today, and iii) consideration of go-forward strategies to secure operational improvement and cost savings/efficiencies. These three time-based reporting “themes” encompass all four of the audit objectives set out in the audit plan.
4.1 Audit Objective Theme: Historic Critical Path Re. OC Transpo Scheduling

In order to properly address the historic critical path theme, it is necessary to accomplish the following:

- Using a critical path timeline, identify and explain all activities impacting cost management from the period of the strike, through arbitration, to today using interviews with management and a review of staff reports to map out the activities and cost expectations determined through the audit;
- Through a chronology of key events and review pertinent documentation with the matters of disclosure enabling management’s rights from the arbitration, compare current management practices versus the rights enabled through the arbitrator’s ruling; and,
- Document the work rules relative to the arbitration and how management has been able to increase control through interviews with management regarding the implementation of control mechanisms (i.e., whether management has taken full advantage of federal regulations).

4.1.1 Critical Path of Activities Impacting Cost Management

There are a series of inter-related activities that shape the critical path timeline for cost management. These activities include:

1. Federal regulatory changes impacting the number of hours that drivers are allowed to work;
2. The milestones related to the arbitration of the strike including on-going negotiations post-arbitration grievances;
3. The quarterly changes to OC Transpo’s bus schedules including the period to plan and book drivers to the schedules;
4. The process of signing-up drivers to the scheduled routes;
5. The upcoming negotiations and pending expiry of the current Collective Agreement; and,
6. Future implementation of new booking software.

Figure 3 on the following page illustrates these complex strike, arbitration and scheduling inter-relationships from 2008 through 2011. Each critical path activity and its specific relationship to cost management is explained in detail further in this report.
### Figure 3: Critical Path Timeline of Activities Impacting Management Rights and Cost Management

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>Calendar Month</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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</table>

#### Federal Regulatory Changes
- **Nov. 23, 2009**: Start of the Strike
- **Dec. 10, 2008**: Memorandum of Settlement (back to work)
- **Jan. 29, 2009**: Keller Arbitration Board Hearing & Award
- **Jun. 27, 2009**: Keller Arbitration Supplementary Hearing & Award
- **Oct. 9, 2009**: Keller Arbitration Supplementary Hearing & Award 1
- **Nov. 4, 2009**: Keller Arbitration Supplementary Hearing & Award 2
- **Nov. 11, 2009**: Keller Arbitration Supplementary Hearing & Award 3
- **Oct. 29, 2009**: Keller Arbitration Supplementary Hearing & Award 4
- **Nov. 11, 2009**: Keller Arbitration Supplementary Hearing & Award 5
- **Feb. 19, 2010**: Keller Arbitration Supplementary Hearing & Award 6
- **Feb. 24, 2010**: Keller Arbitration Supplementary Hearing & Award 7
- **Apr. 9, 2010**: Keller Arbitration Supplementary Hearing & Award 8
- **Nov. 25, 2010**: Keller Arbitration Supplementary Hearing & Award 9
- **Dec. 1, 2010**: Keller Arbitration Supplementary Hearing & Award 10

#### Management’s Implementation of Award
- **Jan. 2 & 7, 2010**: Management’s Implementation of Award
- **Feb. 19, 2010**: Management’s Implementation of Award
- **Feb. 24, 2010**: Management’s Implementation of Award
- **Aug. 25, 2010**: Management’s Implementation of Award
- **Aug. 27, 2010**: Management’s Implementation of Award
- **Dec. 1, 2010**: Management’s Implementation of Award
- **Mar. 31, 2011**: Management’s Implementation of Award

#### Design and Booking Periods
- **Winter**: 2008
- **Spring**: 2009
- **Summer**: 2010
- **Fall**: 2011

### Notes
1. Parties were given 30 days to implement the award.
2. First grievance was of Management’s implementation of the arbitration.
3. Second grievance was based on Collective Agreement rights.
4. Memorandum for 8.0 hours guaranteed pay and 12.5 hour spread.
5. From December 26 to April/May, depending on the timing of Easter.
6. From April/May, depending on the timing of Easter, to June, depending on the end of the post-secondary school year.
7. From June to September, depending on the start and end of the post-secondary school year.
8. From September to December 25.
9. April May, depending on Easter and end of post-secondary school year.
10. Includes approximately 3-4 weeks for management to design the schedule and 6 weeks to conduct the booking.
4.1.1.1 Federal Regulatory Changes
At the outset of the process, prevailing Federal Regulations allowed OC Transpo management the flexibility that it needed to optimize bus driver bookings to routes. Mid-stream during the process, new Federal Regulations came into effect changing the number of hours that drivers could work and requiring a mandatory rest period of 14 hours and 8 hours, respectively. This reduced the flexibility that management previously had but also constrained drivers from overworking themselves.

4.1.1.2 Arbitration Milestones
Based on the Award of Arbitrator Keller, management understood that it was empowered to exercise control over the assignment of drivers to routes in order to optimize the system and achieve cost management. All other things equal, this would have given management an opportunity to realize cost management opportunities associated with scheduling “control of the day”.

However, the Award of Arbitrator Keller instituted a reduction in the duration of the driving time from 13 hours (maximum allowed by federal regulations) to 12 hours. This change significantly impacted management’s ability to achieve cost savings by eliminating the flexibility that it previously had for booking drivers. The change was significant because the majority of OC Transpo runs occur over a 12.5-hour spread but a 12-hour work limit leads to more broken-up work and inefficiencies. While an expectation for cost management continued to prevail, there was limited ability for management to achieve the cost management expectations that arose during Arbitration proceedings.

In accordance with the Arbitrator’s award, management worked to develop wording for the Collective Agreement to implement the “Day Booking” rights that it had gained. The Union disagreed with management’s interpretation of the Arbitrator’s award, and the booking process that management was attempting to implement, and filed its first of two grievances. In this first grievance, the Union did not agree that management was given authority to group pieces of work together to create workdays for the drivers. The on-set of this grievance hampered management’s ability to implement its rights and achieve cost management savings targets.

Subsequent to Keller’s Supplementary Award, which clarifies that the employer controls the scheduling day, management indicates that it has taken operational and process steps to “control the day.”

It should be noted that a second grievance by the Union was filed claiming that management had gone beyond the Collective Agreement in its “control of the day” efforts, and ATU 279 filed this as a rights grievance. Arbitrator Burket considered the ATU 279 grievance which resulted in a decision issued in November 2010, noting that it was not a rights issue and redirecting the matter back to Arbitrator
Keller. The on-set of this second grievance has again hampered management’s ability to implement any further process changes or secure cost savings.

4.1.1.3 Quarterly Changes to Bus Schedules and Planning/Booking Periods

OC Transpo’s bus schedule changes four times per year and each schedule change is preceded by a three to four week period for management to design the schedule and a six week period to book drivers to the routes. Once management has determined that it will enact a potential process improvement change, it can only implement the change at the next available quarterly cycle when it begins the process of designing the schedule. All things being equal, the earliest that management is able to realize any cost savings is three quarters from when the original decision to initiate a process refinement is made.

4.1.1.4 Driver Sign-Up Process

Management’s ability to “control the scheduling day” was reaffirmed in the Supplementary Award of Arbitrator Keller dated January 7, 2010. Item 2 in the Award respecting scheduling indicated that the Collective Agreement language will be amended to “reflect a day booking system and that it is the employer, not the operator, that is responsible for putting the work together.”

In January 2010, OC Transpo management began the process of assembling the workday options, under the constraints of a maximum 12 hour spread and 7.5 hour pay guarantee, and the resulting implications to cost management. Due to the protracted process of schedule planning and booking activities, which must take place before a schedule is operationalized, management’s exercise of its rights has only materialized since Q2 of 2010.1

4.1.1.5 Reduction of the “Spare Board” and “Making Peace”

The “Spare Board” is the roster of drivers that management requires to have on stand-by to respond to difficult-to-predict operational needs, including driver illness, no-show, and the dispatch of a spare driver and vehicle in case of a vehicle breakdown.

Negotiations and cost management expectations were and continued to be focused on reducing the full-time equivalent (FTE) in terms of more efficient pieces of work, reducing the unworked hours paid by guarantee, and reducing the Spare Board (i.e., rather than reducing the number of drivers on staff).

Management’s flexibility in designing the scheduled workday has been constrained by Federal Legislation and the Keller Award. The restrictions of the 12 hour maximum spread do not allow management to optimize the drivers to the needs of a system that demands a minimum 12.5 hour spread, such that the offered pieces of work have increased and offset a reduction in the hours of guaranteed pay. The

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1 As communicated by the General Manager in his August 25, 2010 presentation to City Council.
total number of bus operators on the Spare Board is constant relative to pre-strike levels.

Recognizing that the situation of broken-up shifts and a large Spare Board were neither in the interest of the drivers and OC Transpo, respectively, management negotiated a Memorandum of Agreement (MoA) with the Union Executive on August 20, 2010. Council’s acceptance of the MoA was received on August 27, 2010. The agreed-upon workday was intended for both sides to “make peace” – namely, that “management [would] maximize continuous straight runs” to create fewer split shifts which benefitted the driver’s quality of life and to reduce the Spare Board which benefitted OC Transpo’s costs, as well as to address other matters such as uncertified sick leave.

The Union membership did not vote in favour of this proposal; both bus operators and mechanics were eligible to vote. As a result, OC Transpo management currently operates the system with the split scheduling pieces on workdays, and Spare Board characteristics resulting from the Keller Award. The implications of not making peace are uniformly negative from a cost savings perspective and an employee scheduling convenience perspective.

4.1.1.6 Re-Start of Negotiations for the Collective Agreement

Management’s go-forward abilities to achieve or realize cost management savings and operational process improvements will depend on the results of current negotiations. The Collective Agreement expires in March 31, 2011 and the effective date to begin negotiations was December 1, 2010. The Union filed a notice to begin negotiations in advance of the effective date and made its submission in early November 2010. As of April 2011, formal negotiations have not yet commenced.

4.1.1.7 Improvement of Morale and Reduction in Absenteeism

It has been reported anecdotally that the existence of more split-shift and three-piece workdays resulting from the Keller Award has significantly reduced driver’s quality of life, significantly reduced morale, and contributed to increased absenteeism. Higher rates of absenteeism translate to a larger Spare Board and higher staffing and operating costs for OC Transpo.

In terms of cost management, OC Transpo management had offered to improve the workday for drivers in the proposal from August 2010. Presumably, the improvements could have increased morale and reduced absenteeism to pre-strike levels. This would have also reduced the Spare Board numbers over time, and offered some degree of cost management benefit to OC Transpo.

From a Go-Forward perspective, OC Transpo management’s desire to improve the workday for drivers, reduce the Spare Board, and achieve some cost management benefit is still being considered. OC Transpo’s management ability to achieve cost management is dependent on the results of the negotiations.
4.1.1.8 Future Implementation of New Booking Software

Management’s future ability to continue to optimize the system and achieve cost management/savings will depend on the implementation of new software to automate the process of booking drivers to routes. Management is now in the very early stages of exploring new software solutions and has not yet determined a timeline for this project.

4.1.2 Cost Savings Expectation and Communication to Council

There were three distinct chronological periods of communication to Council where the expectations for scheduling related cost savings from the strike were conveyed. These periods were as follows:

1. Bargaining update before the beginning of the strike in December 2008;
2. Communications to Council prior to the January 2009 Memorandum of Settlement (i.e., back to work); and,
3. Proposed August 2010 Memorandum of Agreement.

The communication periods and content messages are summarized in the Figure 4 and described in detail further below.

**Figure 4: Comparison of Savings Expectation and Communication to Council**

<table>
<thead>
<tr>
<th></th>
<th>Bargaining update pre-strike, December 2008</th>
<th>Communications prior to Memorandum of Settlement, January 2009</th>
<th>Proposed Memorandum of Agreement, August 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost savings expectations</td>
<td>Work scheduling changes are necessary to effect operational improvements /savings</td>
<td>The current City offer outlines a cumulative 3 year savings of $3.1 million; savings achieved in Year 2</td>
<td>Neutral: $0.5M savings from weekend overtime to balance out the additional $0.5M cost of the 8-hours guarantee</td>
</tr>
<tr>
<td>Bargaining strategy</td>
<td>Management recommends that the City maintain its current bargaining strategy</td>
<td>Management presents options Council Motion to renegotiate a work scheduling regime for a safer system and a financial package with no cost increase in excess of the City’s last offer</td>
<td>Agreement objectives focussed on improved relations and creating win-win solutions Maintain management rights over scheduling</td>
</tr>
</tbody>
</table>
4.1.2.1 Bargaining Update Before Beginning of the Strike

City staff on the negotiating team delivered a presentation to Council on December 4, 2010 outlining the ATU 279 Bargaining Update. The purpose of the staff presentation was to seek direction from Council regarding outstanding ATU 279 bargaining issues. The presentation outlined the possibility of revising the City’s bargaining position; advising that a negotiated settlement might result in the “inability to achieve operational improvements/savings”. However, it was recommended by City staff on the negotiating team that the City maintain its current bargaining position. With regards to work scheduling issues, it was noted by City staff that “…essential changes were necessary to effect operational improvements/savings, both immediate and long-term”.

4.1.2.2 Communications to Council Prior to January 2009 Memorandum of Settlement

On January 14/15, 2009 City staff gave a “Transit Scheduling” presentation to Council. The presentation outlined the current efficiency and cost savings objectives stating that the City wants to “…package work to ensure fewer guarantees and less overtime is paid”. It was further noted that “…guarantees have more than doubled to $2 million per year as operators master the system” and that OC Transpo management had limited ability to mitigate this cost escalation risk.

There was also an “ATU 279 Strike Update” in camera presentation to Council on January 14/15, 2009. The various options for the negotiation “next steps” were outlined in the in camera presentation. With regards to the collective bargaining mandate, three options were put forward for consideration: “i) retain current mandate; ii) revise mandate within current economic envelope and management objectives [total overall cost, safety and reliability]; or iii) review mandate.” A point-by-point comparison of current offers on the negotiating table was also presented. With regards to work scheduling changes, the City’s offer constituted a forecast an annual cost savings of $6.4 million and the Union’s offer represented a forecast annual increase of $5.0 million.

During the same January 14/15, 2009 meeting there was a motion passed by Council to direct the City Clerk and Solicitor to petition the Federal Ministers of Labour and Transportation. The purpose of the petition was to amend the federal regulations governing the hours of work and work-rest stop rules for commercial motor vehicle operators. The amendment would to ensure the application of these regulations to municipal bus operators employed by the City of Ottawa.

A second Motion was passed by Council stating that the City will “…renegotiate a work scheduling regime to achieve the objectives of creating a safer and more reliable transit system, including meeting federal safety standards through the establishment of work rest rules; the City is also willing to negotiate a financial package that would not result in an overall cost increase in excess of the City’s last offer.”
Finally, Council passed a third motion to hold a special meeting on January 21, 2009 on the issue of the ATU strike. Management was required to report on the direct costs and estimated savings arising from the strike.

On January 21, 2009 Council held a special meeting on the ATU strike. Staff reported that “…expenditures savings as a result of the strike have been offset by the decision to refund passes or provide a credit towards service to be provided in 2009”. The 2008 preliminary year-end notes also state that the September forecast did not foresee the decline in retail fuel prices which has a direct impact on ridership. Even without the strike, the deficit for Transit would have increased by at least $2 million.

A comparison of current offers on the table was included in the documentation provided for the January 24, 2009 Council meeting. A cumulative savings of $3.1 million resulting from scheduling changes was identified as part of the City’s three year offer (with the savings achieved in Year 2) versus the Union’s offer which was estimated to cause additional spending of $1.6 million from scheduling changes.

4.1.2.3 The Proposed August 2010 Memorandum of Agreement
City staff gave a presentation to Council on August 25, 2010 outlining the agreement reached with the ATU 279 Executive. The presentation noted that the objectives included, among other things: i) fair and equitable work environment for employees; improved relations between management and ATU 279 by creating win-win solutions; and, ii) to remove the contentious issue of scheduling from the 2011 Collective Agreement negotiations. The presentation indicates that the daily guarantee would increase from 7.5 hours to 8.0 hours for bus operators and preserve management rights for scheduling improvements. The presentation indicated that there would be a cost of $0.5 million for the increase in the guarantee from 7.5 to 8.0 hours. Additional guarantee costs would be offset by savings in weekend overtime - meaning the overall position would be cost-neutral. Council indicated its acceptance of this proposal.

Based on our review of management’s communication to Council, it is our opinion that it was adequate and professional.

**Recommendation 1**
That the upcoming collective bargaining process be considered by management as a strategic opportunity to reduce/remove the financial and operational deficiencies associated with the work scheduling model.

**Management Response**
Management agrees with this recommendation.

Management will continue to plan the most efficient operation within scheduling/booking rules it now has at its disposal within the constraints of the final Keller decision of July 22, 2011. Future negotiations may provide
opportunities should both parties wish to explore additional efficiencies. As a result of route optimization and the introduction of double-decker buses, our service curve and workforce needs are changing. Options to reduce the cost per hour of service will be incorporated based on service demands of the future.

4.1.3 Bus Operator Scheduling Practices
Municipal transit system scheduling activities are as follows:

1. **System planning**: the level of service is determined via system planning activities (e.g., creation of a new route or re-routing of an existing route, and how frequently the bus service operates across routes)

2. **Route Scheduling**: the timetable is set for covering each route

3. **“Control of the Day”**: the pieces of work are identified and shaped (i.e., determining how many straight runs, split runs, etc., will exist in each scheduling cycle)

4. **Booking**: Drivers are assigned to the various pieces of work to create their workday

Figure 5 compares the OC Transpo scheduling practices and toolkit – from the 2008 pre-strike period through 2010.
Audit of the OC Transpo Scheduling Process for Bus Operators

Figure 5: Comparison of Scheduling Activities and Practices

<table>
<thead>
<tr>
<th></th>
<th>Pre-strike</th>
<th>Oct 2009 Award</th>
<th>Post-January 2010 Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Planning</td>
<td>Management determines the level of service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Route Scheduling</td>
<td>Management sets the route coverage timetable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Control of the Day”</td>
<td>Using Hastus Software, management identified the isolated pieces of work</td>
<td>Same as Pre-strike; Change delayed due to union-filed grievance</td>
<td>Using Hastus software, management assembles pieces into efficient days of work</td>
</tr>
<tr>
<td>Booking Drivers</td>
<td>Drivers sign-up to book the pieces of work</td>
<td>Same as Pre-strike; Change delayed due to union-filed grievance</td>
<td>Drivers sign-up to the days of work</td>
</tr>
<tr>
<td>Booking: Union Clerk</td>
<td>Union scheduling clerk updates booking board</td>
<td>Same as pre-strike; Change delayed due to union-filed grievance</td>
<td>Union Scheduling Clerk updates the booking board Must comply with 12 hour limit on spread</td>
</tr>
<tr>
<td>Consistent with Arbitrator Award?</td>
<td>n/a</td>
<td>n/a</td>
<td>Yes</td>
</tr>
<tr>
<td>Consistent with other transit operators?</td>
<td>No</td>
<td>n/a</td>
<td>Yes</td>
</tr>
</tbody>
</table>

4.1.3.1 Pre-Strike Scheduling Practices

The pre-strike scheduling practices were as follows:

1. **System planning**: Management determined the level of service (e.g., creation of a new route or re-routing of an existing route, and how frequently the bus service operates)

2. **Route Scheduling**: Management set the timetable for each route
3. “Controlling the Day”: Management identified the pieces of work (i.e., to determine how many straight runs, split runs, etc., exist in each quarterly schedule) but does not control the day

4. Booking: Drivers sign-up and self-assigned themselves to the various pieces of work to create their workday

In terms of the pre-strike booking process, a bus operator made their booking selection, and a clerk struck off the piece of work from the booking board. This booking process had been previously agreed-upon in 1999 prior to amalgamation.

In terms of the pre-strike booking practice, it is not necessarily inappropriate that the most senior drivers wanted and obtained the “straight” pieces of work; nor is it necessarily inappropriate that junior drivers received less favourable pieces of work. However, OC Transpo management had been concerned about the practices of the mid-level bus drivers that signed up for long hours of work, and few breaks. This practice maximized the drivers’ ability to earn guaranteed and overtime pay, but raised concerns that driver’s health was deteriorating, that public safety was potentially at risk, and that OC Transpo was paying for operator hours without receiving work in return.

It is important to note that the rationale for guaranteed pay is to ensure that relatively junior operators, who book the least desirable shifts, are provided with some compensating factor to acknowledge the difficult work arrangements. OC Transpo management acknowledged this rationale for guaranteed pay in its submission to the Arbitration Board.

4.1.3.2 Practices Subsequent to the Arbitration Award

Management gained scheduling rights through the October 9, 2009 Arbitration Award and reconfirmed rights through the January 7, 2010 Award.

The following scheduling right was gained by management in the October 9, 2009 Award:

- “… a Day Booking system which is consistent with the majority of transit operators across North America”

The change was “to be effective the first booking in 2010…” however if the parties could not agree on the language within 30 days of issuance of the Award, then the matter could be “remitted to the Board for determination.”

As noted elsewhere in this audit, the implementation of management’s rights was delayed by a Union grievance.

Management proposed its approach to the Day Booking system on October 29, 2009. This system was grieved by the Union. The following scheduling right was reconfirmed in the January 7, 2010 Award:
• “2. Scheduling – Collective agreement language needs to be amended to reflect a
day booking system and that it is the employer, not the operator, that is
responsible for putting the work together.”

4.1.3.3 Practices Subsequent to January 2010
As of January 2010, management scheduling practices have changed to implement
its rights for a day booking system. These two notable differences characterize
management’s exercise of its rights:

1. Management has organized individual pieces of work throughout the day into
integrated days of work, to help optimize the efficiency of the system and
drivers’ time on the road. This practice is consistent with the Arbitrator’s Award
and with the majority of other transit operators across North America.

2. When a bus operator makes their booking selection, a clerk confirms that the
booking meets the rules of the Arbitration and Collective Agreement before it is
granted to the driver (e.g., 12 hour spread). This too is consistent with the
Arbitrator’s Award and with the majority of other transit operators across North
America.

Through these two changes, management has exercised its scheduling rights to
implement a day booking system – a system that is consistent with the Arbitration
Award.

We have concluded that management is exercising its scheduling rights under the
Arbitration Award to the greatest degree possible, under the current labour
relations circumstances. The delay in exercising full management rights to
materially restructure the scheduling process has been due to two grievances filed
by the union. The Union’s first grievance delayed management’s initial
implementation of its rights until January 2010. With clarity provided on the
Arbitration Award by Arbitrator Keller, management has implemented a day
booking system during 2010, which is materially consistent with the Award. A
delay attributed by management to a second grievance has hampered any further
efforts for operational efficiency changes.

System risk arising from the arbitration process has been two-fold. The arbitrated
settlement imposed operational requirements that nullified potential cost savings.
These potential/expected cost savings had informed management’s approach to the
collective bargaining negotiations and the strike.

Additionally, the arbitration grievance process has circumvented management
efforts to execute a comprehensive implementation of the new arbitrated
scheduling model. The result has been an unsettled and uneven implementation of
a sub-optimal arbitrated solution to “control the scheduled day”.
Delay in implementing arbitration granted “control of the day” rights has created a compression problem concerning implementation. A new round of collective bargaining has now commenced at a time when the final arbitrated solution from the previous round has just been resolved through the union initiated grievance process.

The overall impact of compression is clear – meaningful bus operator scheduling process changes to secure cost savings has been designed and undertaken by management, but not fully realized financially due to unavoidable system design constraints imposed by the arbitration award substance and appeals process.

The probability of meaningful scheduling/booking process changes – and subsequent cost saving identification – being successfully executed during the upcoming 2011 collective bargaining process is unclear at best and highly unlikely at worst.

4.1.4 Control Over Total Guarantee Hours

Interviews with OC Transpo management have confirmed that current work design and scheduling/booking practices are in compliance with both the federal regulations and the arbitration award. Management now controls the design of an integrated day of work, in order to reduce the number of guaranteed pay hours (i.e., the portion of 7.5 hours of time that a driver is paid for but does not work).

The Hastus software is inherently designed to create efficiencies by maximizing operator productivity for the Guarantee. For instance, the Pre-Strike Guarantee as illustrated in Figure 6 below, shows a guarantee totalling 401 hours and 26 minutes, while the rules resulting from arbitration have given a guarantee totalling 306 hours and 31 minutes. This confirms that management is exercising control in this aspect of efficiency and cost management, and that there are currently less instances of drivers being paid for time that they are not working.
Figure 6: Weekday Costing Scenarios

<table>
<thead>
<tr>
<th>OC TRANSPOR</th>
<th>Transit Scheduling Scenarios</th>
<th>Costing for Weekdays</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-STRIKE</td>
<td>MANAGEMENT</td>
<td>ARBITRATION</td>
</tr>
<tr>
<td>Simulation of Actual Bookin”Operator-bus” days</td>
<td>Optimized Booking</td>
<td>Potential Savings Management - Pre-Strike</td>
</tr>
<tr>
<td>(asigned duty types from WMS Import)</td>
<td>(CrewOpt using existing OP pick rates)</td>
<td>(CrewOpt applying 1.5 &amp; 2.5 of 6-Hr Gaurdi 12.5 spread)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HOURS</th>
<th>PRE-STRIKE</th>
<th>MANAGEMENT</th>
<th>ARBITRATION</th>
<th>AGREEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guarantee</td>
<td>40th29</td>
<td>10th67</td>
<td>39th61</td>
<td>44th52</td>
</tr>
<tr>
<td>Paid Hours</td>
<td>9.33h27</td>
<td>9.26h77</td>
<td>9.52h41</td>
<td>9.62h30</td>
</tr>
<tr>
<td>Operator cost per paid hour = $24.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Wage cost per weekday | $231,068 | $224,155 | $230,783 | $233,274 |

Paid hours include pay guarantees and may also include paid breaks and certain overtime, as the case may be.

| Annualized wage cost | 58.9 M$ | 57.2 M$ | ($1.8) M$ | 58.8 M$ | 1.7 M$ | 59.5 M$ | 0.6 M$ |
4.2 Audit Objective Theme: Current Situation Re: OC Transpo Scheduling

In order to properly address this “existing situation” theme of audit objectives, it is necessary to accomplish the following:

1. Confirm what cost management expectation/savings target was established for OC Transpo;

2. Determine and document how this cost management/savings target expectation was calculated, and the conditions necessary (i.e., risk assessment) to achieve this cost management expectation/savings target.

The assessment of OC Transpo against these themed “existing situation” audit objectives are based on the following actions:

1. Reviewing financial modelling assumptions and simulations undertaken by Courval Scheduling;

2. Due diligence review of Scheduling scenarios undertaken with the Hastus Software, using work condition parameters that take into account pre-negotiation conditions;

3. Reviewing assumptions and simulations undertaken by Courval Scheduling with the Hastus Software, using work condition parameters that take into account the new regime of federal regulations - primarily limiting work day to 14 hours with rest period between work days;

4. Reviewing assumptions and simulations undertaken by Courval Scheduling with the Hastus Software, using work condition parameters handed out by the Arbitrator - noting that certain union concessions were made by the Arbitrator;

5. Reviewing assumptions and simulations undertaken by Courval Scheduling with the Hastus Software, using work condition parameters agreed-upon between management and the Union Executive in August 2010 - which was later turned down by the Union members;

6. Confirming the Courval Scheduling calculations of work hours and pay rate to reconfirm the cost management expectations, for each above scenario.

Beyond the financial modeling “due diligence” review noted above, we investigated the following matters:

1. Evaluate key transit system performance metric ratio of “driver hours” vs. “vehicle service hours” once bus operators went back to work after the strike. Determine the underlying reasons for change in the ratio based on interviews with management and examination of the “pieces of work” (the combination of the bus routes and their timetabling) over the periods of July-August 2008, July-August 2009, and July-August 2010.
2. Compare the booking (assignment of drivers to routes) in the last three scheduling cycles/periods to identify patterns and/or discrepancies using metrics such as pay hours, vehicle service hours, guaranteed time, maximum work days, and overtime over the booking periods of fall\(^2\) 2008, fall 2009, and fall 2010.

Document the current bus operator scheduling processes at OC Transpo, and provide a comparison of these processes to municipal transit industry best practices through:


2. Audit team additional consideration of discussion of industry best practices, as required beyond the above noted Peer Review.

### 4.2.1 Review of Scheduling Financial Modeling Assumptions and Simulations

Courval Scheduling is a Montreal-based firm specializing in the application of the Hastus work-scheduling software package for municipal transit clients. Courval was provided with the modeling parameters summarized in Figure 7 by OC Transpo, upon which various work-scheduling scenarios were to be modelled and tested.

#### Figure 7: Modelling Parameters for Hastus Software

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Weekdays</td>
<td>255</td>
</tr>
<tr>
<td>Annual Saturdays</td>
<td>52</td>
</tr>
<tr>
<td>Annual Sundays</td>
<td>52</td>
</tr>
<tr>
<td>FTE factor for Working &lt; 7hrs</td>
<td>0.00%</td>
</tr>
<tr>
<td>FTE factor for Working [8h53-9h30]</td>
<td>6.62%</td>
</tr>
<tr>
<td>FTE factor for Working &gt;= 9h30</td>
<td>18.75%</td>
</tr>
<tr>
<td>Coverage ratio for absenteeism</td>
<td>18.75%</td>
</tr>
<tr>
<td>Operator cost per paid hour</td>
<td>$24.23</td>
</tr>
<tr>
<td>Operator unit cost (fringe benefits)</td>
<td>$30,000</td>
</tr>
</tbody>
</table>

The modelling and tests would produce outputs such as platform hours\(^3\) by route and time of day. The Hastus software would also optimize operational work assignments and calculate the paid operator hours necessary to meet the scheduled services/assignments.

---

\(^2\) The fall schedule for OC Transpo is from September to December.

\(^3\) Platform hours are in-service vehicle hours or, as defined in the Canadian Urban Transit Association (CUTA) statistics, revenue vehicle hours.
Courval Scheduling, on behalf of OC Transpo, undertook the design and development of these work assignment scenarios. Management was certain that OC Transpo’s operating cost-effectiveness and performance had deteriorated as a result of the historic driver work assignment practice of scheduling left to the discretion of the drivers themselves. This erosion in system scheduling performance is illustrated and we confirmed this in the following Figure 8 table and Figure 9 graph.

**Figure 8: Actual and Estimated Future Ratio of Paid Operator Hours versus Total Vehicle Hours**

<table>
<thead>
<tr>
<th>Year</th>
<th>Operator Paid Hours*</th>
<th>Total Vehicle Hours</th>
<th>Ratio of Paid Hours To Total Veh Hrs</th>
<th>Revenue Vehicle Hours</th>
<th>Ratio of Paid Hrs To Revenue Veh Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2,991,971</td>
<td>2,135,477</td>
<td>1.40</td>
<td>1,580,298</td>
<td>1.89</td>
</tr>
<tr>
<td>2001</td>
<td>3,044,675</td>
<td>2,228,024</td>
<td>1.37</td>
<td>1,659,488</td>
<td>1.83</td>
</tr>
<tr>
<td>2002</td>
<td>3,123,656</td>
<td>2,249,958</td>
<td>1.39</td>
<td>1,679,559</td>
<td>1.86</td>
</tr>
<tr>
<td>2003</td>
<td>3,194,580</td>
<td>2,310,391</td>
<td>1.38</td>
<td>1,716,137</td>
<td>1.86</td>
</tr>
<tr>
<td>2004</td>
<td>3,279,417</td>
<td>2,328,686</td>
<td>1.41</td>
<td>1,727,089</td>
<td>1.90</td>
</tr>
<tr>
<td>2005</td>
<td>3,286,169</td>
<td>2,305,025</td>
<td>1.43</td>
<td>1,704,994</td>
<td>1.93</td>
</tr>
<tr>
<td>2006</td>
<td>3,372,557</td>
<td>2,370,924</td>
<td>1.42</td>
<td>1,736,262</td>
<td>1.94</td>
</tr>
<tr>
<td>2007</td>
<td>3,451,735</td>
<td>2,458,986</td>
<td>1.40</td>
<td>1,800,582</td>
<td>1.92</td>
</tr>
<tr>
<td>2008</td>
<td>3,482,143</td>
<td>2,395,908</td>
<td>1.45</td>
<td>1,744,416</td>
<td>2.00</td>
</tr>
<tr>
<td>2009</td>
<td>3,261,215</td>
<td>2,310,393</td>
<td>1.41</td>
<td>1,647,229</td>
<td>1.98</td>
</tr>
<tr>
<td>2010 est.**</td>
<td>±3,225,000</td>
<td></td>
<td>±1,619,000 to ±1,633,000</td>
<td>1.99</td>
<td></td>
</tr>
<tr>
<td>2011 est.</td>
<td>±3,189,000 to ±3,249,000</td>
<td></td>
<td>±1,590,000 to ±1,619,000</td>
<td>2.01</td>
<td></td>
</tr>
<tr>
<td>2012 est.</td>
<td>±3,154,000 to ±3,243,000</td>
<td></td>
<td>±1,563,000 to ±1,605,000</td>
<td>2.02</td>
<td></td>
</tr>
<tr>
<td>2013 est.</td>
<td>±3,118,000 to ±3,236,000</td>
<td></td>
<td>±1,536,000 to ±1,591,000</td>
<td>2.03</td>
<td></td>
</tr>
</tbody>
</table>

Note: Includes vacation, sick, leave, union time, etc.

** 2010 values are estimated since data will not be available from CUTA until late 2011; the estimates vary if 2005 or 2006 is used as the baseline year for forecasting the trend.
The negative system performance conditions/trends documented in Figures 8 and 9 were created by the relative lack of controls in the Collective Agreement regarding driver sign-ups, and the absence of regulations limiting work hours and the necessity of a rest period.

In Ontario most transit systems are regulated by Provincial legislation that includes not only transit operators, but also truck drivers. There are three transit system exceptions – OC Transpo, Société de transport de l’Outaouais (STO), and Windsor Transit – due to the fact that their operations cross provincial boundaries. Accordingly, these transit system exception bus operators are governed by federal legislation. In the past, the federal legislation did not cover work hours, but with the enactment of SOR/2005-313 “Commercial Vehicle Drivers Hours of Service Regulations,” the following limits came into force in 2005:

- No driving duty in excess of 13 hours of driving within a 14-hour daily limit; and,
- A minimum of 8 hours of rest between 14-hour daily limits.

This legislation provided discipline in the assembly of self-scheduled work by the drivers. The federal “Hours of Service” legal limits needed to be taken into account by the union employees, but OC Transpo management did not have direct rights (until the 2009 arbitration matters were settled). As a result, management had to historically exercise its best efforts to monitor driver work selection to ensure compliance with the federal regulations. This best efforts approach by management proved ineffective over time.
On October 9, 2009, the post-strike arbitration process was concluded with the initial award. The critical issues before the Arbitration Panel were:

- Management’s ability to design and implement efficient days of work that would meet its service demands and ensure compliance with regulations; and,
- Limitations on the scheduled workday for driver sign-up selection.

In support of this need for relevant insights regarding “cost of scheduling” modelling, Courval Scheduling was requested to undertake a Peer Review of scheduling practices of municipal transit peers in North America. This peer review is summarized below in Figure 10.
## Figure 10: Summary of Findings from Courval Scheduling’s Municipal Peer Review, 2008

<table>
<thead>
<tr>
<th>Scheduling software used</th>
<th>OC Transpo Ottawa (ON)</th>
<th>MTS- Bus San Diego (CA)</th>
<th>STM Montréal (PQ)</th>
<th>Winnipeg Transit System Winnipeg (MB)</th>
<th>Edmonton Transit System Edmonton (AB)</th>
<th>Calgary Transit Calgary (AB)</th>
<th>CTA – Bus Chicago (IL)</th>
<th>GO Transit Bus Toronto (ON)</th>
<th>CMBC – Bus Vancouver (BC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do operators combine their own pieces of work to form daily duties?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>Do operators pick duties built by the scheduling department?</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Part Time pieces/duties scheduled?</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>N/A</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<td>Trippers left available?</td>
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<td>Yes</td>
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<td>Yes</td>
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<tr>
<td>Maximum contractual platform per workday</td>
<td>None</td>
<td>12h30</td>
<td>None</td>
<td>None</td>
<td>8h05 weekday</td>
<td>N/A</td>
<td>None</td>
<td>None</td>
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<td>OC Transpo Ottawa (ON)</td>
<td>MTS- Bus San Diego (CA)</td>
<td>STM Montréal (PQ)</td>
<td>Winnipeg Transit System Winnipeg (MB)</td>
<td>Edmonton Transit System Edmonton (AB)</td>
<td>Calgary Transit Calgary (AB)</td>
<td>CTA – Bus Chicago (IL)</td>
<td>GO Transit Bus Toronto (ON)</td>
<td>CMBC – Bus Vancouver (BC)</td>
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<td>Minimum contractual rest time between workdays</td>
<td>10 hours</td>
<td>9 hours</td>
<td>10 hours</td>
<td>8 hours</td>
<td>8 hours</td>
<td>8 hours</td>
<td>10 hrs Wkday</td>
<td>None</td>
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<tr>
<td>Describe Guarantee premium</td>
<td>6hrs for short runs. Runs working 7h get paid 7h30 if spread is below 12h, and 8hr if spread is 12hrs or more. Runs working 7h30 get paid 8h00.</td>
<td>8</td>
<td>8.15</td>
<td>7.3</td>
<td>7.5</td>
<td>3/7.30</td>
<td>40/week</td>
<td>8d/40w</td>
<td>7.5</td>
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We corroborated Courval Scheduling’s municipal transit peer review findings via confidential phone interviews with additional transit systems to ensure its overall validity. Courval’s peer review documented that OC Transpo was the only transit system in the sample allowing operators to combine pieces of work to create their scheduled day. Based on this research, there are no examples of a North American transit system which has delegated the ability to “control the day” to its unionized employees. The 2009 Arbitration Panel in its decision to ultimately award control of the scheduling day to OC Transpo management, agreed to this compelling municipal transit peer review observation.

In our opinion, the 2009 Arbitration Panel may have went beyond the federal legislation by awarding: (i) a maximum of three runs within a 12-hour spread; (ii) an increase of the guarantee pay time from 6.0 to 7.5 hours; and, (iii) that all rules should apply to all bus operators equally. Neither OC Transpo management nor the union was supportive of this award. OC Transpo management accepted the Award, but as already noted the Union has grieved its implementation.

We conducted a summary of spreads and guarantees, and the comparison of OC Transpo to its peers is illustrated below in Figure 11. On the surface, it may appear that a 12-hour spread is appropriate, but when the demands of the transit system are considered – the transit rush hours start earlier and end later in Toronto and Ottawa than they do in Calgary, Edmonton, Winnipeg or Mississauga – this confirms our opinion that the 12-hour spread limitation imposed by the Keller arbitration award needs to be rectified.

**Figure 11: Comparison of Collective Agreement Spreads and Guarantees**

<table>
<thead>
<tr>
<th></th>
<th>Ottawa (ON)</th>
<th>Toronto (ON)</th>
<th>GO Transit (ON)</th>
<th>Calgary (AB)</th>
<th>Edmonton (AB)</th>
<th>Winnipeg (MB)</th>
<th>Mississauga (ON)</th>
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</thead>
<tbody>
<tr>
<td>Maximum spread(1)</td>
<td>12 hours</td>
<td>12.5 hours</td>
<td>13 hours</td>
<td>12 hours</td>
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<td>12 hours</td>
<td>12:01 hours</td>
</tr>
<tr>
<td>Minimum guarantee(2)</td>
<td>7.5 hours</td>
<td>n/a</td>
<td>8 or 10 hours</td>
<td>7.5 hours</td>
<td>7.5 hours</td>
<td>37.5 hours / week</td>
<td>8.0 hours</td>
</tr>
</tbody>
</table>

Sources: (1) Canadian Urban Transit Association, Summary of Collective Agreements, June 2009
(2) Individual Collective Agreements downloaded from [www.atucanada.com](http://www.atucanada.com)

Courval Scheduling was instructed by OC Transpo to subject the 2009 Arbitrator’s Award to extensive financial modeling. The financial modelling strongly suggests that the work rules imposed by the Award materially impact OC Transpo’s cost of service, operational efficiency and effectiveness. The net result trends negatively, such that previously forecast cost savings of $3.1 to $4.5 million would not be
realized. In support of this observation, our comparison of three fall\textsuperscript{4} 2008, 2009, and 2010 bus operator sign-ups show no material improvement of efficiency and productivity. Nor does the modeled data imply any go-forward probability of future process improvement to secure the previously modelled savings.

While the Award was being grieved, both management and the Union Executive decided to attempt negotiated revisions to the Collective Agreement on the matter of designing work days that meet federal regulations, while offering improved scheduled work pieces for the operators. Management and the Union Executive did undertake the negotiations in good faith, and arrived at a tentative revision to the Collective Agreement dated August 20, 2010. This revision agreement entailed the following pertinent aspects:

- Raise the arbitrator’s imposed daily guarantee from 7.5 to 8.0 hours; and,
- Raise the arbitrator’s imposed 12-hour spread to 12.5 hours.

Courval Scheduling was asked to project/model these newly negotiated rules by use of the Hastus scheduling software. We reviewed these Courval projections, and concluded that the August 2010 agreement would have resulted in more efficient work days for the drivers and cost savings for the City - but at the expense of increased guaranteed pay costs. This tentative agreement was rejected by the union membership comprising bus operators and mechanics. The proposal by management’s position and strategic negotiation stance also implied that the original $3.1 to 4.5 million cost savings forecast developed during the strike, was no longer a primary objective of post-arbitration negotiations.

We received and reviewed all of the pertinent scheduling and financial impact projections prepared by Courval Scheduling, and find them to be in keeping with established industry practice. The calculations of service schedules by time of day, route, and vehicle assignments are in keeping with Hastus software protocols. The workdays modeling calculations appear to be appropriate, given the requirements for a 7.5-hour guarantee and maximum 12-hour spread. The assembly of workdays is in keeping with established work practices within the industry.

Despite the arbitration award to management for control of the booking process, the arbitrator’s award of a maximum spread of 12 hours has created a significant impediment to management’s ability to achieve previously forecast cost savings.

The weekday service demands are illustrated below in the Figure\textsubscript{12}. Figure 12 documents the fact that approximately 600 daily work pieces are impacted by the substitution of 12-hour spreads for 12.5-hour spreads.

\textsuperscript{4} The fall schedule for OC Transpo is from September to December.
Figure 12: Daily Impact of Adopting Arbitrated 12-Hour Spreads versus 12.5-Hour Spreads
The most significant work piece ridership and scheduling load on the OC Transpo system occurs roughly between 6:00 a.m. and 6:30 p.m. - representing a 12.5-hour spread. The Arbitrator’s Award for a 12-hour spread – in very simplistic terms – means that the shift of on-duty operators that started work for the morning rush hour cannot remain on the job to service the approximately 600 runs between 6:00 p.m. and 6:30 p.m. during the late afternoon rush hour. In order for OC Transpo to manage the flow of daily service demand and minimize the amount of paid guarantee, the Hastus software algorithms divide up the scheduled post-arbitration workday much differently than the pre-strike workday. The arbitrator imposed shorter spread has resulted in significant system scheduling inefficiency.

To those outside the industry, it may seem unusual/non-intuitive that sophisticated computer software such as Hastus would not be able to rationalize the schedule to create a more efficient system than the one currently in place. However, based on our research and discussions with other transit systems, the observed scheduling inefficiencies are in fact expected. We do not believe there is an error in the software’s algorithms causing scheduling inefficiencies, since this type of software issue would have not gone unnoticed by the numerous transit system operators that use Hastus.

This scheduling inefficiency has been confirmed by our review of Courval’s Hastus modelling outputs, as well as our own experience with scheduling bus operators for transit systems. Arbitrator imposed system inefficiency has also been confirmed by our independent analysis showing no change in the ratio of Paid Operator Hours to Total Vehicle Hours extracted from the Fall 2008, 2009, and 2010 bus operator sign-up cycles.

The tentative negotiated changes to the collective agreement from August 20, 2010, which was turned down by the union membership would have improved OC Transpo’s ability to achieve operational efficiency. However it would have failed to generate cost savings, since it increases the amount and cost of the daily guarantee. We acknowledge that OC Transpo management must manage the system with the constraints of the Arbitrator’s Award, as opposed to the savings expectations that preceded the Award.

The impact/risk to OC Transpo is that any future required cost savings under the current 12-hour spread maximum and 7.5-hour guarantee must be found elsewhere than bus operator scheduling.

**Recommendation 2**

That management utilize the Hastus scheduling software package for evaluating all proposals put forward during collective bargaining, including a background cost impact template and a “control of day” work design impact template.
Management Response
Management agrees with this recommendation.

OC Transpo has been utilizing Hastus scheduling software for the purpose of evaluating scheduling-related proposals dating back to the 2008 collective bargaining process. This process includes a comparative cost template for different bargaining scenarios. Using Hastus software, bus runs are assembled into shifts to optimize paid work to the needs of the system while minimizing unpaid work.

Management will continue to leverage Hastus to improve our efficiency, taking full advantage of booking rule changes as a result of the on-going arbitration process, thereby maximizing management control of the day. This will be implemented during the next collective bargaining process.

Recommendation 3
That management apply due diligence to the construction of scheduled workdays that optimize driver hour efficiencies and minimize costs. Annual performance reports to the new Transit Commission should be required to demonstrate the impact of existing scheduling processes and rules on key transit system performance metrics – such as the ratio of Paid Operator Hours to Total Service Hours.

Management Response
Management agrees with this recommendation.

Management will examine which metrics can be extracted that would capture the effect of implemented changes in scheduling processes and rules on system performance. Selected performance measures will be incorporated into annual performance reports starting in 2011. Implementation will be complete by June 2012.

Recommendation 4
That management proactively monitor bus operators’ selection of scheduled work, and implement ongoing “quality control reviews” by non-union staff to ensure compliance and overall scheduling efficiency.

Management Response
Management agrees with this recommendation.

Management currently monitors operator selection of work, and has been doing so since July 2009. Following the booking process, non-unionized staff review work selection and make adjustments as required in order to maximize system efficiency.
Management will continue to analyze, study and adjust booking to booking to maximize efficiency and ensure management control of the day. The next implementation of this will take place for the fall 2011 booking, as we incorporate the changes resulting from the route optimization process.

4.2.2 Booking Board Comparative Analysis
The OC Transpo booking board is the central tool in the quarterly bookings process and it provides insight to the state of operational efficiency at OC Transpo. Booking boards also document the actual results of management’s implementation of rights, and attempts to create go-forward process efficiencies.

The booking of drivers to routes remains a highly labour intensive process which requires that all drivers go to the OC Transpo Booking Office four times a year to select the shifts and manually strike off their selections from a paper board, as shown on Figure 13 and Figure 14. Considering the scale and complexity of OC Transpo’s system, there is a need to modernize this system.

Figure 13: Paper Booking Boards with Sunday Bus Runs

Figure 14: Size of the Room Required for the Manual Booking System
We conducted a series of reviews based on the booking board data received from OC Transpo. Based on these reviews, we found no discernable process discrepancies, and no evidence of material process efficiencies.

Presented in Figure 15 is an analysis of the Fall\(^8\) bookings board – an analysis which provides a quarterly snapshot of scheduling execution. A sampling approach has been used to illustrate overall performance trends.

As illustrated in Figure 15, the board of Fall 2009 before management’s control of the day provides 108, 121 and 139 minutes of guaranteed pay for drivers, whereas the post-arbitration board of Fall 2010 provides 36, 43, and 47 minutes of guaranteed pay time for regular day and relief runs of Routes 16, 85, and 86 respectively which has been built by Hastus. Using Routes 16, 85, and 86 as examples, it is clear that management has achieved a reduction in the guarantee by 242 minutes on these routes alone through its control of the day; reductions such as these are demonstrated throughout the entire booking board.

Since the booking board dataset is extremely large, Figure 16 contains a sub-set of the mixed work involving Routes 16, 85 and 86 as an example, and the on-duty minutes beyond the on-road minutes from the Fall 2010 booking board. This example illustrates 268, 675, and 420 minutes (1,363 minutes total) of On-Duty vs. On-Road time for operators of Routes 16, 85 and 86, respectively. This is indicative of the general observation that ‘broken up’ shifts are not desirable for OC Transpo management or taxpayers.

The excess on-duty time determined in the sample can be used to generate an average on-duty time per run, which can then be used to forecast the cost inefficiency for an entire year. Allowing for factors such as quarterly system load variations, that no transit system can be perfectly efficient in this regard, and the operator cost per paid hour of $24.23, we estimate an annual inefficiency of approximately $150,000 to $175,000 in excess on-duty time caused by the arbitration-imposed limitations.

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\(^8\) The original analysis was intended for the summer season; however in the course of initial fieldwork, it was determined that fall was more representative of OC Transpo’s typical business cycle. The only other 2010 quarterly period that would provide an opportunity to compare post-arbitration implementation is summer but vacations, both within the community and with OC Transpo staff, are high and service levels are low, making the fall comparisons more appropriate.
Figure 15: Daily Booking Board for Regular Day and Relief Runs of Route 16 (Britannia – Alta Vista), Route 85 (Hurdman – Bayshore), and Route 86 (Elmvale – Lincoln Fields)

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### ADDITIONAL MINUTES OF ON-DUTY TIME

**BEYOND ON-ROAD TIME, FALL 2010**

**SAMPLE SUB-SET OF ROUTE 16 MIXED WORK**

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<th>Route Pair</th>
<th>Route 16 Run</th>
<th>On-Duty vs.</th>
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<th>Route 85 Run</th>
<th>On-Duty vs.</th>
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<td>85&amp;2</td>
<td>5</td>
<td>43</td>
<td>900&amp;86</td>
<td>2</td>
<td>27</td>
</tr>
<tr>
<td>16&amp;901</td>
<td>4</td>
<td>12</td>
<td>94&amp;85</td>
<td>5</td>
<td>16</td>
<td>86&amp;901</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>16&amp;901</td>
<td>51</td>
<td>8</td>
<td>85&amp;87</td>
<td>6</td>
<td>12</td>
<td>900&amp;86</td>
<td>7/8</td>
<td>34</td>
</tr>
<tr>
<td>900&amp;16</td>
<td>2</td>
<td>6</td>
<td>16&amp;85</td>
<td>10</td>
<td>12</td>
<td>900&amp;86&amp;86</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>900&amp;16</td>
<td>10</td>
<td>14</td>
<td>14&amp;85</td>
<td>20</td>
<td>5</td>
<td>86&amp;901</td>
<td>51</td>
<td>0</td>
</tr>
<tr>
<td>16&amp;901</td>
<td>16</td>
<td>8</td>
<td>85&amp;91</td>
<td>8</td>
<td>36</td>
<td>900&amp;86</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>16&amp;901</td>
<td>6</td>
<td>6</td>
<td>85&amp;901</td>
<td>9</td>
<td>2</td>
<td>900&amp;125&amp;86</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>16&amp;901</td>
<td>7</td>
<td>7</td>
<td>166&amp;85</td>
<td>23</td>
<td>17</td>
<td>900&amp;86</td>
<td>52</td>
<td>7</td>
</tr>
<tr>
<td>16&amp;901</td>
<td>8</td>
<td>25</td>
<td>900&amp;85</td>
<td>4</td>
<td>4</td>
<td>900&amp;86</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Subset Total</td>
<td></td>
<td>268 mins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ADDITIONAL MINUTES OF ON-DUTY TIME

**BEYOND ON-ROAD TIME, FALL 2010**

**SAMPLE SUB-SET OF ROUTE 85 MIXED WORK**

<table>
<thead>
<tr>
<th>Route Pair</th>
<th>Route 16 Run</th>
<th>On-Duty vs.</th>
<th>Route Pair</th>
<th>Route 85 Run</th>
<th>On-Duty vs.</th>
<th>Route Pair</th>
<th>Route 86 Run</th>
<th>On-Duty vs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>97&amp;85&amp;901</td>
<td>3</td>
<td>17</td>
<td>85&amp;901</td>
<td>50</td>
<td>13</td>
<td>900&amp;85&amp;8901</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>85&amp;901</td>
<td>50</td>
<td>13</td>
<td>900&amp;85</td>
<td>10</td>
<td>3</td>
<td>900&amp;86&amp;86</td>
<td>5/6</td>
<td>13</td>
</tr>
<tr>
<td>85&amp;901</td>
<td>1</td>
<td>10</td>
<td>97&amp;86</td>
<td>53</td>
<td>46</td>
<td>86&amp;901</td>
<td>4</td>
<td>34</td>
</tr>
<tr>
<td>95&amp;85</td>
<td>52</td>
<td>3</td>
<td>86&amp;156</td>
<td>5</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subset Total</td>
<td></td>
<td>675 mins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ADDITIONAL MINUTES OF ON-DUTY TIME

**BEYOND ON-ROAD TIME, FALL 2010**

**SAMPLE SUB-SET OF ROUTE 86 MIXED WORK**

<table>
<thead>
<tr>
<th>Route Pair</th>
<th>Route 16 Run</th>
<th>On-Duty vs.</th>
<th>Route Pair</th>
<th>Route 86 Run</th>
<th>On-Duty vs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>900&amp;86&amp;86</td>
<td>7</td>
<td>34</td>
<td>900&amp;86&amp;901</td>
<td>8</td>
<td>30</td>
</tr>
<tr>
<td>86&amp;901</td>
<td>4</td>
<td>34</td>
<td>86&amp;901</td>
<td>4</td>
<td>34</td>
</tr>
<tr>
<td>Subset Total</td>
<td></td>
<td>420 mins</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The performance of the transit system in this sample is being maximized to the extent possible by the Hastus software tool’s support in management’s “control of the day”. Regrettably, the system’s efficiency has been limited by the arbitration-imposed 12-hour spread and the 7.5-hour guarantee.

In summary, an examination of the data suggests that productivity has not improved as a result of the Arbitrator’s Award, although management has control of the day.

This on-going systemic inefficiency is counter-productive to OC Transpo’s original collective bargaining objective of achieving material cost management targets. The scheduling and booking process is arguably one of the most important operational processes that impact system efficiency and cost effectiveness.

The City and OC Transpo management continues to face on-going public criticism about the efficiency and cost-effectiveness of the OC Transpo system, and needs to remove the limitations of sub-optimal processes on the system. We believe it is critical that management persevere in scheduling re-design efforts in order to clearly demonstrate that the rights that Council and management fought for and secured can be translated into taxpayer benefits.

4.2.3 Peer Review (2008)

An OC Transpo initiated municipal transit system Peer Review was executed using 2008 data. The Peer Review considers the outputs generated by Hastus software, which is one of the leading transit packages on the market place, and used throughout the world. The Peer Review also considers the distinct scheduling practices of the various peers.

The service planning process utilized by OC Transpo management begins by regularly examining its route structure and the service levels (frequency and headways) to meet ridership demands by time of day, weekdays, Saturdays, Sundays and holidays. This route structure and demand information is provided to Courval Scheduling to optimize the fleet deployment, and then to create work assignments to achieve the most cost effective employee utilization. OC Transpo management also provides the work rules as an input to the software, which limits the freedom of the software’s decision-making intelligence from its otherwise unrestricted optimization of the system.

We slightly modified the Peer Review findings by Courval Scheduling, summarized in Figure 10, to exclude smaller systems appearing in Courval’s original report since we believe these smaller systems are not peers relative to the size and scale of OC Transpo.
4.2.3.1 Additional Best Practices Considered by Audit Team

We identified the following three best practice criteria that were not addressed by the Courval Peer Review:

1. Assessment of software components used by the transit service;
2. Confirmation of the actor within the system that sets up the scheduling software; and,
3. Turnaround time period for operators to choose their schedule.

Additional details and discussion of each criterion are provided further on.

4.2.3.2 Software Components Used by the Transit Service.

The Courval Peer Review did not fully assess the utilization of sub-components of the Hastus scheduling software used by OC Transpo and its peers. The two industry-standard packages, Hastus and Trapeze, have modules for scheduling and run-cutting that contribute to system optimization. It is expected that large, complex and sophisticated transit systems such as OC Transpo and its peers deploy all the software modules possible to achieve system efficiency.

4.2.3.3 Actor within the System that Sets Up the Scheduling Software

The Courval Peer Review did not identify the actor within the system that actually deploys the scheduling software operationally. Our research indicates that most conduct this activity with in-house non-union staff. However, audit team discussions with OC Transpo, and observations about information disclosure and skill levels, support the decision by OC Transpo to contract out this service.

4.2.3.4 Time Period for Operators to Choose their Schedule

The Courval Peer Review did not explore the length of time allowed or required for bus operators to select their work for the next scheduled period of operations. Based on other comparable North American transit systems, on the basis of time to total bus operator work force, the current six weeks required for OC Transpo’s bus operators to complete the booking process may be longer than average.9

There do not appear to be any apparent risks to OC Transpo by contracting-out its scheduling needs, nor any apparent risk to OC Transpo’s decision to use Hastus for its scheduling optimization.

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9 Examples of the sign-up periods at other transit systems include 6 weeks for Calgary, 3 weeks for Winnipeg (including a 1 week driver review period), and 1 week for GO Bus (including a 1 week driver review period).
**Recommendation 5**

That management ensure new non-unionized hires in the scheduling group are recruited with a view of optimum analytical, computer modeling and mathematical skills, given recent and imminent staff retirements within the scheduling group at OC Transpo.

**Management Response**

Management agrees with this recommendation, and it has been implemented.

In April 2011, Transit Services hired one non-unionized staff member in the scheduling group that possesses the necessary skills and qualifications, including analytical, computer modeling and mathematical skills. Management will continue to recruit qualified staff to perform these functions.

**4.2.3.5 Other Considerations**

**Control of the Sign-Up Period**

The current practice of “seniority-first” for signing-up shifts is common within the municipal transit industry. However, as noted elsewhere in this audit, the six-week period for driver sign-up is higher than average. This was not a subject matter in the Arbitrator’s Award, but is a matter to explore as a go-forward continuous improvement opportunity. We are aware of exceptions and limitations, but for a larger workforce in other North American transit systems, the sign-up period can be significantly less than six weeks.

**Control of Choice**

OC Transpo drivers have a degree of freedom that is not the same as other transit systems. For example, Vancouver has adopted the practice of a two-year assignment for a driver to a specific district/garage. The driver is then presented only those work blocks that run out of that district/garage.

**Recommendation 6**

That management investigate the degree to which its current six-week scheduling period is longer than the period for comparator transit systems. Management should explore and execute business process re-engineering opportunities, within the limits of the Collective Agreement, to shorten the scheduling period from the six current weeks to a benchmarked industry standard period of time.
Management Response
Management agrees with this recommendation.

Management is currently exploring electronic booking options in an effort to reduce booking time. The implementation of an electronic booking system is planned as part of the approved Technology Roadmap by Council, but is contingent upon the implementation of other elements of IT infrastructure. Management will strive to work on the process in 2012 and once more information is available, will establish a firm timeline for completion.

Recommendation 7
That management explore the efficiency, cost, and union relations implications of potentially assigning drivers to distinct districts or garages for fixed periods of time. Work assignments should be limited to routes and work within the assigned district.

Management Response
Management agrees with this recommendation.

Research will be undertaken to compare operating costs, service reliability, and the characteristics of work times for operators under the current model and under a model that would group service into different districts of the city.

Management notes that as the current model is geared to minimizing operating cost and the number of staff and buses required, any additional constraints introduced into the optimization process would likely increase resource requirements. In that case, a comparison would be made between any identified benefits in improved service reliability or improved quality of work against any identified increased costs or other drawbacks. If a conclusion is reached that increased costs were justified to achieve other valuable benefits, then a recommendation would be made to the Commission in a future business plan and budget.

This review will be complete by Q4 2012.

4.3 Audit Objective Theme: Go-Forward Strategies
This theme of audit objectives requires us to identify what conditions will likely exist in the foreseeable future (i.e., go-forward) that relate to the original expectation for cost management and the ability for operational cost savings based on:

1. Interviews with management regarding the work rules currently in place as well as new work rules soon to be implemented;
2. Reviewing assumptions and simulations undertaken by Courval Scheduling with the Hastus Software using scheduling optimization (e.g., creating schedules that trigger lower propensity for bus driver overtime and guarantees) and other management-led cost saving approaches; and,

3. Confirming the calculation of work hours and pay rate to reconfirm the cost management expectations for the above.

We will also act on the following audit objectives/requirements:

1. Forecast the potential range of savings to be realized as cost management is implemented based on estimates of bus operator hours and vehicle service hours - given the critical path and metrics informed through Audit Objective #1 and Audit Objective #2;

2. Based on interviews with management, determine the go-forward timeline and critical path for implementation of cost management;

3. Evaluate the probability, appropriateness and risk profile associated with the go-forward timelines and estimated range of savings;

4. Review and confirm the recommendations of the “Independent Peer Review” conducted by the American Public Transit Association during the week of October 4, 2010; and,

5. Provide observations and recommendations from our perspective on high value-added target issues for a future value-for-money audit of OC Transpo.

4.3.1 Future Impact of Work Rules

OC Transpo management has implemented work rule changes in accordance with the Arbitrator’s Award. The primary work rules currently in place include the 12-hour spread, 7.5-hour guarantee, and management’s “control of the day”.

In terms of potential new work rules, management has recently made an attempt to negotiate an increase of the spread to 12.5 hours, and increase the guarantee to 8.0 hours. In this scenario, management would retain control of the day, but modify scheduled pieces of the workday to improve the work environment of its senior, intermediate and junior bus operators. This attempt to modify go-forward work rules was expressed in the Memorandum dated August 20, 2010 with the Union Executive, but was not accepted by the union membership comprising operators and mechanics.

New work rules are not being considered currently because management has limited ability to implement any changes at this time. The current Collective Agreement expires March 31, 2011 and OC Transpo management has already begun the process of negotiations; it began on December 1, 2010.
This audit should not prejudice management’s ability to bargain both strategically and in good faith. However, a strategic decision does need to be made soon as to whether the scheduling and booking issues should be managed internally or externally to the bargaining of the collective agreement. If the strategy is to manage scheduling within the collective bargaining process, then scheduling matters are exposed to all of the wider negotiated trade-offs across issues within the collective bargaining process. If scheduling is to be dealt with externally, management risks inconsistent application of scheduling provisions due to the actions of the union membership.

4.3.1.1 Review of Hastus Software Simulations

Figure 17 summarizes the work rules and modelled cost savings of the pre-strike, Arbitration Award, and go-forward August 2010 Memorandum of Agreement scenarios. The inputs to the modeling and analysis below – guarantee, paid hours, spare board, and run distributions – are calculated by the Hastus Software.

We have reviewed the modelling assumptions and the anticipated outputs from the Hastus Software, and find them to be acceptable. Specifically, in terms of the current situation and the August 2010 go-forward proposal, we note that:

- The Arbitrator’s Award using the 7.5-hour guarantee / 12-hour spread modelled by Hastus provides the expected result of fewer guaranteed hours, more ‘broken up’ pieces of work, and no improved propensity for cost management, as compared to the pre-strike situation;

- The August 2010 go-forward proposal using the 8.0-hour guarantee / 12.5 hour spread modelled using Hastus provides the expected result of more guaranteed hours, fewer ‘broken-up’ pieces of work, and is cost neutral, as compared to the current post-arbitration working situation. There is no improved propensity for cost management, as compared to the pre-strike situation;

- The August 2010 go-forward proposal would have provided an improvement of drivers’ work conditions, since drivers generally look to optimizing “straitss” and minimizing splits - particularly multiple splits. Morale and operational culture improvement could well have resulted from adoption.
Figure 17: Previous, Existing and Go Forward Scheduling Costing Scenarios

<table>
<thead>
<tr>
<th>OC TRANSPO</th>
<th>Transit Scheduling Scenarios</th>
<th>Costing for Weekdays</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>PRE-STRIKE</th>
<th>MANAGEMENT</th>
<th>ARBITRATION</th>
<th>AGREEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 2008 Simulation of Actual Booking</td>
<td>400</td>
<td>398</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Sept 2008 Optimized Booking</td>
<td>398</td>
<td>398</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Potential Savings Management - Pre-Strike</td>
<td>306</td>
<td>306</td>
<td>306</td>
<td>306</td>
</tr>
<tr>
<td>Sept 2008 Simulated booking with arbitration CrewOpt applying 7.5 Guar/12-Hr spread</td>
<td>306</td>
<td>306</td>
<td>306</td>
<td>306</td>
</tr>
<tr>
<td>Negation of Savings Arbitration - Management</td>
<td>445</td>
<td>445</td>
<td>445</td>
<td>445</td>
</tr>
<tr>
<td>Potential Savings Agreement - Arbitration</td>
<td>445</td>
<td>445</td>
<td>445</td>
<td>445</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HOURS</th>
<th>Guarantee</th>
<th>Paid Hours</th>
<th>Operator cost per paid hour = $24.23</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Wage cost per weekday</td>
<td>231,068</td>
<td>224,155</td>
<td>230,783</td>
</tr>
<tr>
<td>Annualized wage cost</td>
<td>58.9 M$</td>
<td>57.2 M$</td>
<td>58.8 M$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COUTS</th>
<th>Equivalent daily FTE runs</th>
<th>Required Coverage for absenteeism (Spare Board)</th>
<th>Operator wage+benefit cost (annual) = $80,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,231</td>
<td>1,248</td>
<td>237</td>
</tr>
<tr>
<td>Annualized cost - Spare Board</td>
<td>(1.4) M$</td>
<td>1.4 M$</td>
<td>(0.6) M$</td>
</tr>
<tr>
<td>Fringe cost per weekday</td>
<td>169,529</td>
<td>157,412</td>
<td>170,118</td>
</tr>
<tr>
<td>Annualized fringe cost</td>
<td>43.2 M$</td>
<td>40.1 M$</td>
<td>43.4 M$</td>
</tr>
<tr>
<td>Annualized operating cost</td>
<td>102.2 M$</td>
<td>97.3 M$</td>
<td>102.2 M$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RUN DISTRIBUTION</th>
<th>Total True Straight</th>
<th>Total Straight Pay Thru</th>
<th>Total Daily runs</th>
</tr>
</thead>
<tbody>
<tr>
<td>(01) True Straight - Early</td>
<td>279</td>
<td>82</td>
<td>192</td>
</tr>
<tr>
<td>(02) True Straight - Day</td>
<td>108</td>
<td>4</td>
<td>45</td>
</tr>
<tr>
<td>(03) True Straight - Relief</td>
<td>251</td>
<td>250</td>
<td>205</td>
</tr>
<tr>
<td>Total True Straight</td>
<td>638</td>
<td>336</td>
<td>442</td>
</tr>
<tr>
<td>(04) Straight pay thru - Early</td>
<td>0</td>
<td>0</td>
<td>31</td>
</tr>
<tr>
<td>(05) Straight pay thru - Day</td>
<td>0</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>(06) Straight pay thru - Relief</td>
<td>0</td>
<td>0</td>
<td>43</td>
</tr>
<tr>
<td>Total Straight Pay Thru</td>
<td>0</td>
<td>0</td>
<td>110</td>
</tr>
<tr>
<td>(07) True Tripper</td>
<td>561</td>
<td>766</td>
<td>622</td>
</tr>
<tr>
<td>(08) Tripper pay thru</td>
<td>0</td>
<td>0</td>
<td>32</td>
</tr>
<tr>
<td>(09) 3 pieces</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(10) Trippers</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Daily runs</td>
<td>1,199</td>
<td>1,102</td>
<td>1,206</td>
</tr>
</tbody>
</table>
We have been informed that OC Transpo management is continuing to formulate strategies that optimize vehicle deployment out of a limited amount of garages. This provides the benefit of employees working out of consolidated facilities, and being scheduled accordingly. Operational efficiency may well improve via consolidated deployment locations. No metric based data is currently available to support the potential extent of improvement yielded by consolidation of deployment locations.

We also discussed with OC Transpo the current state of affairs with respect to morale, absenteeism and sick leave. We have reviewed statistics that indicate all of these operational culture metrics are trending negatively as shown in Figure 18 below.

**Figure 18: Cost Escalation Associated with Absenteeism**

<table>
<thead>
<tr>
<th>Year</th>
<th>Absenteeism Paid Hours</th>
<th>Absenteeism Cost based on $24.23/hr</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>150,081</td>
<td>$3,636,457</td>
<td>On-strike from Dec 9 – 31</td>
</tr>
<tr>
<td>2009</td>
<td>167,990</td>
<td>$4,070,396</td>
<td>On-strike and phased-in return to service for approximately 6 weeks</td>
</tr>
<tr>
<td>2010</td>
<td>195,927</td>
<td>$4,747,306</td>
<td>Year-end estimate</td>
</tr>
</tbody>
</table>

This negative trending of operational culture metrics can be attributed to the ‘broken-up’ work days resulting from the Arbitrator’s Award and work day improvements offered in the August 2010 Memorandum of Agreement. It is anticipated that future improvements to the “run distribution” and improving the workday may be a viable attempt at improving the operational culture metrics and managing absenteeism costs.

**4.3.1.2 Scheduling Savings Go-forward Forecast**

We reviewed the Hastus modelling inputs provided by OC Transpo management, and the modelling outputs generated by Courval Scheduling. Both inputs and outputs are in keeping with the federal regulations and the Arbitrators Award. We have arrived at the conclusion that the due diligence processing undertaken by Courval Scheduling and OC Transpo management using the Hastus Software to reduce runs and optimize the system contributes to achieving cost management. However, the 12-hour maximum spread and 7.5-hour guarantee imposed via arbitration constrains the software’s ability to optimize the system. With the Arbitrator’s current spread and guarantee in place, OC Transpo management scheduling performance can only be modelled as cost-neutral compared to pre-
strike conditions. Cost neutral scheduling is best scenario on a go-forward basis until 2011 Collective Agreement negotiations are concluded.

The work rules currently in place are a result of the Arbtrator’s Award. The Hastus Software’s modelling of the spread and guarantee inputs produces insufficient cost of service and efficiency of scheduling results - as expected.

OC Transpo management has been constrained into a position of cost neutrality as a result of the Arbtrator’s Award, compared to its pre-strike opportunity to secure forecast cost savings.

On-going workdays comprising highly ‘broken-up’ pieces of work may also lead to on-going annual increases in absenteeism costs and contribute negatively to operational culture.

4.3.2 Cost Management Go-Forward

There are three issues/activities that have the potential for future cost savings to be achieved, namely:

1. Upcoming Round of Collective Bargaining Negotiations;
2. Improvement of Morale and Reduction in Absenteeism; and,
3. Future Implementation of New Booking Software.

An evaluation of these cost management measures is provided below.

4.3.2.1 Appropriateness, Probability and Risk Profile of Current Negotiations

OC Transpo management has three basic alternatives in the approach to negotiations:

1. Attempt to negotiate its last pre-strike position (6.0-hour guarantee, maximum spread\(^\text{10}\));
2. Attempt to negotiate its August 2010 Memorandum of Agreement position (8.0-hour guarantee, 12.5-hour spread); or,
3. Attempt to negotiate an entirely new position of an unknown guarantee and spread, within the limits of the prevailing legislation.

It may be theoretically appropriate for management to attempt to negotiate back to its 2008 pre-strike position, since that position does provide better pieces of work for the drivers than those currently being offered. However, it does not appear probable since the pre-strike position involved a 6.0-hour guarantee whereas bus operators are currently receiving a 7.5-hour guarantee.

\(^{10}\) The spread has now been constrained to 14 hours due to a change in federal regulations.
It may be prudent and appropriate for management to attempt to negotiate back to its August 2010 Memorandum of Agreement position, since this package of scheduling changes was unanimously accepted by the Union Executive and provides better pieces of work for the bus operators than those currently being offered. This scenario may be achievable due to the improved quality of life being offered for a small increase in the guarantee from 7.5 hours to 8.0 hours. It is also prudent, since it is reflective of the Union Nominee’s comments in the Keller Award of October 9, 2009, which states, “…the daily guarantee will need to be moved to the more normative 8 hours.”

It may also be operationally and culturally appropriate for management to attempt to negotiate an entirely new position. The probability of negotiating an entirely new position is difficult for us to determine based on existing evidence and circumstances. Reflecting on the August 2010 Memorandum of Agreement, the most recent approach and Council-accepted direction is for OC Transpo to secure cost-neutrality in an attempt to “make peace” with the Union.

It is difficult to determine/quantify the City’s risk profile regarding previously targeted cost savings not being achieved via the various go-forward scenarios - since they are all dependant on the negotiation process. Risk can be managed, however, through the on-going use of Hastus software’s modelling to secure evidence-based impacts of management positions. In doing so, management will be aware of the cost implications of its evolving positions, and can fully incorporate this knowledge in its decision-making.

4.3.2.2 Appropriateness, Probability and Risk Profile of Improving Morale and Reducing Absenteeism

It is appropriate for management to attempt to improve morale and reduce absenteeism since this is a typical goal for any employer. The appropriateness of this action has also been inherently confirmed by Council in its acceptance of the August 2010 Memorandum of Agreement which was acknowledged as a move to “make peace” with the Union.

The probability of improving unionized employee morale and reducing absenteeism can be assessed by considering past versus current levels of absenteeism as a proxy indicator of morale. A summary of absenteeism levels is provided below in Figure 19.
Figure 19: Absenteeism Cost Trend as Proxy for Declining Staff Morale

<table>
<thead>
<tr>
<th>Year</th>
<th>Absenteeism Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008(^{(1)})</td>
<td>$3,636,457</td>
</tr>
<tr>
<td>2009(^{(1)})</td>
<td>$4,070,396</td>
</tr>
<tr>
<td>2010 Estimated(^{(2)})</td>
<td>$4,747,306</td>
</tr>
<tr>
<td>Difference between 2010 and 2008</td>
<td>$1,110,849</td>
</tr>
</tbody>
</table>

Notes:
(1) Number is slightly lower for the strike through Dec 2008 and the gradual return of service in early 2009
(2) Estimated by extrapolating September 2010 results forward to end of December

Since the proxy for morale in previous years was higher (i.e., absenteeism was lower) than it is currently, management should aim to improve morale and lower the incidence of absenteeism to at least pre-strike averages. Fewer bus operators are required for the spare board when there is lower absenteeism, which translates into cost savings.

The estimated cost savings if driver morale is improved to 2008 levels could be approximately $1.1 million per year.

The adverse risk involved in failing to improve operator morale is difficult to determine/quantify for two reasons. First, the Union did not vote in favour of the August 2010 proposal, which was intended to improve the quality of work, and conversely, driver morale. It should be noted that mechanics also were eligible to vote on this package, and that the package did not include perceived financial benefits for mechanics discussed during strike negotiations. Second, with the on-set of Collective Agreement negotiations, driver morale will be dependent on the outcome of the negotiations process and Union Executive messaging – an uncertain set of circumstances.

4.3.2.3 Appropriateness, Probability and Risk Profile of Implementing New Booking Software

Management has deemed it appropriate to investigate the investment into new booking software. This software would allow drivers the opportunity to request their blocks of work through an Internet-based portal, so drivers could complete the sign-up process without having to be on-site. This technology based booking process re-engineering opportunity should improve the efficiency of the driver sign-up process and shorten the sign-up turn-around period to less than the current six weeks.

This software is not in widespread use throughout the municipal transit industry, and the probability of management making the investment in this software is being determined through its current discussions with software providers to the transit
industry, such as Hastus and Trapeze. Potential timing of this technology driven re-engineering opportunity is unclear.

Management indicates that a new Internet based booking software solution may also lead to some operational cost savings. The cost savings emanate from creating efficiencies in two elements of the sign-up process:

1. Reducing the number of clerks involved in the driver sign-up process;
2. Reducing the relief runs when on-duty drivers have to be called in to complete their booking based on their seniority.

Based on quarterly cost estimates provided by management, we estimate that the annual cost savings could be approximately $350,000 per year; however, it should be recognized that this cost saving could be offset by the expense of the new software, and the true benefit to the system is a more efficient booking process.

It is anticipated that management will address the cost-benefit analysis in more detail as part of its on-going investigation into this software based process re-engineering opportunity. Issues such as maintaining seniority in the sign-up queue, drivers’ having access to Internet-enabled computers, and ensuring compliance with applicable regulations/collective agreements need to be addressed.

Management entered into the collective bargaining process preceding the strike with a set of operational objectives focussed on “controlling the day” from a scheduling perspective. The scheduling principle of “control of the day” was seen to be an industry standard management model, as well as a vehicle to secure operational savings in the range of $3.1 million to $4.5 million depending on the source and time of the estimate. A public perception developed that ongoing scheduling cost savings would act as compensation for the interruption of transit service.

Management’s operational objectives and the public perception regarding cost savings, persevered through the period of the strike. However, it must be acknowledged that while the Keller arbitration award did create the expected “control of the day” operational model envisioned by management, the Keller arbitration award seems to have constrained management’s effectiveness. With a reduced day “spread” from 13 hours as allowed by federal regulations to 12 hours, OC Transpo faces sub-optimal work piece design and systemic inability to generate the targeted savings. Management has received “control” of a scheduling day that hinders its ability to optimize the system and we have diligently reviewed and confirmed the dilution of the cost savings opportunity.

From a risk management perspective, arbitration represented a significant risk event for management, taxpayers and the bus operators. This risk event was not “zero sum” in nature - it was not pre-ordained that a winner and loser would emerge. In fact, the arbitration process frequently delivers a mixed outcome for
involved parties. In the case of the Keller arbitration award, the impact for management and taxpayers has been significant. A less operationally efficient, more expensive and somewhat inflexible new scheduling model has been imposed on OC Transpo management. Control of the day granted to management has not been able to offset the arbitration-imposed constraints on that scheduling day.

The impact is a systemically inefficient scheduling model that nullified management’s cost savings opportunities envisioned during negotiations and the strike. It is critical from a public accountability perspective that these arbitration-imposed circumstances are acknowledged. This independent acknowledgement is critical - in order to avoid an inaccurate perception that management “owes” the public overdue/achievable cost savings. Management is systemically constrained from delivering achievable at this time, and the go-forward likelihood of doing so is unclear.

**Recommendation 8**
That management investigate automated alternatives to the existing manual booking board process.

**Management Response**
Management agrees with this recommendation.

Management is currently exploring electronic booking options. The implementation of an electronic booking system is dependent on budget and Information Technology Services availability. Management would like to have an electronic booking system in place in 2012. Once more information is available, Management will establish a firm timeline for completion of this initiative.

**Recommendation 9**
That management undertake performance metric based monitoring of OC Transpo’s improved scheduling quarterly for two years (i.e., eight scheduling cycles) following the completion of the collective bargaining process.

**Management Response**
Management agrees with this recommendation.

Management analyze and monitor all data associated with each cycle of booking regardless of the status of the outstanding arbitration, and have been doing so on an on-going basis. However, within the context of the recommendation, a two-year cycle of performance metric based monitoring will commence with the next booking (fall 2011), to be completed by the summer of 2012 (Q2 2012 – 8 booking cycles). Impacts of the arbitration process, route optimization and collective bargaining will be assessed, as applicable, as part of this review.
4.3.3 APTA Peer Review

In 2010, OC Transpo undertook a Peer Review conducted by senior transit system managers under the auspices of the American Public Transit Association (APTA). For this APTA Peer Review process, OC Transpo identifies any specific issues it wants to be assessed. The APTA reviewers are noted transit system experts selected by APTA and OC Transpo - subject to the availability of the expert personnel from the other transit systems. The peer reviewers donate their time, and expenses are covered.

The APTA Peer Review team is expected to present their findings verbally at the end of a three to five day intense review process. A written report follows in due course. OC Transpo has provided us with the nucleus of the APTA peer review comments as articulated in a November 5, 2010 debriefing e-mail from APTA to OC Transpo management.

Below, we have paraphrased the advice from APTA and offer additional comments and observations.

“There is no clear organizational strategy to increase employee engagement.”

We agree with this comment. With the amalgamation of OC Transpo with the new City Administration in 2001, and the dispersed model of responsibilities to other City business units, the opportunity to manage employee engagement was regrettably curtailed. With the recent Council decision to re-establish a Commission, OC Transpo should develop a human resource strategy that would complement and enhance the City’s emphasis on customer service excellence.

“There is no clear labour relations strategy which is compounded by a lack of union leadership.”

We agree with this comment. Through its August 2010 proposal to the Union, management’s apparent strategy was to “make peace” with the union in a cost neutral package of scheduling refinements. Union leadership must move forward in parallel with OC Transpo to implement meaningful scheduling improvements in a fiscally sustainable fashion. Other peer transit systems have implemented labour relations strategies with at least mixed success, and a united Union Executive is viewed as an important factor in order to achieve progress.

“The retention of the ability to fully plan, schedule, and allocate daily work is a pre-requisite to implement efficiency gains and cost control.”

We agree that “control of the day” featuring rational spreads that match system peak time ridership trends is an essential pre-requisite to efficiently manage a municipal transit system.
“OC Transpo has embarked on a number of strategic plans. This may be too ambitious and might merit prioritization.”

We are not privy to the breadth of strategic planning initiatives. However, we observed that OC Transpo is facing multiple change management challenges such as (i) negotiations over bus driver scheduling; (ii) the uploading of certain service delivery functions to OC Transpo, and; (iii) management process, cultural, policy and administrative changes required to implement a Commission structure.

“The implementation of a Smart Card system will bring OC Transpo up to industry standard.”

We agree with this comment. A Smart Card system has been shown to enhance customer service, increase ridership, improve revenue management, improve boarding times, and reduce conflict between passengers and bus operators.

“There is no clear hiring strategy to address operator shortage.”

We were not advised of an operator shortage, and it did not arise as an observation in our fieldwork.

Audit Team Additional Observation

We have made an additional observation regarding the capacity of OC Transpo management to address change. We observed the on-the-ground reality that the OC Transpo senior management team is relatively new and configured in a lean mode. With Council direction to create a Transit Commission, and possibly further uploading of operational and provincially legislated responsibilities, there is the need to undertake a comprehensive organizational review of OC Transpo.

Other observations and recommendations made elsewhere in this audit – such as the potential implementation of new Internet-enabled software tools to improve efficiency, achieving improvement in spread and guarantee limits, etc. – are also suitable as high-value target issues for a future value for money audit.

The observations from the APTA Peer Review emanate from the perspective of highly regarded senior managers from North American transit systems. The observations reflect planning and operational areas in which OC Transpo can improve - so that it is consistent with the operations and management of other highly regarded transit systems across North America.

OC Transpo has received excellent advice from the APTA Peer Review.

5 CONCLUSION

The Audit of the OC Transpo Scheduling Process for Bus Operators has documented the following performance issues/observations regarding the 2008 transit strike, the subsequent arbitration process, and the hampering of OC Transpo to secure targeted cost savings and process improvement opportunities:
Management entered into the collective bargaining process preceding the strike with a set of operational objectives focused on “controlling the day” from a scheduling perspective. The scheduling principle of “controlling the day” was seen to be an industry-standard management model, as well as a vehicle to secure operational savings in the range of $3.1 million to $4.5 million depending on the source and time of the estimate.

A public perception developed during the strike that ongoing scheduling cost savings would act as compensation for residential and non-residential taxpayers who endured strike-driven service interruptions and business losses. Management’s operational objectives, and the public perception regarding available cost savings, persevered through the period of the strike and into the arbitration settlement period.

The Keller arbitration award after the strike did not create the expected “control of the day” operational model envisioned by management; however, the reduction of the day “spread” from 13 hours as allowed by federal regulations to 12 hours has negatively impacted the system. The resulting impact is sub-optimal work piece design and systemic inability to generate the targeted savings. Management has received “control” of a scheduling day that hinders its ability to optimize the system and we have diligently reviewed and confirmed the dilution of the cost savings opportunity.

In the case of the Keller arbitration award, the impact for management and Ottawa property taxpayers has been significant. A less operationally efficient, more expensive and somewhat inflexible new scheduling model has been imposed on OC Transpo management. Control of the day granted to management has not been able to offset the arbitration-imposed constraints on that scheduling day.

The impact of the arbitration is a systemically inefficient scheduling model that nullified management’s cost savings opportunities envisioned during collective bargaining negotiations and the strike. It is critical from a public accountability perspective that these arbitration-imposed circumstances are independently acknowledged to Council and taxpayers via this audit. This independent acknowledgement is critical - in order to avoid an inaccurate perception that management “owes” the public overdue/achievable cost savings. Management is systemically constrained from delivering achievable scheduling-based cost savings at this time, and the go-forward likelihood of doing so is unclear.

In the medium-term future, meaningful scheduling process improvement and technology based re-engineering are precursors for any successful effort by OC Transpo to secure significant cost saving targets. OC Transpo bus operator scheduling changes only four times per year. Each schedule change is preceded by a three to four week period for management to design the schedule, and a six-week period to book drivers to the routes. Once management has
determined that it will enact a potential process improvement change, it can only implement the change at the next available quarterly cycle when it begins the process of designing the schedule. All things being equal, the earliest that management can realize any cost savings is three quarters from when the original decision to initiate a process refinement or “work piece” modification is made. Therefore the lag time to secure scheduling cost savings in the future will likely be substantial.

- Delay in implementing arbitration granted “control of the day” rights has created a problem concerning implementation. The arbitration process has not been concluded so meaningful bus operator scheduling process “re-engineering” designed to secure cost savings has not yet been designed or undertaken by management, due to unavoidable system design constraints imposed by the arbitration award substance and appeals process.

- The tentative negotiated changes to the collective agreement from August 20, 2010, which were turned down by the union membership would have improved OC Transpo’s ability to achieve operational efficiency. However it would have failed generate cost savings, since it increases the amount and cost of the daily guarantee. We acknowledge that OC Transpo management must manage the system within the constraints of the Arbitrator’s Award, as opposed to the cost savings expectations that preceded the Award.

6 ACKNOWLEDGEMENT

We wish to express our appreciation for the cooperation and assistance afforded the audit team by management.