



Office of the Auditor General / Bureau du vérificateur général

AUDIT OF TRAFFIC OPERATIONS DIVISION

2008

VÉRIFICATION DE LA DIVISION DE LA CIRCULATION ROUTIÈRE

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EXECUTIVE SUMMARY

Introduction

The Audit of the Traffic Operations Division was included in the 2008 Audit Plan of the Office of the Auditor General that was presented to Council.

Audit Scope

The scope of this audit was to examine aspects of the Traffic Operations Division of the Transportation and Parking Branch, Department of Public Works and Services, generally excluding elements being addressed under separate concurrent audits; more particularly the 2008 Audit of the Parking Function and the 2008 Audit of Moonlighting and Corporate Risk Issues – Traffic Operations.

The audit addressed the overall coordination and administration of traffic management, control and right of way lighting systems on municipal roads throughout the City of Ottawa. Specifically, the audit addressed areas of the Division's activities related to: signs and pavement markings; traffic control systems; traffic engineering; signal design and installation; maintenance management; and, street light asset management.

The work undertaken by the Division has remained consistent over the past five years with limited changes to the Division's organization, all addressed through internal reorganizations, the latest of which was implemented in Spring/Summer 2008.

Audit Objectives

The audit included an examination of the Division to assess whether the objectives that have been set are being achieved. Seven broad audit objectives were identified to assess if:

- The existing Traffic Operations mandate is comprehensive, the processes for updating the strategies address relevant municipal policies and priorities, and to determine if staff accountabilities are appropriate and effective;
- Appropriate processes are in place to plan daily, monthly, annual, long-term and capital activities in a manner that provides for efficient, effective and economic service delivery;
- Appropriate financial systems are in place to budget, record, track and monitor all expenditures within the Division in an efficient, effective and economical manner which facilitates service delivery;
- Appropriate systems, policies and processes are in place to manage staff;
- The City receives value for money for services performed;

- Appropriate standards exist, are communicated to staff, are maintained, monitored and enforced; and, are used to assess performance and refine practices; and,
- The City has risk management processes in place to identify risk¹ and implement mitigating procedures.

Key Findings

1. Traffic Operations Division derives its general mandate and direction from Council approved broad policies (i.e., Official Plan (OP) and Transportation Master Plan (TMP)) that offer significant latitude for interpretation and application.
2. The Traffic Operations Division has not established strategic objectives, goals and priorities for traffic management to ensure achievement of Council approved high level policies identified in the OP and TMP.
3. The type of work conducted by Traffic Operations Division lends itself to being quantified in terms of outcomes and performance measures, as the detailed engineering involved in ongoing monitoring and operations is designed to meet more general user outcomes (related to speed of travel, reductions in congestion and delay, longevity and effectiveness of signage and line painting performance and other operating priorities by travel mode). At the time we conducted the audit, the Traffic Operations Division did not use any performance measurement systems to measure work conducted and publish statistics on its performance to Council, although there was a corporate initiative underway to characterize performance measurements.
4. Division officials confirm that year-to-year planning is conducted in association with the corporate budget process, but that a strategic plan for the Division does not currently exist.
5. The audit of individual work units within the Division provided evidence of organizational systems and prioritization of weekly, seasonal and day-to-day priority setting.
6. This high degree of organizational interdependence within the Division, combined with limited space, forces a large majority of work by the Division to be conducted in a 'just-in-time' manner; requiring substantial organizational effort to be allocated to weekly, monthly and seasonal priority setting and coordination.
7. Day-to-day workload planning appears to be organized within all work units providing detailed explanations of priority setting systems, supervision and management direction.

¹ the chance of something happening that will have an impact upon objectives

8. Traffic Operations Division represents a relatively constant operational requirement to City budget, with annual operating budgets ranging from \$33.5 million to \$35.9 million over the period 2006 to 2007. Expenditures are controlled by the Division, with few divisional activities being unusually impacted by external factors.
9. Operating and capital budgets preparation is based on percentage increases over previous years only and is not based on technical assessment of need (e.g., zero-based budgeting) nor are they reflective of financial requirements needed to implement Council approved programs or directives. By all accounts, this approach appears to address departmental and/or corporate directives beyond the control of the Traffic Operations Division.
10. Division financial tracking and control (by projects and individual budget elements) is supported by the Division's administration with managers at all levels provided with monthly tracking and control documents to adjust programs to remain within budget.
11. The Division is responsible for cost recovery and claims, which is well coordinated with the City's Legal Services Branch.
12. The Division maintains a financial system to control and track 'Outside Sales' (sales to private organizations, developers, external municipalities and others including traffic control system and signals equipment, signage (stock and specialized); signage hardware and steel; and, service charge-backs for in-field work required to facilitate the moving of houses (modifying signals for clearance, wires, etc.)). While this service is an extension of a longstanding inter-municipal cooperation program, the risks and costs of the Outside Sales program, given the limited space available at 175 Loretta Avenue yards for materials handling, the cost of the program, risk of program abuse and the ready availability of similar product through numerous private sector suppliers and contractors supports the notion that this program is no longer required (with the exception of house move escorts).
13. Overtime costs within the Division included over 45 employees earning an average of \$10,270 in overtime wages in 2007; with the top 10 overtime earners receiving more than \$17,000 in overtime and the highest earner taking home \$21,710 (35% additional to base salary).
14. While the Division necessarily undertakes a significant amount of work on a 24-hour basis, opportunities may exist for the reduction of overtime through the establishment of a regular evening/night shift.
15. While the Division provided evidence of a structured approach to the assignment of on-call and after-hours services; rotation of some on-call and after-hours duties were being made to employees that do not currently hold the requisite position within the organization, and as such the conduct of their

duties and overtime claims goes unsupervised (these two individuals earned an average of \$17,160 of overtime in 2007).

16. The inherent and implicit internal controls to manage moonlighting which exist in the organizational structure of a normal business environment are compromised and ineffective within the Traffic Operations Division due to the presence of Partham employees and the owner at many levels within the City's reporting structures.
17. City employees who moonlight for Partham Engineering Ltd. are not adequately supervised by their City supervisors, both immediate supervisors and management, to ensure that the moonlighting activities do not interfere with City responsibilities.
18. The current Employee Code of Conduct does not adequately provide direction on moonlighting as it relates to limiting unacceptable situations where City supervisors and subordinates are jointly involved in related profit-motive ventures.
19. The City should have recognized the inappropriateness of the reporting relationships of Partham/City staff as they developed over time and highlighted them when documenting the staff working for Partham, as well as highlighting them when staff were promoted within the Division.
20. In order to ensure City management was fully informed prior to bringing the organizational restructuring before Council on March 25, 2009, we raised the issues relating to Partham Engineering conflicts to the General Manager, Public Works on January 23rd. We also subsequently issued on February 2nd, earlier than had been scheduled, the draft report to the City Manager.
21. We found no action by senior branch or departmental management aimed at monitoring or assessing conflict of interest by Partham employees. That is, there are no systems, procedures or controls in place to prevent or detect excessive and/or inappropriate moonlighting. There was no evidence of seeking advice from the City Solicitor or City Treasurer (regarding internal controls). It was evident however that senior management had been involved in investigating and responding to complaints received.
22. Parking functions are not related to other activities of the Traffic Operations Division and should, more appropriately, directly report to the Director of Traffic and Parking Operations.
23. While the audit identified no significant deficiencies in the conduct of street lighting through the private sector contract (now in place with Black and McDonald) the City should renegotiate the current contract to address minor deficiencies at normal renewal milestones and should retain well-qualified staff to prepare for such negotiations.

24. The Traffic Operations Division has, over time, developed a widespread ‘do it ourselves’ approach to materials procurement, engineering analysis and traffic controller planning, design and construction. The result is additional costs to the City in the areas of research, development and training; or for equipment, the costs of equipment storage, handling, breakage and loss. This could also put the City at risk if the internal resources are no longer available.
25. Division staff were well informed about legislation, regulations and other compliance issues they should address in their work, however, it was apparent that limited technical interaction occurs between Division staff and staff of other government jurisdictions, technical associations, etc.
26. At present, the Division does not maintain a database on non-regulatory roadway signage. Current systems are inadequate and a comprehensive signs inventory system should be created to track both regulatory and required non-regulatory signage as well as special signage (warning signs, hazard markers, etc.) for which the Division is responsible.
27. In-field quality testing of regulatory and non-regulatory roadway signage is no longer conducted by divisional staff and should be reintroduced to meet regulatory obligations set out by the Ministry of Transportation of Ontario for signs condition upkeep reflectivity / luminosity. Court records confirm that the municipality is exposed to significant liability when it does not meet minimum care standards set out in legislation and published best practices.
28. The senior staff decision over the past decade to develop a relationship with a sole-employee business, Thompson Technologies, for the planning and design of traffic controller technology used in the City, leaves the City without an effective alternative should Thompson Technologies, for any reason, be unable to meet its obligations or escalate prices beyond fair market prices. The City is exposed to substantial risk of service loss, and/or added service costs.
29. The City is not protected to ensure that any revenue generated by contracted companies using both funds and research derived from the City contracts, accrues to the City, in particular the technology developed by Thompson Technologies, Luxcom, Multilek and/or Rogers Digital Communications while under contract to the City of Ottawa.
30. Key dates relating to Partham Engineering and Jim Bell:

Date	Event
1985 to 1990	New Hire - Jim Bell, Manager of Signal and Communication, RMOC RMOC offers inter-municipal support to nearby municipalities and townships to assist with their limited traffic signal needs

Date	Event
1990	Committees directed that the inter-municipal support program cease
1990	Partham was formed. Owned and operated by Jim Bell and Andy Thompson
1996	Jim Bell declares moonlighting conflict of interest
1997	Jim Bell and his wife, Sue McInnis (Office Manager) take over Partham as sole shareholders
1997	Four Traffic Operations employee declare moonlighting conflict of interest
1999	Data Change from Manager of Signal and Communication to Manager Traffic Operations, RMOC
1999 to present	Multilek starts supplying the City of Ottawa the Multilek Traffic Controller
1999 to present	Thompson Technologies (Andy Thompson) first under contract for a number of research and development initiatives and projects related to traffic signal technology advances
2001	Promotion: Jim Bell Manager, Traffic Operations Division, New City of Ottawa
2008	City Auditor General undertakes an audit of Traffic Operations Division
Spring 2008	Three additional Traffic Operations employee declare moonlighting conflict of interest
January 2009	City Auditor General raises audit findings pertaining to Partham Engineering conflict of interest to General Manager, Public Works
February 2009	City Auditor General issued, earlier than scheduled, the draft audit report to the City Manager (prior to his bringing the re-organizational restructuring before the March 25, Council)
March 2009	Jim Bell [REDACTED] as part of the City administrative reorganization ([REDACTED])
April 2009	Competition for Manager, Traffic Operations posted
April 27, 2009	Competition for Manager, Traffic Operations closes

Recommendations and Management Responses

Recommendation 1

That the City develop, for Council approval, standards and a related detailed performance measurement program by which their activities can be monitored and reported for Council and public review; and, recommend to Council clarifying policies to further direct the Division on traffic management priorities.

Management Response

Management agrees with this recommendation. Currently, there are traffic sign and pavement marking crews operating off-site from 175 Loretta at three different roads and maintenance facilities throughout the City; however, by Q1 2010, the Roads and Traffic Operations branch will review opportunities for locating additional work units off-site and will explore further opportunities to contract out work unit activities within the parameters of the applicable collective agreements.

Recommendation 2

That the City prepare a five-year strategic plan with detailed direction for change and growth within each of the services areas they perform with the intent of rationalizing, optimizing or expanding their works in line with Council’s directives or to reduce expenditures.

Management Response

Management agrees with this recommendation. The Roads and Traffic Management branch, in conjunction with the Traffic, Engineering and Technical Services Unit, is preparing a five-year plan that aligns with Council’s strategic directions. The five-year plan will be guided by the current principles of the Transportation Master Plan and the Transportation System Management (TSM) module.

Council will be presented with the terms of reference, currently being developed, in Q4 2009

Recommendation 3

That the City review policies related to Outside Sales, immediately removing the City of Ottawa from competition with the private sector for the sale of goods and services that can be provided by others.

Management Response

Management agrees with this recommendation. All outside sales, with the exception of house movers, have been suspended; however, requests from charitable organizations or not-for-profit agencies will continue to be considered on a case-by-case basis using appropriate documentation and procedures until such time as they too can be phased out.

Recommendation 4

That the City review traffic engineering practices within the Division and the need for upward of 6 to 12 months of internal training before new hires are able to contribute to Division traffic engineering and consider either:

- a) **Modifying divisional structures to permit the employment of additional lower qualified engineers who would be retained/advanced over time;**
- b) **Identifying opportunities for external engineering resources to assist the unit in the traffic engineering analysis during seasons of peak demand/reduced staff; or,**
- c) **Maintaining published standards for traffic engineering which place added responsibilities for advanced traffic engineering unto proponents of projects that impact traffic flows (e.g., developers, other government agencies, etc.).**

Management Response

Management agrees with the intent of this recommendation.

The City believes it has been successful over the past 30 years in recruiting and retaining qualified engineers, technologists, and technicians in the field of traffic engineering. Moreover, many of the City's current professionals were hired for full-time positions after having completed successful co-op terms in the Traffic Engineering unit.

Through a cross-training program, engineers are also routinely rotated between the Traffic Engineering, Design Review and Traffic Engineering Technical Support units.

The Roads and Traffic Operations and Maintenance branch will review opportunities to engage external engineering services as required through the Professional Engineering Services Standing Offer. However, a considerable portion of the traffic engineering analysis undertaken by staff involves the review of Traffic Impact Reports submitted by consultants to the City. In these instances, the effect of this recommendation would be a situation in which external consultants were reviewing other external consultants' traffic engineering submissions.

The City currently follows requirements contained in the Transportation Impact Assessment Guidelines.

Recommendation 5

That the City review causal factors influencing the large number of individuals with high overtime costs, and investigate the best means of reducing overtime costs; and that such a review include the assessment of the creation of an after-hours crew (e.g., to cover the afternoon peak traffic period, etc.) to reduce overall overtime and call-out costs.

Management Response

Management agrees with this recommendation. The Roads and Traffic Operations and Maintenance branch, in conjunction with Legal Services, Finance and Employee Services, is currently conducting a review of employee overtime

and is taking steps to reduce overtime costs where possible. This review will be completed by Q3 2009.

The new management team has implemented a monthly financial report for all functional areas in the new Public Works department, which monitors all program areas and tracks key expenditures, including overtime. The departmental senior management team reviews this report on a monthly basis.

Recommendation 6

That the City plan and implement a program of staff involvement in existing traffic operations organizations (International Municipal Signal Association, Institute of Transportation Engineers; Transportation Association of Canada, etc.) with a view to enhancing technology and knowledge transfer and bridging the growing uniqueness of Ottawa's Traffic Operations standards and procedures (i.e., signals, communications, signs and painting) and ensure a higher degree of industry conformity.

Management Response

Management agrees with the intent of this recommendation. Staff from the Roads and Traffic Operations and Maintenance branch are actively involved with, and participate in the identified organizations, as the City's traffic operations system is considered best practice in the industry. For example, an employee from Traffic Engineering represents the City on the Canadian Association of Transportation Engineers (CATE).

Traffic engineering staff regularly sit on project steering committees for the Traffic Operations Management Steering Committee of the Transportation Association of Canada. Traffic Operations employees, representing the City, have also assisted with the development and updating of Ontario Traffic Manuals, including Book 12 - Traffic Signals.

In addition, Traffic Signals, Signs and Pavement Marking employees have received training at varying levels from the International Municipal Signal Association (IMSA), commensurate with their positions. In fact, in recent years the organization has conducted training in Ottawa, as opposed to Mississauga, where it did so previously, because of the high number of City staff enrolled in the IMSA training program. As a result, the City was able to avoid considerable travel expenses it would have otherwise incurred.

The Roads and Traffic Operations and Maintenance branch will continue to encourage branch staff to participate in these organizations, as well as any others that may enhance the City's traffic operations systems.

Recommendation 7

That the City ensure that on-call traffic signal staff hold all necessary certification, and ensure that adequate management oversight is in place to ensure that no individual be responsible for excessive amount of shift work.

Management Response

Management agrees with this recommendation. A training matrix has been developed that tracks and flags training requirements for individual employees commensurate with their position. The Roads and Traffic Operations and Maintenance branch are reviewing the current certifications held by Traffic Signal staff, identifying any gaps, and will implement appropriate training by Q1 2010 in order to ensure that shift work requirements are balanced throughout the work unit.

Recommendation 8

That the City immediately clarify the Employee Code of Conduct to provide that employees involved in moonlighting be prohibited from working as supervisor-subordinates (direct or indirect subordination) within a single department work unit at the City.

Management Response

Management agrees with this recommendation. The Legal Services branch will be undertaking a significant review of the *Employee Code of Conduct* in order to clarify and consolidate various sections that have been noted in audit reports over the course of the past few months, including the "Outside Business Activity (Moonlighting)" provisions. The Legal Services branch will complete this review by the end of Q3 2009.

Recommendation 9

That the City clarify the Employee Code of Conduct - Moonlighting through supporting procedures, systems, documents and forms to provide guidance to managers and supervisors in assessing whether moonlighting is appropriate.

Management Response

Management agrees with this recommendation. Within the context of the aforementioned review, the Legal Services branch proposes to include a "Supplementary Questions and Answers" section to the "Outside Business Activity (Moonlighting)" section of the Employee Code of Conduct by the end of Q3 2009. (Similar guidance is already provided with respect to the Gifts, Entertainment and Hospitality Corporate policy, and is intended to provide managers and supervisors with practical examples to assist in outlining the City's ethical requirements.) Legal Services will also reinforce the fact that any

questions regarding the interruption or application of the Code, or other related advice or guidance, may be sought from the City Clerk and Solicitor.

Recommendation 10

That the City take immediate action to put in place necessary interim management oversight and controls over the activities of Partham Engineering and their employees consistent with the provisions of the current Employee Code of Conduct.

Management Response

Management agrees with this recommendation. The Public Works department is working in collaboration with Legal Services, Human Resources and Labour Relations to identify, implement and monitor measures and controls to ensure there are no conflicts or violations of the *Employee Code of Conduct* by the end of Q2 2009.

Recommendation 11

That the City take immediate action to cease the moonlighting activities of all City employees, including Mr. Jim Bell, with Partham Engineering.

OAG COMMENT: In order to ensure City management was fully informed prior to bringing the organizational restructuring before Council on March 25, 2009, we raised the issues relating to Partham Engineering conflicts to the General Manager, Public Works on January 23rd. We also subsequently issued on February 2nd, earlier than had been scheduled, the draft report to the City Manager.

Management Response

Management agrees with this recommendation. The Legal Services branch will work closely with senior management in the Public Works department to address any real or perceived conflicts of interest or violations of the Employee Code of Conduct within the context of the revised organizational structure and in compliance with the requirements of any contract of employment or collective agreement, by the end of Q3 2009.

OAG COMMENT: The OAG considers that this recommendation should be forwarded to the Audit, Budget and Finance Committee for discussion.

Recommendation 12

That the City identify work units whose work can be effectively conducted off-site from 175 Loretta or sub-contracted to the private sector as a means of relieving the pressures of core divisional activities and reduce the need for just-in-time materials supply and improved storage.

Management Response

Management agrees with this recommendation. Currently, there are traffic sign and pavement marking crews operating off-site from 175 Loretta at three different roads and maintenance facilities throughout the City; however, by Q1 2010, the Roads and Traffic Operations branch will review opportunities for locating additional work units off-site and will explore further opportunities to contract out work unit activities within the parameters of the applicable collective agreements.

Recommendation 13

That the Traffic Operations Division maintain a staff of highly qualified individuals to oversee and police contractual obligations for contract delivery of street lighting services.

Management Response

Management agrees in principle with this recommendation. Lessons learned from the first five years of the street light maintenance contract will be incorporated into future discussions regarding the extension of that contract scheduled for Q3 2010. The future direction of this contract is being led by the General Manager of the Public Works department.

Recommendation 14

That the City undertake a full review of the current 'do it ourselves' procurement model, with a view to shifting the cost of research and development as well as material purchasing and handling to the private sector. More particularly, where continued procurement of locally developed technology is justified, it is recommended that the City initiate a process to introduce healthy private sector competition in the supply chain; and that a long range plan for traffic control signals control and communications be developed that reduces City of Ottawa risk by soliciting expertise from a broad base of traffic control experts and manufacturers.

Management Response

Management agrees in principle with this recommendation; however, it is important to note that the decision to move towards a 'do it ourselves' model was based in large part on a lack of both a commitment from the private sector and the technical support needed to maintain and expand their products in a timely and cost-effective manner due to the relatively small niche market and the complications associated with bringing different technology processes together. Details and a full rationale are contained in the Transportation System Management (TSM) Working Paper, prepared for the former Region of Ottawa-Carleton's Transportation Master Plan in 1997.

The 'do it ourselves' approach is not unique to Ottawa: other cities, such as San Francisco, Los Angeles, New York City and Winnipeg, are using the same approach. However, Supply Management will work with Roads and Traffic Operations and Maintenance to undertake a full review of the current 'do it ourselves' procurement model by Q1 2010 with the objective of shifting the cost of research and development, as well as material purchasing and handling, to the private sector. A further objective will be to introduce healthy private sector competition in the supply chain, with the goal of safeguarding the City's future ability to meet traffic operations technology needs and to achieve best value.

Recommendation 15

That the City develop a formal inventory of regulatory and non-regulatory roadway signage for all City roadways.

Management Response

Management agrees in principle with this recommendation. Staff are currently developing a procedure for labeling and tracking newly-issued regulatory signs which will be completed by Q1 2010. In addition, the Roads and Traffic Operations and Maintenance branch will identify the financial impacts of, and timeframe associated with the development of a formal inventory system for all roadway signage by Q2 2010.

Recommendation 16

That the City meet all regulations and best practices related to ensuring the inspection and maintenance of minimum condition standards for regulatory /traffic control signage.

Management Response

Management agrees with this recommendation. The Roads and Traffic Operations and Maintenance branch will continue to develop and refine a series of policies, procedures, manuals and best practices with respect to the inspection, maintenance, manufacture and installation of all regulatory, warning, guide and information signs in order to ensure that appropriate signage standards are achieved in conjunction with the Ontario Traffic Manual and the Ontario Highway Traffic Act.

Recommendation 17

That the City report to Council on staffing levels required to meet current demand for all areas of activity directed by City Council approved policy, Provincial Legislation/Regulations and industry best practices, with an explanation of risks to the Corporation should Council decide to provide reduced staffing levels than required to meet minimum standards.

Management Response

Management agrees with this recommendation. Council will be presented with a comprehensive report identifying budget and resource requirements in Q3 2010.

Recommendation 18

That the City undertake a review of the procurement practices in place within the Traffic Operations Division in the areas of engineering services acquisition; traffic controllers hardware and software purchasing; and, materiel purchasing (in lieu of specifications development) to ensure that the City's best interests are met and that the current practice does not expose the City to unreasonable additional costs or risk assignment.

Management Response

Management agrees with this recommendation. Supply Management will work with Roads and Traffic Operations and Maintenance to develop a supply chain strategy by the end of Q1 2010 for the acquisition of engineering services, traffic controller hardware and software and associated materials with the goal of safeguarding the City's future ability to meet traffic operations technology needs and to achieve best value. Staff will also work with Legal Services to ensure that any necessary changes are incorporated into the terms of the City's standard contracts.

Recommendation 19

That the City explore opportunities to derive profits from technologies sales and services derived from the development of existing and future technology and products developed through City of Ottawa research and development funding, and, in particular, products developed by Thompson Technologies, Luxcom, Multitek and/or Rogers Digital Communications while under contract to the City.

Management Response

Management agrees with this recommendation. The Roads and Traffic Operations and Maintenance branch has asked IBM to examine the possibility of generating revenue from the use of the City's intellectual property rights as part of the Corporate Efficiency Review, recognizing the legal limits of the City's ability to generate profits and the practical difficulties associated with the management and marketing of the City's intellectual property. IBM is expected to report on its findings by Q3 2009.

Recommendation 20

That the City develop a long range plan for the design and sourcing of traffic controller and communications equipment (through standard competitive

processes) and that contracts with successful firms include a significantly reduced degree of risk for the City (e.g., private sector involvement in R&D funding; Public-Private Partnership, etc.), or, if technology is developed at the cost and risk of the City, that the ownership, application rights and proceeds of R&D is wholly owned by the municipal corporation, with the City maintaining detailed full specifications of all R&D products to allow for the City's use in future competitive contracts.

Management Response

Management agrees with this recommendation. Supply Management and Roads and Traffic Operations and Maintenance have taken significant steps to open up competitive bidding on traffic controllers in the past year. There are now two competing suppliers for traffic controllers.

Supply Management will continue to work with Roads and Traffic Operations and Maintenance to develop a sourcing plan for the acquisition of traffic controllers and communication equipment by Q1 2010, with the goal of increasing competition in order to net more competitive pricing, properly allocate risks between the supplier and the City, and explore options for ownership of technology.

Legal Services, in cooperation with Supply Management and Roads and Traffic Operations and Maintenance, will review the standard terms and conditions of contracts on an ongoing basis to ensure they fully protect the City's intellectual property interests.

Conclusion

The audit of the Traffic Operations Division confirmed that the full range of day-to-day services is offered by the Division. In general, the Division provides some training opportunities for their staff, and their services are generally provided in a manner as to ensure that they remain in compliance with legislation, regulations and industry best practice. Administrative support systems are in place and the Division's senior management is supported by Financial Services in the conduct of their work.

Notwithstanding the condition of the current operation and maintenance activities, 20 recommendations for change are provided. Key findings address the lack of sufficient strategic planning, insufficient reporting of important performance measurement outcomes provided to Council, and serious human resources management problems. These staffing issues range from excessive overtime, an inadequate complement of trained staff and a significant lack of related management oversight, monitoring and controls related to extensive moonlighting.

There are widespread problems related to the retention of a significant number of divisional staff by Partham Engineering. We have serious concerns about the lack

of preventive and detective internal controls, especially with respect to the management of these employees and related financial systems (e.g., overtime, outside sales, etc.). Additionally, we are very concerned that this situation had been allowed to continue unquestioned for such an extended period of time (i.e., 17 years) without senior management intervention to address needed management oversight, supervision and controls.

We further believe that the City should, in compliance with the current Employee Code of Conduct, immediately cease to allow the moonlighting activities of City employees with Partham Engineering. Further, to arrest risk to the City related to the long-term relationship that has existed between the City and Partham employees, that the divisional employees be directed not to have any relationship or conduct business (including outside sales) with Partham and/or their clients.

As discussed in the report, we believe that there are several violations of the current Employee Code of Conduct by numerous levels of senior management, managers and supervisors. We firmly believe that the current situation would not have arisen had Jim Bell (owner of Partham Engineering) been denied permission to operate Partham in tandem with the City's operations, and that senior staff hold responsibility for the current situation based on decisions made when presented with the situation over the years.

We believe risks to current City operations related to Partham Engineering will be satisfactorily mitigated only if recommendations 10 and 11 (the ceasing of moonlighting activities) are adopted and fully acted upon. In addition, audit recommendations 8 and 9 call for changes to the Employee Code of Conduct which, while arising out of the situation presented by Partham Engineering, are offered as appropriate changes in policy across the Corporation to prevent similar situations from arising in the future.

Finally, recommendations are made to address problems with a long-standing practice of operating a City sponsored research and development program through the letting of sole source contracts and sole respondent competitive contracts. More particularly, the audit concludes that current contracting practices for the design, development and manufacture of traffic controllers are risk intensive, and that senior management must take action to reduce the City's risk exposure, ensure the City recoups research and development costs through contracted profit sharing, and establish a longer range plan to acquire traffic controllers through a process that promotes healthy private sector competition.

More generally, a number of recommendations are also set out to address deficiencies or improve Division management, these relate to:

- Improved strategic planning;
- Development of a performance measurement system;

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- Changes to systems which allow for sale of goods and materials to other organizations;
 - Changes to goods and services procurement to increase private sector competition;
 - Changes to traffic engineering services to address shortcoming of current services;
 - Opportunities to reduce excessive overtime, including a review of alternate shifts;
 - Increased staff involvement in external professional development / training organizations;
 - Ensure that staff meet minimum training requirements for after-hours crew chief duties;
 - Implement improvements to the road signs inventory, and generally ensure that they meet minimum standards for regulatory and traffic control signage; and,
 - Reductions to the Corporate risk exposure through a thorough review of procurement standards for traffic control and communications systems.

Acknowledgement

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

RÉSUMÉ

Introduction

La vérification de la Division de la circulation routière faisait partie du plan de vérification 2008 du Bureau du vérificateur général qui a été présenté au Conseil.

Portée de la vérification

La portée de cette vérification consistait à examiner certains aspects de la Division de la circulation routière de la Direction des transports et du stationnement, Services et Travaux publics, en excluant de manière générale les éléments qui font l'objet de vérifications parallèles distinctes, et notamment la vérification de la fonction stationnement menée en 2008 et la vérification - Deuxième emploi et questions de risque d'entreprise - Circulation routière menée en 2008.

La vérification portait sur la coordination et l'administration globale des systèmes de feux de circulation assurant la gestion, le contrôle et la priorité de passage de la circulation routière, sur les chemins municipaux d'Ottawa. Plus précisément, la vérification aborde notamment les secteurs d'activité de la Division relatifs à la signalisation et marques sur chaussée; les systèmes de contrôle de la circulation; les activités techniques liées à la circulation; la conception et l'installation de la signalisation; la gestion de l'entretien; et la gestion des biens - éclairage de rue.

Le travail entrepris par la Division est resté constant au cours des cinq dernières années, les changements que cette dernière a connus s'étant limités à son organisation dans le cadre de réorganisations internes, dont la plus récente a été mise en œuvre au printemps et à l'été 2008.

Objectifs de la vérification

La vérification comprenait un examen de la Division visant à évaluer si les objectifs fixés sont réalisés. Nous avons établi sept grands objectifs de vérification afin d'évaluer si :

- le mandat actuel de la Circulation routière est complet et si les procédés de mise à jour des stratégies reflètent adéquatement les politiques et les priorités municipales pertinentes, et de déterminer si la reddition de comptes par le personnel est adéquate et efficace;
- des processus adéquats sont en place pour la planification des activités quotidiennes, mensuelles, annuelles, à long terme et d'immobilisations d'une manière qui assure une prestation de services efficiente, efficace et économique;
- des systèmes financiers adéquats sont en place pour établir les budgets, et consigner, suivre et surveiller toutes les dépenses effectuées au sein de la Division d'une façon efficiente, efficace et économique qui facilite la prestation des services;

- des systèmes, politiques et processus de gestion du personnel adéquats sont en place;
- la Ville bénéficie d'un bon rapport qualité-prix pour les services qu'elle offre;
- des normes adéquates sont en place, communiquées au personnel, tenues à jour, surveillées et appliquées; et si elles servent à évaluer le rendement et à peaufiner les pratiques; et
- la Ville dispose de processus de gestion des risques pour déceler le risque¹ et mettre en œuvre des procédures d'atténuation du risque.

Principales constatations

1. Le mandat et l'orientation généraux de la Division de la circulation routière découlent de politiques globales approuvées par le Conseil (c.-à-d. le Plan officiel (PO) et le Plan directeur des transports (PDT)) qui offrent une importante marge de manœuvre tant au chapitre de l'interprétation que de l'application.
2. La Division de la circulation routière n'a pas établi d'objectifs, de buts et de priorités stratégiques à l'égard de la gestion de la circulation afin d'assurer la réalisation des politiques de haut niveau approuvées par le Conseil et énoncées dans le PO et le PDT.
3. Le type de travail effectué par la Division de la circulation routière se prête à une évaluation en termes de résultats et de mesures du rendement, car la technologie poussée que nécessitent la surveillance continue et les opérations est conçue pour atteindre des résultats globaux du point de vue de l'utilisateur (liés à la rapidité des déplacements, aux réductions de la congestion et des délais, à la durée de vie et à l'efficacité de la signalisation et au rendement dans le traçage des lignes de circulation et à d'autres priorités de la circulation routière en fonction du moyen de transport). Au moment de la vérification, la Division de la circulation routière n'utilisait aucun système de mesure du rendement pour évaluer le travail effectué et publier des statistiques sur son rendement à l'intention du Conseil, bien qu'il y ait une initiative municipale en cours pour caractériser les mesures du rendement.
4. Les responsables de la Division confirment que la planification annuelle est liée au processus d'établissement du budget de l'organisation, mais que la Division ne dispose pas de plan stratégique à l'heure actuelle.
5. La vérification de diverses unités de travail au sein de la Division a permis d'établir l'existence de systèmes d'organisation et de classement par ordre de priorité hebdomadaire, saisonnière et quotidienne.

¹ Possibilité qu'il se produise quelque chose qui aura une incidence sur les objectifs

6. Ce niveau élevé de cohésion organisationnelle au sein de la Division, lié à l'espace restreint dont elle dispose, oblige la Division à réaliser une bonne part de son travail « juste-à-temps », ce qui exige un effort considérable de la part de l'organisation pour coordonner et établir les priorités hebdomadaires, mensuelles et saisonnières.
7. La planification quotidienne de la charge de travail semble être systématique dans toutes les unités de travail, et on dispose d'explications détaillées des systèmes d'établissement de priorités, de la surveillance et de l'orientation de la direction.
8. La Division de la circulation routière représente une exigence opérationnelle relativement constante pour le budget municipal, avec des budgets de fonctionnement annuels s'échelonnant de 33,5 à 35,9 millions de dollars pour la période s'étalant de 2006 à 2007. La Division contrôle les dépenses, et les facteurs externes n'ont d'incidence exceptionnelle que sur quelques activités de la Division.
9. La préparation des budgets de fonctionnement et d'immobilisations repose uniquement sur des augmentations proportionnelles par rapport aux années précédentes et non sur l'évaluation technique des besoins (p. ex. un budget base zéro); elle ne reflète pas non plus les exigences financières nécessaires à la mise en œuvre des programmes ou des directives approuvés par le Conseil. Au dire de tous, cette approche semble répondre aux directives du service ou de l'organisation qui ne relèvent pas de la Division de la circulation routière.
10. Le suivi et le contrôle financiers de la Division (par projets et par éléments budgétaires distincts) sont soutenus par l'administration de la Division; les gestionnaires à tous les niveaux reçoivent des rapports de suivi et de contrôle mensuels qui leur permettent d'adapter les programmes de manière à respecter le budget établi.
11. La Division est responsable du recouvrement des coûts et du traitement des demandes de remboursement, activités qui sont coordonnées efficacement avec la Direction des Services juridiques de la Ville.
12. La Division maintient un système financier qui lui permet de contrôler et de suivre les « ventes à l'extérieur » (ventes à des entreprises privées, à des promoteurs, à des municipalités externes et autres, y compris du matériel de contrôle de la circulation et de signalisation, des matériaux de signalisation (standards et spécialisés); de la quincaillerie et de l'acier pour la signalisation; et la rétrofacturation de services sur le terrain pour faciliter le déplacement de maisons (modification des signaux de dégagement, de fils métalliques, etc.)). Bien que ce service s'inscrive dans le cadre d'un programme de coopération intermunicipale de longue date, les risques et les coûts associés au programme de ventes à l'extérieur, étant donné l'espace restreint disponible dans le dépôt

du 175, avenue Loretta pour la manipulation du matériel, le coût du programme, le risque d'abus du programme et la disponibilité de produits similaires auprès de nombreux fournisseurs et entrepreneurs du secteur privé contribuent à renforcer la notion que ce programme n'est plus nécessaire (sauf pour les escortes lors des déplacements de maisons).

13. Le coût des heures supplémentaires au sein de la Division concernait plus de 45 employés, qui ont touché en moyenne 10 270 \$ en salaires pour des heures supplémentaires en 2007; les 10 premiers ont touché plus de 17 000 \$ en heures supplémentaires et le premier, plus de 21 710 \$ (35 % de plus que son salaire de base).
14. S'il est vrai que la Division entreprend nécessairement une quantité de travail substantielle sur une base de 24 heures, des occasions de réduire les heures supplémentaires pourraient être envisagées en créant un quart de travail normal de soir ou de nuit.
15. S'il est vrai que la Division a fourni des preuves de l'existence d'une approche systématique à l'attribution de services en disponibilité et après les heures de travail; certaines tâches accomplies par le personnel en disponibilité et après les heures de travail étaient attribuées à des employés n'occupant pas le poste requis au sein de l'organisation, et à ce titre, l'accomplissement de leurs tâches et leurs demandes de paiement d'heures supplémentaires ne font l'objet d'aucune supervision (ces deux personnes ont touché en moyenne 17 160 \$ en heures supplémentaires en 2007).
16. Au sein de la Division de la circulation routière, les contrôles internes inhérents et implicites régissant le cumul de deux emplois dans la structure organisationnelle d'un milieu de travail normal sont compromis et inefficaces en raison de la présence d'employés et du propriétaire de Partham à plusieurs niveaux des structures hiérarchiques municipales.
17. Les employés municipaux qui occupent également un emploi chez Partham Engineering Ltd. ne sont pas encadrés adéquatement par leurs supérieurs municipaux, qu'il s'agisse de leurs supérieurs immédiats ou de membres de la direction, afin d'assurer que le cumul de deux emplois ne nuit pas aux responsabilités de la Ville.
18. Le *Code de conduite du personnel* actuel n'offre pas d'orientation adéquate sur le cumul de deux emplois en ce qui concerne l'importance de limiter les situations inacceptables où des superviseurs et subalternes municipaux sont impliqués conjointement dans des entreprises motivées par la recherche du profit.
19. La Ville aurait dû reconnaître le caractère inapproprié des liens hiérarchiques du personnel, oeuvrant à la fois au sein de Partham et de la Ville, au cours de leur évolution au fil des ans et elle aurait dû le souligner dans la documentation du

- personnel à l'emploi de Partham, ainsi que lors de la promotion de personnel au sein de la Division.
20. Afin de veiller à ce que la direction de la Ville soit bien informée avant la présentation de la restructuration organisationnelle au Conseil le 25 mars 2009, nous avons signalé les questions de conflits d'intérêts liés à Partham Engineering au directeur général, Travaux publics, le 23 janvier. Par la suite, le 2 février, nous avons soumis plus tôt que prévu la version préliminaire du rapport au directeur municipal.
 21. Nous avons constaté qu'aucune mesure de la part de la haute direction de la division ou du service ne visait à surveiller ou à évaluer les conflits d'intérêts de la part d'employés de Partham. C'est-à-dire qu'aucun système ou contrôle ou aucune procédure n'a été mis en place pour prévenir ou détecter le cumul excessif ou inapproprié de deux emplois. Nous n'avons décelé aucune donnée probante montrant qu'on ait consulté le chef du contentieux ou le trésorier municipal (pour ce qui est des contrôles internes). Il était toutefois évident que la haute direction avait été impliquée dans l'enquête et la réponse aux plaintes reçues.
 22. Les fonctions stationnement ne sont pas liées à d'autres activités de la Division de la circulation routière et il serait plus indiqué qu'elles relèvent directement du directeur de la Circulation et du Stationnement.
 23. Bien que la vérification n'ait décelé aucune lacune substantielle dans la conduite de l'éclairage des rues dans le cadre du contrat du secteur privé (actuellement en vigueur avec Black et McDonald), la Ville devrait renégocier le contrat actuel aux étapes clés de renouvellement normaux afin de remédier à des lacunes mineures et retenir les services de personnel versé en la matière pour se préparer à ces négociations.
 24. La Division de la circulation routière a, au fil des ans, adopté une approche généralisée « d'effectuer à l'interne » l'achat de matériel, l'analyse technique et la planification, la conception et la construction de dispositifs de contrôle de la circulation. Il en découle des coûts supplémentaires pour la Ville dans les domaines de la recherche, du développement et de la formation; et du matériel, des coûts de stockage, de manipulation, de bris et de perte de matériel, ce qui pourrait également faire courir un risque à la Ville si les ressources internes n'étaient plus disponibles.
 25. Les membres du personnel de la Division étaient bien au fait des lois, règlements et autres questions de conformité qu'ils doivent aborder dans leur travail; toutefois, il était évident que l'interaction au plan technique entre le personnel de la Division et celui des autres compétences gouvernementales, associations techniques, etc., est restreinte.

26. À l'heure actuelle, la Division ne tient pas à jour de base de données sur la signalisation routière non réglementaire. Les systèmes actuels sont insatisfaisants et un système de prise d'inventaire complet de la signalisation doit être établi afin d'assurer le suivi de la signalisation réglementaire et non réglementaire requise ainsi que de la signalisation spéciale (panneaux d'avertissement, indicateurs de danger, etc.) dont la Division est responsable.
27. Les tests de qualité sur le terrain de la signalisation routière réglementaire et non réglementaire ne sont plus effectués par le personnel divisionnaire et devraient être repris afin de répondre aux obligations réglementaires fixées par le ministère des Transports de l'Ontario en ce qui concerne l'entretien de la réflectivité/luminosité de la signalisation. Les dossiers judiciaires confirment que la municipalité est exposée à une responsabilité substantielle si elle ne satisfait pas aux normes minimales de soin énoncées dans la loi et les pratiques exemplaires publiées.
28. Au cours de la dernière décennie, la décision prise par les cadres supérieurs de la Ville de nouer des liens avec une entreprise à propriétaire exploitant unique, Thompson Technologies, pour la planification et la conception de technologie de contrôle de la circulation utilisée par la Ville, laisse celle-ci sans solution de rechange efficace dans l'éventualité où Thompson Technologies, pour quelque raison que ce soit, ne pourrait plus remplir ses engagements ou hausserait ses tarifs au-delà des justes prix du marché. La Ville court un risque substantiel lié à la perte de services ou à des coûts de services supplémentaires.
29. La Ville n'est pas protégée pour ce qui est d'assurer que tout revenu généré par les entrepreneurs à même les investissements ou la recherche dérivés de contrats avec la Ville, soit dévolu à la Ville, notamment la technologie mise au point par Thompson Technologies, Luxcom, Multilek ou Rogers Digital Communications durant le terme de leurs contrats avec la Ville d'Ottawa.
30. Principales dates en ce qui concerne Partham Engineering et Jim Bell :

Date	Événement
1985 à 1990	Embauche - Jim Bell, gestionnaire de la signalisation et des communications, Municipalité régionale d'Ottawa-Carleton (MROC). MROC offre un appui intermunicipal aux municipalités et cantons voisins afin de les aider dans leurs besoins limités en feux de signalisation.
1990	Les comités ordonnent la cessation du programme de soutien intermunicipal.
1990	Création de Partham. Propriétaires exploitants : Jim Bell et Andy

Date	Événement
1996	Thompson. Jim Bell déclare être en conflit d'intérêts en raison du cumul de deux emplois.
1997	Jim Bell et son épouse, Sue McInnis (chef de bureau), prennent le contrôle de Partham à titre d'actionnaires uniques.
1997	Quatre employés de la Circulation routière se déclarent en conflit d'intérêts en raison du cumul de deux emplois.
1999	Changement informatique : le poste de gestionnaire de la signalisation et des communications devient un poste de gestionnaire de la Circulation routière, MROC.
1999 à aujourd'hui	Multilek commence à fournir le contrôleur de la circulation Multilek à la Ville d'Ottawa.
1999 à aujourd'hui	Thompson Technologies (Andy Thompson) signe un premier contrat concernant un certain nombre d'initiatives et de projets de recherche et de développement associés aux progrès techniques dans le domaine des feux de signalisation.
2001	Promotion : Jim Bell, gestionnaire de la Division de la circulation routière, nouvelle Ville d'Ottawa.
2008	Le vérificateur général de la Ville entreprend la vérification de la Division de la circulation routière.
Printemps 2008	Trois autres employés de la Circulation routière se déclarent en conflit d'intérêts en raison du cumul de deux emplois.
Janvier 2009	Le vérificateur général de la Ville présente au directeur général des Travaux publics, des constatations de la vérification concernant le conflit d'intérêts de Partham Engineering.
Février 2009	Le vérificateur général de la Ville soumet au directeur municipal, plus tôt que prévu, la version préliminaire du rapport de vérification (avant de présenter la restructuration organisationnelle à la réunion du Conseil du 25 mars).
Mars 2009	Jim Bell [REDACTED] dans le cadre de la réorganisation administrative de la Ville ([REDACTED]).
Avril 2009	Concours affiché pour le poste de gestionnaire de la Circulation routière.
27 avril 2009	Clôture du concours pour le poste de gestionnaire de la Circulation routière.

Recommandations et réponses de la direction

Recommandation 1

Que la Ville élabore, pour l’approbation du Conseil, des normes accompagnées d’un programme détaillé de mesure du rendement permettant la surveillance de ses activités et la présentation de rapports destinés à l’examen du Conseil et du public; et recommande au Conseil des politiques de clarification afin d’orienter davantage la Division en ce qui concerne les priorités dans le domaine de la gestion de la circulation.

Réponse de la direction

La direction est d’accord avec cette recommandation. À l’heure actuelle, des équipes de signalisation et de marquage de la chaussée travaillent hors site du 175, avenue Loretta dans trois installations d’entretien de la voirie dans toute la ville; cependant, avant le T1 2010, la Direction de l’entretien des routes et de la circulation routière passera en revue des occasions de localiser d’autres unités de travail hors site et explorera d’autres possibilités de sous-traiter les activités des unités de travail dans le respect des dispositions des conventions collectives en vigueur.

Recommandation 2

Que la Ville prépare un plan stratégique quinquennal qui offre une orientation détaillée favorisant le changement et la croissance au sein de chacun des secteurs de services qu’elle assure, dans le but de rationaliser, d’optimiser ou d’étendre leurs travaux conformément aux directives du Conseil ou pour réduire les dépenses.

Réponse de la direction

La direction est d’accord avec cette recommandation. La Direction de l’entretien des routes et de la circulation routière, de concert avec l’Unité de la circulation routière, des services d’ingénierie et techniques, prépare actuellement un plan quinquennal qui va dans le sens des orientations stratégiques du Conseil. Le plan quinquennal s’inspirera des principes actuels du Plan directeur des transports et du module de gestion de la demande en transport (GDT).

Le mandat en cours d’élaboration sera présenté au Conseil au cours du T4 2009.

Recommandation 3

Que la Ville passe en revue les politiques concernant les ventes à l’extérieur, en retirant immédiatement la Ville d’Ottawa de la concurrence avec le secteur privé pour la vente de biens et de services qui peuvent être fournis par autrui.

Réponse de la direction

La direction est d'accord avec cette recommandation. Toutes les ventes à l'extérieur, sauf pour les déménageurs de maisons, ont été suspendues; cependant, les demandes émanant d'œuvres de bienfaisance ou d'organismes à but non lucratif continueront d'être étudiées, au cas par cas, en utilisant la documentation à l'appui et les procédures adéquates, jusqu'à ce que ces derniers secteurs puissent eux aussi être éliminés.

Recommandation 4

Que la Ville passe en revue les pratiques en génie de la circulation au sein de la Division et la nécessité d'une formation interne de plus de 6 à 12 mois avant que les nouvelles recrues puissent être utiles au génie de la circulation de la Division, et qu'elle envisage l'une des options suivantes :

- (a) modifier les structures divisionnaires de manière à permettre l'embauche d'autres ingénieurs ayant des qualifications moindres, qui seraient conservés/promus au fil du temps;**
- (b) déceler des occasions pour que les ressources externes en génie secondent l'unité dans l'analyse technique de la circulation en période de pointe ou de réduction des effectifs; ou**
- (c) tenir à jour les normes publiées du domaine du génie de la circulation qui attribuent davantage de responsabilités en la matière aux auteurs de propositions de projets ayant une incidence sur le débit de la circulation (p. ex. promoteurs, autres organismes gouvernementaux, etc.).**

Réponse de la direction

La direction est d'accord avec l'intention de cette recommandation.

La Ville croit avoir réussi, au cours des 30 dernières années, à recruter et à conserver des ingénieurs, technologues et techniciens qualifiés dans le domaine du génie de la circulation. D'ailleurs, plusieurs des spécialistes à l'emploi de la Ville ont été embauchés à plein temps après avoir participé à des programmes d'enseignement coopératif au sein de l'unité du génie de la circulation.

Grâce à un programme de formation par rotation de postes, des ingénieurs sont également assignés à tour de rôle aux unités du génie de la circulation, de l'examen de la conception et de la circulation de l'ingénierie et du soutien technique.

La Direction de l'entretien des routes et de la circulation routière se penchera sur la possibilité de retenir les services de firmes d'ingénierie de la manière prescrite dans l'Offre à commandes de services professionnels d'ingénieurs. Toutefois, une part substantielle de l'étude technique de la circulation entreprise par le personnel comporte l'examen de rapports d'incidences de la circulation soumis à la Ville par des consultants. Dans de tels cas, cette recommandation pourrait

créer une situation dans laquelle des consultants externes étudient les soumissions d'autres experts-conseil externes concernant le génie de la circulation.

La Ville se conforme actuellement aux exigences contenues dans les Lignes directrices de l'évaluation de l'impact sur les transports.

Recommandation 5

Que la Ville passe en revue les facteurs de causalité qui influent sur le grand nombre d'employés dont le coût en heures supplémentaires est élevé et étudie les meilleurs moyens de réduire ces coûts; et que cet examen englobe l'évaluation de la création d'une équipe de travail après les heures de service (p. ex. pour couvrir la période de pointe de la circulation l'après-midi, etc.) afin de réduire les coûts globaux des heures supplémentaires et des rappels au travail.

Réponse de la direction

La direction est d'accord avec cette recommandation. La Direction de l'entretien des routes et de la circulation routière, de concert avec Services juridiques, Service des finances et Services aux employés, procède en ce moment à l'examen des heures supplémentaires du personnel et prend des mesures visant à réduire les coûts d'heures supplémentaires dans la mesure du possible. Cet examen sera terminé pour le T3 2009.

La nouvelle équipe de direction a instauré un rapport financier mensuel pour tous les domaines fonctionnels au sein du nouveau Service des travaux publics, qui couvre tous les domaines des programmes et assure le suivi des principales dépenses, y compris les heures supplémentaires. L'équipe de la haute direction du Service passe en revue ce rapport une fois par mois.

Recommandation 6

Que la Ville planifie et mette en œuvre un programme de participation du personnel à des organismes existants du domaine de la circulation routière (International Municipal Signal Association, l'Institut d'ingénieurs en transport; l'Association des transports du Canada, etc.) en vue d'accroître le transfert de technologie et de connaissances, d'atténuer la spécificité croissante des normes et procédures de la Ville d'Ottawa en matière de circulation routière (c.-à-d. feux de circulation, communications, panneaux et marques sur la chaussée) et d'assurer une plus grande conformité avec l'ensemble de l'industrie.

Réponse de la direction

La direction est d'accord avec l'intention de cette recommandation. Des membres du personnel de la Direction de l'entretien des routes et de la circulation routière s'engagent dans les organismes cités et y participent activement, car le système de circulation routière de la Ville est considéré comme une pratique exemplaire

de l'industrie. Par exemple, un employé du Génie de la circulation est le représentant de la Ville au sein de l'Institut canadien des ingénieurs en transport (ICIT).

Le personnel du génie de la circulation siège périodiquement à des comités directeurs de projets pour le Comité directeur de la gestion de la circulation routière de l'Association des transports du Canada. Des employés de la Circulation routière représentant la Ville ont également contribué à la rédaction et à la mise à jour de la publication intitulée Ontario Traffic Manual, y compris le livre 12 - Feux de circulation.

De plus, des employés de Feux de circulation et de Panneaux et Marques sur la chaussée ont reçu de la formation de l'International Municipal Signal Association (IMSA), à divers niveaux en fonction du poste qu'ils occupent. De fait, ces dernières années l'IMSA a offert sa formation à Ottawa, et non à Mississauga comme elle le faisait auparavant, en raison du nombre élevé d'employés de la Ville inscrits à son programme de formation. La Ville a ainsi évité des frais de déplacement considérables.

La Direction de l'entretien des routes et de la circulation routière continuera à encourager le personnel de la Direction à participer aux activités de ces organisations, ainsi qu'à toute autre organisation qui peut avoir des effets salutaires pour les réseaux de circulation routière de la Ville.

Recommandation 7

Que la Ville s'assure que le personnel de Feux de circulation en disponibilité détienne tous les certificats nécessaires et que la direction veille à ce qu'une surveillance adéquate soit en place de sorte que personne ne doive assumer une charge excessive de quart de travail.

Réponse de la direction

La direction est d'accord avec cette recommandation. On a dressé une grille de formation qui permet de suivre et de signaler les besoins en formation des employés en fonction du poste qu'ils occupent. La Direction de l'entretien des routes et de la circulation routière passe en revue les certificats détenus actuellement par le personnel de Feux de circulation, en repérant les lacunes, et mettra en œuvre une formation adéquate avant le T1 2010 afin de s'assurer que les exigences de quart de travail sont équilibrées au sein de l'unité de travail.

Recommandation 8

Que la Ville clarifie immédiatement le *Code de conduite du personnel* de manière à prévoir que les employés cumulant deux emplois ne puissent travailler dans une relation de superviseur à subalterne (direct ou indirect) au sein d'une même unité de travail d'un service municipal donné.

Réponse de la direction

La direction est d'accord avec cette recommandation. La Direction des Services juridiques entreprendra un examen approfondi du *Code de conduite du personnel* afin de clarifier et de consolider les divers articles qui ont fait l'objet d'observations dans des rapports de vérification au cours des derniers mois, y compris les dispositions sur « l'activité économique externe (cumul de deux emplois) ». La Direction des Services juridiques aura terminé cet examen avant la fin du T3 2009.

Recommandation 9

Que la Ville clarifie le *Code de conduite du personnel* – Cumul de deux emplois par des procédures, des systèmes, des documents et des formulaires à l'appui afin d'aider les gestionnaires et superviseurs à déterminer si le cumul de deux emplois est approprié.

Réponse de la direction

La direction est d'accord avec cette recommandation. Dans le contexte de l'examen cité ci-dessus, la Direction des Services juridiques propose d'ajouter un article intitulé « Questions et réponses supplémentaires » à la section sur « l'activité économique externe (cumul de deux emplois) » du *Code de conduite du personnel* avant la fin du T3 2009. (Une orientation similaire est déjà fournie en ce qui concerne la Politique municipale sur les cadeaux, les divertissements et les marques d'hospitalité, dans le but d'offrir aux gestionnaires et aux superviseurs des exemples pratiques qui les aideront à déterminer les exigences de la Ville en matière d'éthique.) Les Services juridiques insisteront aussi sur le fait que toute question concernant la suspension ou l'application du Code, ou d'autres conseils ou orientations connexes, peut être adressée au greffier municipal et chef du contentieux.

Recommandation 10

Que la Ville prenne immédiatement des mesures visant à mettre en place une surveillance provisoire par la direction et des contrôles de gestion des activités de Partham Engineering et de ses employés conformément aux dispositions du *Code de conduite du personnel* en vigueur.

Réponse de la direction

La direction est d'accord avec cette recommandation. Le Service des Travaux publics collabore avec les Services juridiques, les Ressources humaines et les Relations de travail pour établir, mettre en œuvre et surveiller, avant la fin du T2 2009, des mesures et des contrôles afin d'éviter tout conflit d'intérêts ou toute violation du *Code de conduite du personnel*.

Recommandation 11

Que la Ville prenne des mesures immédiates pour mettre fin aux activités de cumul de deux emplois de tous les employés municipaux, y compris M. Jim Bell, chez Partham Engineering.

COMMENTAIRE DU VÉRIFICATEUR GÉNÉRAL : Afin de veiller à ce que la direction de la Ville soit bien informée avant la présentation de la restructuration organisationnelle au Conseil le 25 mars 2009, nous avons signalé les questions concernant les conflits d'intérêts liés à Partham Engineering au directeur général, Travaux publics, le 23 janvier. Par la suite, le 2 février, nous avons également soumis, plus tôt que prévu, la version préliminaire du rapport au directeur municipal.

Réponse de la direction

La direction est d'accord avec cette recommandation. La Direction des services juridiques collaborera étroitement avec la haute direction du Service des travaux publics afin de résoudre, avant la fin du T3 2009, tout conflit d'intérêts, réel ou perçu, ou toute violation du *Code de conduite du personnel* dans le contexte de la structure organisationnelle révisée et conformément aux exigences de tout contrat de travail ou de toute convention collective en vigueur.

COMMENTAIRE DU VÉRIFICATEUR GÉNÉRAL : Le vérificateur général considère que cette recommandation devrait être transmise au Comité de la vérification, du budget et des finances aux fins de discussion.

Recommandation 12

Que la Ville précise les unités de travail dont les tâches peuvent être menées à bien hors site du 175, avenue Loretta ou sous-traitées au secteur privé afin de soulager la pression qui résulte des activités essentielles de la division, de réduire la nécessité d'achat de matériel juste-à-temps et d'améliorer l'entreposage.

Réponse de la direction

La direction est d'accord avec cette recommandation. À l'heure actuelle, des équipes de signalisation et de marquage de la chaussée travaillent hors site du 175, avenue Loretta dans trois installations d'entretien de la voirie dans toute la ville; cependant, d'ici le T1 2010, la Division de l'entretien des routes et de la circulation routière passera en revue des occasions de localiser d'autres unités de travail hors site et explorera d'autres possibilités de sous-traiter les activités des unités de travail dans le respect des dispositions des conventions collectives en vigueur.

Recommandation 13

Que la Division de la circulation routière conserve une main-d'œuvre hautement qualifiée pour surveiller et assurer la bonne exécution des obligations contractuelles de prestation de contrats de services d'éclairage des rues.

Réponse de la direction

La direction est d'accord en principe avec cette recommandation. L'expérience acquise durant les cinq premières années du contrat d'entretien des réverbères sera intégrée aux futures discussions concernant la prolongation de ce contrat prévue pour le T3 2010. L'orientation future de ce contrat incombe au directeur général du Service des travaux publics.

Recommandation 14

Que la Ville entreprenne un examen approfondi du modèle actuel d'« effectuer à l'interne » utilisé pour les achats, en vue de déplacer le coût de la recherche et du développement ainsi que l'achat et la manipulation de matériel vers le secteur privé. En particulier, dans le cas où l'achat continu de technologie élaborée localement est justifié, il est recommandé que la Ville lance un processus visant à introduire dans la chaîne d'approvisionnements une saine compétition du secteur privé; et qu'on élabore un plan à long terme pour le contrôle et les communications concernant les feux de circulation qui atténue le risque auquel est exposée la Ville d'Ottawa, en faisant appel à l'expertise d'un large bassin de spécialistes et de fournisseurs de matériel de contrôle de la circulation.

Réponse de la direction

La direction est d'accord en principe avec cette recommandation; cependant, il importe de noter que la décision de passer d'un modèle d'« effectuer à l'interne » reposait, en grande partie, à la fois sur le manque d'engagement de la part du secteur privé et de soutien technique requis pour maintenir et étendre leurs gammes de produits en temps voulu et de façon rentable, en raison de l'étroitesse relative de ce marché de niche et de complications associées à l'intégration de divers processus technologiques. Le lecteur trouvera des précisions et un justificatif plus complets dans le document de travail sur la gestion de la demande en transport (GDT) préparé pour le Plan directeur des transports de l'ancienne Région d'Ottawa-Carleton en 1997.

L'approche d'« effectuer à l'interne » n'est pas propre à Ottawa : d'autres grandes villes, comme San Francisco, Los Angeles, New York et Winnipeg, y ont recours. Cependant, la Gestion de l'approvisionnement collaborera avec la Direction de l'entretien des routes et de la circulation routière pour entreprendre un examen complet du modèle actuel d'« effectuer à l'interne » les achats avant le T1 2010 en vue de déplacer le coût de la recherche et du développement, ainsi que de l'achat et de la manipulation du matériel, vers le secteur privé. On s'efforcera également

d'introduire une saine concurrence du secteur privé dans la chaîne d'approvisionnement, dans le but de protéger la capacité future de la Ville de répondre aux besoins technologiques de la circulation routière et de retirer la meilleure valeur possible de son investissement.

Recommandation 15

Que la Ville dresse l'inventaire systématique de la signalisation routière réglementaire et non réglementaire pour tous les chemins de la Ville.

Réponse de la direction

La direction est d'accord en principe avec cette recommandation. Le personnel élabore actuellement une nouvelle procédure visant à étiqueter les éléments de signalisation réglementaire et à en assurer le suivi, qui sera prête au plus tard durant le T1 2010. De plus, la Direction de l'entretien des routes et de la circulation routière déterminera les incidences financières et l'échéancier de la mise au point d'un système de prise d'inventaire formel de l'ensemble de la signalisation routière au plus tard durant le T2 2010.

Recommandation 16

Que la Ville respecte tous les règlements et toutes les pratiques exemplaires nécessaires afin d'assurer l'inspection et l'entretien des normes d'état minimales pour la signalisation réglementaire et de contrôle de la circulation.

Réponse de la direction

La direction est d'accord avec cette recommandation. La Direction de l'entretien des routes et de la circulation routière continuera d'élaborer et de peaufiner une série de politiques, de procédures, de guides et de pratiques exemplaires en matière d'inspection, d'entretien, de fabrication et d'installation de tous les panneaux de signalisation réglementaire, d'avertissement, d'orientation et d'information afin d'assurer le respect de normes adéquates en matière de signalisation, conformément à la publication intitulée Ontario Traffic Manual et au *Code de la route de l'Ontario*.

Recommandation 17

Que la Ville présente un rapport au Conseil sur les niveaux de dotation en personnel exigés pour répondre à la demande actuelle de tous les secteurs d'activité régis par des politiques approuvées par le Conseil municipal, les lois et règlements provinciaux et les pratiques exemplaires de l'industrie, avec une explication des risques pour l'organisation pouvant survenir si le Conseil décidait d'utiliser des niveaux de dotation en personnel inférieurs aux normes minimales.

Réponse de la direction

La direction est d'accord avec cette recommandation. Le Conseil recevra un rapport complet précisant les exigences au chapitre du budget et des ressources durant le T3 2010.

Recommandation 18

Que la Ville entreprenne un examen des pratiques d'achat en vigueur au sein de la Division de la circulation routière dans les domaines de l'acquisition de services d'ingénierie; l'acquisition de matériel et de logiciels de contrôle de la circulation; et l'acquisition de matériel (au lieu de l'élaboration de caractéristiques techniques) afin de s'assurer que les meilleurs intérêts de la Ville sont défendus et que les pratiques courantes n'exposent pas la Ville à des coûts ou à des risques supplémentaires déraisonnables.

Réponse de la direction

La direction est d'accord avec cette recommandation. La Gestion de l'approvisionnement collaborera avec la Direction de l'entretien des routes et de la circulation routière afin d'élaborer, avant la fin du T1 2010, une stratégie de chaîne d'approvisionnement pour l'acquisition de services d'ingénierie, de matériel et de logiciels de contrôle de la circulation et de matériel connexe dans le but de protéger la capacité future de la Ville de répondre aux besoins technologiques de la circulation routière et de retirer la meilleure valeur possible de son investissement. Le personnel collaborera également avec les Services juridiques afin de veiller à ce que tous les changements nécessaires soient intégrés aux modalités des contrats type de la Ville.

Recommandation 19

Que la Ville explore les possibilités de retirer des bénéfices des ventes de moyens technologiques et de services dérivés de moyens technologiques et de produits actuels et futurs mis au point grâce au financement par la Ville d'Ottawa d'activités de recherche et de développement, et en particulier, des produits mis au point par Thompson Technologies, Luxcom, Multilek et/ou Rogers Digital Communications pendant la durée de leurs contrats avec la Ville.

Réponse de la direction

La direction est d'accord avec cette recommandation. La Direction de l'entretien des routes et de la circulation routière a demandé à IBM d'étudier la possibilité de retirer des revenus de l'utilisation des droits de propriété intellectuelle de la Ville dans le cadre de l'examen de l'efficacité organisationnelle, en reconnaissant les limites légales de la capacité de la Ville de générer un bénéfice et les difficultés pratiques liées à la gestion et à la mise en marché de la propriété

intellectuelle de la Ville. On s'attend à ce qu'IBM présente son rapport avant le T3 2009.

Recommandation 20

Que la Ville élabore un plan à long terme de conception et d'acquisition de matériel de contrôle de la circulation routière et de communications (par des processus concurrentiels standard) et que les contrats avec les entreprises retenues atténuent sensiblement le niveau de risque pour la Ville (p. ex. participation du secteur privé dans le financement de la recherche et du développement; partenariats publics privés, etc.), ou, si la technologie est élaborée aux frais et aux risques de la Ville, que la propriété, les droits d'application et les recettes de la recherche et du développement soient entièrement détenus par l'entité municipale, la Ville conservant le détail complet des caractéristiques techniques de tous les produits de recherche et de développement afin de pouvoir s'en servir dans de futurs marchés concurrentiels.

Réponse de la direction

La direction est d'accord avec cette recommandation. Au cours de la dernière année, la Gestion de l'approvisionnement et la Direction de l'entretien des routes et de la circulation routière ont pris d'importantes mesures afin d'élargir les appels d'offres concurrentiels pour le matériel de contrôle de la circulation. Deux fournisseurs se livrent maintenant une concurrence pour le matériel de contrôle de la circulation.

La Gestion de l'approvisionnement continuera de collaborer avec la Direction de l'entretien des routes et de la circulation routière afin d'élaborer un plan d'approvisionnement pour l'acquisition de matériel de contrôle de la circulation et de communications avant le T1 2010, dans le but d'intensifier la concurrence afin d'obtenir des prix plus avantageux, de répartir adéquatement les risques entre le fournisseur et la Ville, et d'explorer diverses formules en ce qui concerne la propriété de la technologie.

Les Services juridiques, en collaboration avec la Gestion de l'approvisionnement et la Direction de l'entretien des routes et de la circulation routière, examineront continuellement les modalités standard des contrats afin de s'assurer qu'elles protègent tous les intérêts de la Ville en matière de propriété intellectuelle.

Conclusion

La vérification de la Division de la circulation routière a confirmé que celle-ci offre une gamme complète de services au jour le jour. En règle générale, la Division offre certaines possibilités de formation à son personnel, et ses services sont généralement fournis dans le respect continu des lois, des règlements et des pratiques exemplaires en vigueur dans l'industrie. Des systèmes de soutien

administratif sont en place et les Services financiers prêtent leur appui à la haute direction de la Division dans la conduite de son travail.

Malgré l'état des activités d'entretien et des opérations en cours, nous présentons 20 recommandations de changement. Les principales constatations traitent de l'absence de planification stratégique suffisante, de la présentation insuffisante au Conseil de rapports sur les principaux résultats des mesures du rendement et de graves problèmes de gestion des ressources humaines. Ces problèmes liés aux ressources humaines comprennent des heures supplémentaires excessives, un manque de personnel bien formé et l'absence notable de surveillance, de suivi et de contrôles de gestion en ce qui concerne le cumul généralisé de deux emplois.

Des problèmes répandus ont trait à l'emploi d'un nombre élevé d'employés de la division par Partham Engineering. Nous sommes grandement préoccupés par l'absence de dispositifs internes de contrôle, de prévention et de détection, notamment en ce qui concerne la gestion de ces effectifs et des systèmes financiers connexes (p. ex. heures supplémentaires, ventes à l'extérieur, etc.). De plus, nous déplorons le fait qu'on ait toléré une telle situation pendant aussi longtemps (c.-à-d. 17 ans), sans que la haute direction intervienne afin de mettre en place la surveillance, la supervision et les contrôles de gestion qui s'imposaient.

Nous croyons de plus que la Ville doit, conformément au *Code de conduite du personnel* actuel, cesser immédiatement de permettre les activités de cumul d'emplois par le personnel municipal chez Partham Engineering. De plus, pour éliminer le risque pour la Ville résultant de la relation de longue date entre les employés municipaux et ceux de Partham, nous recommandons que l'on exige que les employés divisionnaires n'aient aucun contact et ne conduisent aucune affaire (ventes à l'extérieur comprises) avec Partham ou ses clients.

Comme nous l'avons vu dans le présent rapport, nous croyons qu'il existe plusieurs violations au *Code de conduite du personnel* actuel par la haute direction, les gestionnaires et les superviseurs à divers niveaux. Nous sommes persuadés que la situation actuelle aurait été évitée si on avait interdit à Jim Bell (propriétaire de Partham Engineering) de diriger Partham parallèlement aux opérations municipales, et que la haute direction est responsable de la situation actuelle en raison de décisions prises au fil des ans alors qu'elle était au courant de la situation.

Nous croyons que les risques pour les opérations municipales actuelles liés à Partham Engineering seront atténués de façon adéquate seulement si les recommandations nos 10 et 11 (cessation des activités de cumul de deux emplois) sont adoptées et mises en œuvre intégralement. De plus, les recommandations nos 8 et 9 de la vérification demandent des changements au *Code de conduite du personnel* qui, tout en découlant de la situation présentée par Partham Engineering, se veulent des modifications souhaitables aux politiques à l'échelle municipale visant à prévenir les situations semblables à l'avenir.

En conclusion, les recommandations soumises ont pour but de s'attaquer aux problèmes qu'entraîne la longue pratique de diriger un programme de recherche et développement commandité par la Ville par l'octroi de contrats concurrentiels à fournisseur unique et à répondant unique. Plus particulièrement, la vérification conclut que la pratique actuelle d'adjudication de contrats de conception, de mise au point et de fabrication de dispositifs de contrôle de la circulation présente un fort coefficient de risque et que la haute direction doit faire en sorte de réduire l'exposition au risque de la Ville, de s'assurer que la Ville recouvre les coûts de recherche et de développement par une participation aux bénéfices convenue par contrat, et d'établir un plan à long terme d'achat de dispositifs de contrôle de la circulation par un processus qui favorise la saine concurrence du secteur privé.

De manière plus générale, nous présentons également un certain nombre de recommandations afin de remédier à des lacunes ou d'améliorer la gestion de la division; ces dernières concernent :

- une planification stratégique améliorée;
- l'élaboration d'un système de mesure du rendement;
- des modifications à des systèmes qui permettent la vente de biens et de matériel à d'autres organismes;
- des changements dans l'acquisition de biens et de services afin d'accroître la concurrence du secteur privé;
- des changements dans les services de génie de la circulation afin de combler les lacunes des services actuels;
- des occasions de réduire les heures supplémentaires excessives, y compris l'étude d'autres quarts de travail;
- la participation accrue du personnel dans des organismes externes de perfectionnement ou de formation professionnelle;
- l'assurance que le personnel répond aux exigences de formation minimales des fonctions de chef d'équipe après les heures de travail;
- la mise en œuvre d'améliorations à l'inventaire de signalisation routière et l'assurance qu'il répond généralement à des normes minimales de signalisation réglementaire et de contrôle de la circulation; et
- des réductions à l'exposition de l'organisation au risque, par un examen complet des normes d'achat de dispositifs de contrôle de la circulation et de communication.

Remerciements

Nous tenons à remercier la direction pour l'assistance et la coopération qu'elle a apportées à l'équipe de vérification.

1 INTRODUCTION

The Audit of the Traffic Operations Division was included in the 2008 Audit Plan of the Office of the Auditor General, first presented to Council in December 2004.

1.1 *Audit Scope*

The scope of this audit was to examine aspects of the Traffic Operations Division of the Transportation and Parking Branch, Department of Public Works and Services, excluding elements being addressed under separate concurrent audits; more particularly the 2008 Audit of the Parking Function and the 2008 Audit of Moonlighting and Corporate Risk Issues – Traffic Operations.

The audit addressed the overall coordination and administration of traffic management, control and right of way lighting systems on municipal roads throughout the City of Ottawa. Specifically, the audit addressed areas of the division's activities related to: signs and pavement markings; traffic control systems; traffic engineering; signal design and installation; maintenance management; and, street light asset management.

The work undertaken by the Division has remained consistent over the past five years with limited changes to the Division's organization, all addressed through internal reorganizations the latest of which was implemented in Spring/Summer 2008.

1.2 *Audit Objectives*

The audit included an examination of the Division to assess whether the objectives that have been set are being achieved. Seven broad audit objectives were identified to assess if:

- The existing traffic operations mandate is comprehensive, the processes for updating the strategies address relevant municipal policies and priorities, and to determine if staff accountabilities are appropriate and effective;
- Appropriate processes are in place to plan daily, monthly, annual, long-term and capital activities in a manner that provides for efficient, effective and economic service delivery;
- Appropriate financial systems are in place to budget, record, track and monitor all expenditures within the Division in an efficient, effective and economical manner which facilitates service delivery;
- Appropriate systems, policies and processes are in place to manage staff;
- The City receives value for money for services performed;

- Appropriate standards exist, are communicated to staff, are maintained, monitored and enforced; and, are used to assess performance and refine practices; and,
- The City has risk management processes in place to identify risk¹ and implement mitigating procedures.

1.3 Audit Approach and Criteria

The audit included a complete review of the Division to assess whether the objectives identified in the previous section were being achieved. Seven areas of assessment were specifically identified:

1. **Vision** - examined the mandate, strategies and organizational structure to assess the governance and accountability framework.
2. **Planning** - examined management practices across the Division to assess the impact of planning (daily, monthly, annual, long-term, integration with capital plans) on the economy, efficiency and effectiveness of current operations.
3. **Financial Management** - examined the financial results of operations against short- and long-term plans and validated the reliability of financial systems including revenue collection, cost recovery structure and controls.
4. **Human Resources Management** - examined the management of staff with regard to human resources (e.g., absenteeism, vacations, overtime, training, succession, staffing levels, etc.) and Labour Relations (e.g., grievances).
5. **Performance (value-for-money)** - examined management practices, goals and objectives, controls including monitoring and reporting systems across the Division to assess the economy, efficiency and effectiveness of current operations.
6. **Compliance** - examined whether the Division conformed to all laws and regulations (e.g., Highway Traffic Act; Transportation Association of Canada Design Standards; Institute of Traffic Engineers Guidelines, etc.) that govern its operations, including all relevant legislation and spending authorities contained in the annual budget as well as City and Provincial standards (e.g., Corporate Traffic and Parking By-laws, etc.) and, examined whether the Division meets established service level standards.
7. **Corporate Risk** - examined areas considered to be of high risk to the City in terms of long-term achievement of mandate in a cost effective manner. This included suppliers, staffing, corporate memory, and potential conflicts of interest.

¹ the chance of something happening that will have an impact upon objectives

2 BACKGROUND

2.1 Division Overview

The Traffic Operations Division is organized to plan, design, implement and manage a wide-ranging traffic management and control system. Operating across urban and rural City of Ottawa, the Division is responsible for management of the vehicle and pedestrian traffic management systems generally, including traffic control signal (TCS) systems, signage, pavement markings and street lighting systems to manage vehicle traffic.

In general, the four basis tenets for maintenance and operations of traffic management systems within the modern urban centre include:

- Operation of traffic systems to support the local economy;
- Implementation of Council directives for urban transport system priorities;
- Safety of the Community (e.g., traffic safety; safeguarding of critical systems, etc.); and,
- Maintenance of the quality of life and preservation of general environment of the community.

More specifically, the Division is responsible for implementation and management of the system of traffic control devices on municipal rights of way including over 1,030 traffic control signals, the central traffic control computer systems and 92 traffic cameras. It also installs and operates the red light cameras currently in place at more than 20 intersections. Finally, it supplies, installs and maintains all regulatory, warning and information signs, and provide pavement markings on all municipal roadways.

In addition to traffic management systems, the Division is also responsible for the design and maintenance of the City's street lighting systems consisting of approximately 56,000 fixtures, made up of about 75 different styles of lighting. It currently contracts and oversees services performed by a private contractor that undertakes in-field maintenance and repair of street lighting.

The operation of City of Ottawa vehicle and pedestrian traffic management systems generally includes traffic control signal systems, signage, pavement markings and street lighting systems. These areas of activity are guided by various municipal policies (Official Plan (OP), Transportation Master Plan (TMP), etc.) and technical standards, in compliance with the Ontario Highway Traffic Act and various other regulations and guidelines established by the Province of Ontario, Transportation Association of Canada and other professional groups.

Within the Traffic Operations Division the management of traffic flows is generally planned on a link-by-link basis (e.g., roadways, pedestrian crossings, etc.). More

advanced traffic management systems are also occasionally used to optimize multi-intersection traffic management techniques to optimize multi-corridor flows, transecting corridor flows and linked intersection management of traffic through platooning.

The integral role of traffic management within the urban area results in the Division needing to work in cooperation with a large number of other municipal agencies and inter-government agencies including Provincial and Federal government agencies responsible for traffic policing, surface operations, emergency measures staff as well as security and special operations staff.

Traffic and Parking Operations Branch, through the Parking Operations Division, ensures that there is a supply of on-street and off-street municipal parking facilities to meet the needs of the community, providing on-street parking in the form of 3,703 metered parking spots to support local business communities, and 2,761 spaces in 17 off-street parking lots. Activities related to parking are excluded from this audit, and are addressed by a separate audit (2008 Audit of the Parking Function).

2.1.1 Organizational Structure

Within the Traffic and Parking Operations Branch there are four organizational groups (Divisions);

1. Traffic Management;
2. Safety and Traffic Services;
3. Mobility and Area Traffic Management; and,
4. Traffic Operations (subject of this Audit).

Traffic Operations Division is responsible for the safe and efficient movement of vehicular traffic and pedestrians throughout the City of Ottawa.

The Division has seven primary areas; (1) design and overseeing the installation of traffic signals, (2) manufacture, installation, repair and placement of street signs, (3) pavement markings, (4) real time monitoring and modifying traffic signals across the City to improve traffic flow, (5) cost recovery, (6) parking operations, and (7) street lighting.

Street lighting is operated under contract by a third party, Black and McDonald (B&M) through an Ottawa-Option contractual arrangement. Contract policing, standards development, streetlight layout and design as well as planning approvals and various street lighting and electrical power supply issues not covered by the B&M contract, are conducted by the Division.

To conduct this broad range of duties, the Manager Traffic Operations has seven direct reporting units as follows:

Units	Responsibility and approximate FTEs ²	Description
Signal Design and Specification	Program Manager 42 FTEs + 10 seasonal "re-lampers"	Unit responsible for engineering design of intersection signals to meet anticipated traffic levels. Includes design of civil works, electrical and intersection controllers (hardware and software). Group also staffed with large number of 're-lampers' responsible for annual traffic signal lumiere preventative replacement program.
Traffic Engineering	Program Manager 24 FTEs	Optimize intersection signal performance through engineering evaluation of approximately 1,000 traffic signal controlled intersections across the City. Monitor intersections via camera / computers and override set intersection timing, as required, in a central Traffic Control room. Build electronics in controller shop, manage traffic signal software. This unit is largely staffed with engineers, electricians and technicians.
Traffic Control Systems	Section Manager 6 FTEs	This specialized unit is responsible for planning, design, implementation, operations and maintenance of overall traffic signal network system. This includes: software and hardware systems which permit signal communications processes to report ongoing signal level function to the central control room; control and broadcast of traffic live-feed camera; use of dedicated wire, telecommunication wire-based and cellular systems for signal reporting to regional communications hubs and hub reporting to main control room.
Signs and Pavement Markings	Area Manager 44 FTEs + 11 seasonal (includes pavement 4 FTEs + 26 seasonal)	Manufactures 22,000 regulatory, warning and specialty signs in sign shop, installs, repairs and replaces street signs annually. Paints required City streets with pavement markings.
Maintenance Management	Program Manager 16 FTEs	Prepares information for charge backs to developers and others and charges to capital accounts for installation of signs and signals. Provides support to operational areas.
Parking Operations	Program Manager 27 FTEs	Determination of paid parking policies and sites. Installation, maintenance of parking collection systems and collection. No direct cash handling.
Street Light Asset Management	Program Manager 13 FTEs	Administration of P3 agreement with Black and McDonald for maintenance of existing street lighting infrastructure. Includes 8 staff for "project coordinating".

2.1.2 Recent Changes

Over the past two years, the Division has acted to address a number of prolonged human resources issues (e.g., excessive absenteeism, sick leave, etc.) as well as illegal drug trafficking activity by staff. These efforts, as well as normal retirements

² excluding summer and co-op students

have resulted in the change of a significant number of staff at all levels of the organization. To address the need for improved leadership and to tailor the organization to address overall staffing changes, a limited Division reorganization was initiated in late 2007 with implementation still ongoing at the time of this audit.

2.1.3 Coordination with other Divisions and Agencies

Traffic Operations has close relationships with many City and intergovernmental agencies. These relationships, reflected in the real time multi-media traffic control room hosted at the Traffic Operations Division offices at Loretta Avenue, places Traffic Operations Division in a critical position as the conveyor and assembler of a wide range of real-time video and data feeds related to traffic control and flow across the City. The Division specifically facilitates regular joint operations with:

- Police Forces (Ottawa Police, Ontario Provincial Police, RCMP, etc.)
- Emergency Measures Services staff (e.g., fire, ambulance, etc.)
- OC Transpo - Bus Transit Priority Signals and Controls
- Parking Operations - Vehicle Tracking
- Inter-Branch Staff - Traffic and Parking Division studies and initiatives
- Other security and events organizations

External agencies rely on the Division for day-to-day operations information on the City road conditions (e.g., emergency response to automobile accidents, EMS vehicle routing optimization, etc.) as well as special situation response (e.g., roadway closures related to major incidents (local and intergovernmental coordinated response, protests, VIP routing management and control, etc.).

2.2 Guiding Policies and Documents

This group is guided by various City Council approved plans including the OP and TMP that document Council's priorities for transportation in general.

3 OBSERVATIONS AND RECOMMENDATIONS

3.1 Vision

Audit Objective: To assess if the existing Traffic Operations mandate is comprehensive, the processes for updating the strategies address relevant municipal policies and priorities, and to determine if staff accountabilities are appropriate and effective.

3.1.1 Mandate

The Traffic Operations Division mandate is generally derived from the need to manage/ optimize vehicular traffic flows to reduce delay and, by extension to

reduce the impact of traffic congestion on the urban economy. It is based on municipal authority vested through relevant Provincial legislation (Highway Traffic Act, Municipal Act, etc.), and is directed by City Council through the OP, TMP policies and Traffic and Parking By-law number 2003-530 more particularly.

The OP provides direction to several supporting plans that impart a greater level of detail on important issues than is practical in the OP itself. These plans contain infrastructure program elements and strategies supportive of the policy directions contained in the OP. The OP sets direction for the TMP, a “supporting plan” to the OP, by expressing Council’s strategic policies on transportation, such as its targets for the share of trips by transit and other modes of travel. The TMP enhances the OP’s policy framework and describes the infrastructure and transportation networks needed to meet Council’s objectives, based on more detailed analysis and network modeling. Specifically, the TMP states that it “sets direction for the City’s day-to-day transportation programs, and provides a basis for budget planning. It supports the Ottawa 20/20 growth management strategy and the City’s OP, which guides the City’s physical development. This plan will come to life through mechanisms such as City budgets, program development, area and corridor transportation studies, design or practice guidelines, and Community Design Plans.”

The OP and TMP offer guidelines for the maximum capacity of a roadway that will be used. The TMP Section 9.1 aims to address deficiencies to “enable future road network to operate at 90% of its capacity. System-wide operation at 100% of capacity is not desirable because network instability could lead to gridlock. By comparison, operation at 90% of capacity would be much more efficient, and would create an acceptable level of congestion in peak period. Only in the Urban Core, bounded by the Ottawa River, the Rideau River, the Queensway and the CPR (O-Train) line, will operating at 100% capacity be considered acceptable for planning purposes; this reflects a greater tolerance for congestion in the downtown and its vicinity, and the scarcity of reasonable options to expand the area’s road network”. This policy provides only high-level direction to the Traffic Operations Division’s complex day-to-day activities related to road system management and traffic flow optimization.

3.1.2 Strategic Objectives, Goals and Priorities

The Traffic Operations Division has not established strategic objectives, goals and priorities for traffic management to ensure achievement of Council approved high-level policies identified in the OP and TMP.

The OP indicates an expectation that the roadway and traffic control system will run at a system-wide capacity of 90% outside the urban core area, yet there is no established mechanism that directs how a system-wide capacity is to be calculated or applied. In particular, the Division does not have any interpretive policy to direct

staff on how this policy applies to traffic management, such as traffic signals, bus prioritization and other Division activities.

In general, staff tend to rely on conventional traffic engineering principles to interpret general OP / TMP policies (1) to ensure pedestrian safety and (2) to optimize motor vehicle use of the road system operating along locally-developed standards (traffic engineering assessments) and innovations (traffic controller processes). These principles however, are not incorporated into Division documents nor are they approved by Council.

In the absence of more specific Council directives, the Traffic Operations Division is permitted a great deal of latitude to adopt planning principles, operating policies, standards and strategies. Some areas have tended to strive towards North American traffic engineering profession idealistic goals and targets with significant associated costs. For example, the Division holds itself up as a North American leader in real time traffic monitoring and optimization, making necessary adjustments to the traffic control system on an intersection-by-intersection basis each and every day of the year. Notwithstanding the achievement evident in these systems, there is no evidence that Council has been involved in specifically approving the strategic goals of this traffic management system nor the related incremental cost of this system. An assessment of the traffic management program is not possible without specific goals and objectives. The TMP specifies a goal of 90-100% capacity on our roadways, without identifying the related costs, in this case a complex expensive traffic monitoring system and related hardware.

While having the ability to adjust traffic control systems to meet vehicular demand, the potential benefits of the Division to meet higher order corporate directives related to the movement of people, bus-transit priority; pedestrian and/or cycle level of service; goods movement; emissions reductions or other priorities have not been prioritized. A lack of corporate direction from Council raises the possibility that the Division may at times work at cross-purposes to other goals or initiatives set by Council. For example, if the Division establishes a goal to minimizing vehicular traffic congestion and does so at the expense of transit vehicle level of service, the Division may have be acting to reduce the incentive to take public transit. In this same vein, funds currently directed to reducing vehicular congestion through advances in traffic monitoring and management systems operations may better meet Council's objectives for the transportation sector, should they be invested in direct public transit programs.

The Traffic Operations Division should establish transportation operations priorities (by mode, level of service standard, etc) with associated costs and benefits. Through this priority development process, direction on trade-offs associated with program goals (e.g., transit priority versus automobile delay; pedestrian time allocation versus motor vehicle; etc.) should be provided. This will require seeking direction and approvals by Council on policies, priorities and

operations plans for the traffic operations systems touching current transportation issues such as transit priority delay reduction, emissions and smog reductions, general vehicle delay reduction, directional priorities for delay reduction, etc.).

3.1.3 Performance Measurement

Work conducted by Traffic Operations Division lends itself to being quantified in terms of outcomes and performance measures.

At the time of audit conduct, the Traffic Operations Division did not use any Performance Measurement system to measure and publish statistics on its work conduct to Council, although there was a corporate initiative underway to characterize performance measurements.

While Division officials offer comments that its traffic management and communication systems represent the state-of-the-art in traffic management, evidence is qualitative only and based on their understanding of the North American industry in general.

Our review of municipal and industry best-practices in traffic management systems confirms that a well-supported private sector industry exists which supports traffic authorities involved in traffic management system development, operations and maintenance. Performance Measurements systems could be developed including both qualitative and quantitative measures of performance.

In addition to reporting on general Division performance, performance indicators reported to Council should include economic benefits of investment in various aspects of divisional programs from real-time intersection to network balancing. Performance measurement systems which address overall investment versus economic benefits may be used to substantiate more significant investment in advanced traffic monitoring and real time traffic controller systems, if they can be proven to offer significant savings to local ratepayers in terms of reduced delay and congestion as compared to investment in additional roadways / transit facilities.

Similarly, addressing Council on the effectiveness of standards used to meet performance requirements for line painting and signage maintenance will allow Council to provide direction on expenditure levels and outcome achievement.

3.1.4 Conclusion

While Council offers general direction on traffic management through the current OP and TMP, there is no detailed Council approved policy to direct the management of vehicular or pedestrian traffic. Professional engineering approaches to traffic management and road system optimization are used in lieu of adherence to municipal goals or directives. Given the highly technical nature of their activities and the extent to which Division optimization of the traffic management system impacts the local economy, the Division should initiate a

program of developing and reporting on outcomes and efficiency assessments within an overall Performance Measurement process.

Recommendation 1

That the City develop, for Council approval, standards and a related detailed performance measurement program by which their activities can be monitored and reported for Council and public review; and, recommend to Council clarifying policies to further direct the Division on traffic management priorities.

Management Response

Management agrees with this recommendation. The Roads and Traffic Operations and Maintenance branch, in conjunction with the Operations, Engineering and Technical Support branch, is currently developing a performance measurement program for Traffic Operations, which will include a balanced scorecard. The reporting of performance measures through this program will begin by Q2 2010.

Currently, Council is provided with reports specific to service standards, which detail response times to traffic signal and signage inquiries received through 3-1-1.

Traffic Management priorities will be clarified through the current principles of the Transportation Master Plan and the Transportation System Management (TSM) module, both of which will be completed by Q4 2009.

3.2 Planning

Audit Objective: To assess if appropriate processes are in place to plan daily, monthly annual, long-term and capital activities in a manner that provides for efficient, effective and economic service delivery.

3.2.1 Strategic Plan

Division officials confirm that year-to-year planning is conducted in association with the corporate budget process but that a strategic plan for the Division does not currently exist. Instead, divisional priorities are driven by annual budget constraints, managerial identified opportunities and issues identified in day-to-day maintenance and operations of the traffic control system and road signs / signage and street lighting systems.

Little evidence was available to demonstrate that individual programs (street lighting, traffic control signals, pavement marking, signage) had effective multi-year plans to rationalize, optimize or expand their works in line with Council's directives (e.g., street lighting) or to reduce expenditures (e.g., reducing pavement markings to every second year or as required to meet standards of colour / reflectivity / effectiveness through use of in-field inspection).

Notwithstanding the lack of divisional specific priorities, the various units show evidence of organizational systems and prioritization of weekly, seasonal and day-to-day priority setting, based, fundamentally on maintenance and operations of existing systems.

3.2.2 Operational Planning

Short-term priority setting within divisional sub-groups appears to be established, with task coordination well structured and administered. Overall Division management works to establish seasonal and sort term priorities and inter-division coordination.

While certain divisional activities (roadway line painting, seasonal signals maintenance, claims, etc.) are self-contained programs requiring little inter-program coordination, the majority of work within the Division (traffic management and engineering, signals design, materials fabrication, controller design and fabrication, civil works contracting, signals constructions and commissions) are highly interdependent. This high degree of program interdependence, combined with limited space resources, forces a large majority of work by the Division to be conducted in a 'just-in-time' manner, requiring substantial organizational effort to be allocated to weekly, monthly and seasonal priority setting and coordination. In general, inter-unit coordination appeared to be well organized.

3.2.3 Day-to-day Workload Planning

Day-to-day workload planning is organized with all work units providing detailed explanations of priority setting systems, supervision and management direction.

3.2.4 Conclusion

The Traffic Operations Division currently operates as a maintenance and operations group, with mid term and short term planning structures. A Strategic Planning document, supported by a budget, with clearly identified goals, initiatives standards and performance measures, with the assignment of responsibilities for completion of tasks is required to offer the Division direction over the long term, and to scope out a comprehensive plan for traffic operations over the long term.

Recommendation 2

That the City prepare a five-year strategic plan with detailed direction for change and growth within each of the services areas they perform with the intent of rationalizing, optimizing or expanding their works in line with Council's directives or to reduce expenditures.

Management Response

Management agrees with this recommendation. The Roads and Traffic Management branch, in conjunction with the Traffic, Engineering and Technical

Services Unit, is preparing a five-year plan that aligns with Council's strategic directions. The five-year plan will be guided by the current principles of the Transportation Master Plan and the Transportation System Management (TSM) module.

Council will be presented with the terms of reference, currently being developed, in Q4 2009

3.3 Financial Management

Audit Objective: To assess if appropriate financial systems are in place to budget, record, track and monitor all expenditures within the Division in an efficient, effective and economical manner which facilitates service delivery

Traffic Operations and Parking Branch represents a relatively constant operational requirement to City budget, with annual operating budgets ranging from \$33.5 million to \$35.9 million over the period 2006 to 2007. Expenditures are controlled by the Division, with few divisional activities being unusually impacted by external factors.

3.3.1 Budgeting

Actual expenditures consistently remain within approved budget provision.

Operations and Capital budget preparation is reported by senior staff to be based on percentage increases over previous years only and are not based on technical assessment of need (e.g., zero based budgeting).

Table 1: Traffic Operations Branch Budget (net of Parking Ops)*

	Capital Budget	Operations Budget	% Final Variance (Actual vs Budget)	FTE's	Compensation Actuals	Overtime Actuals
2008	\$10.6 M	\$30.4 M	Not Available	180	Not Available	Not Available
2007	\$9.8 M	\$27.6 M	- 5%	175	\$12.9 M	\$0.6 M 4.3%
2006	\$19.6 M	\$25.8 M	- 4%	170	\$11.2 M	\$0.9 M 7.1%

* Figures developed from various actual financial reports provided by Traffic Operations Staff.

Capital budgeting over the period 2006 to 2007 ranged widely with 2006 Capital Budget (excluding Parking Operations) approved at \$19.6 million and 2007 Capital Budget (excluding Parking Operations) approved at \$9.8 million. Approved capital

budgets lines are project specific, addressing street lighting (new, rehabilitation, growth, etc.); traffic signal expansion and growth, signals research and development and controller / video and data equipment) and other projects including inter-governmental initiatives. Due to the inter-government and inter-agency interest in real-time data acquired and traffic control function available through the current traffic control system, financial contributions to joint projects and / or external revenues sources (through charge back processes) are a regular aspect of the Division's budget.

In general, budgets are designed to respond to the broader corporate budget development process, are not designed to describe the cost of meeting minimum standards. Instead budgets are organized to respond to 'how to best allocate the budget increase identified for the Traffic and Parking Branch'. In this regard, the lack of divisional priorities and approved minimum standards undermines the Division's ability to offer potential costs savings to Council.

Ongoing financial tracking and control of projects and individual line items, appears to be well supported by Division administration with managers at all levels provided monthly tracking and control documents to adjust programs to remain within budget.

3.3.2 Cost Recovery

The Division is responsible for cost recovery and claims. This unit manages external and internal costs recoveries and charge-backs. Employees were able to identify numerous recent improvements to programs aimed at improving the City's ability to successfully claim damages from traffic collisions involving their plant. Division activities appear to be well coordinated with the City's Legal Services Branch.

3.3.3 Outside Sales

The Division maintains a financial system to control and track 'Outside Sales' - sales to private organizations, developers, external municipalities and others. Items sold by the Division include traffic control system and signals equipment, signage (stock and specialized); signage hardware and steel; and service charge-backs for in-field work required to facilitate the moving of houses (modifying signals for clearance, wires, etc.).

In general the definition of who can purchase equipment from the City is not clear, nor does it appear to be based on any overriding policy directive.

A detailed review of Outside Sales confirmed that over the period 2005 through 2007, 50% to 80% of total annual sales of \$70,000 to \$250,000 (excluding House Move Escorts) were sold to eastern Ontario municipalities. For a large majority of these cases, a single private sector organization, Partham Engineering, was the

contractor of record for the outlying municipal work and the municipalities were billed directly from the City for items purchased through Outside Sales.

An analysis of Outside Sale prices for standard traffic control signal equipment confirmed that City prices (including a mark-up for corporate administrative costs with municipalities charged an administration fee of 11% of costs, while others are charged a 15% fee) were some of the lowest in the marketplace, with purchasers offered savings of 2% to 12%.

While this service is an extension of a longstanding inter-municipal cooperation program, the risks and costs of the Outside Sales program, given the limited space available at 175 Loretta Avenue yards for materials handling, the cost of the program, risk of program abuse and the ready availability of similar product through numerous private sector suppliers and contractors supports the notion that this program has run its course and is no longer required (with the exception of house move escorts).

3.3.4 Conclusion

The financial administration, monitoring and control within this unit appears to be completed at a high level, with most units addressed within this audit showing Operations and Capital budget remaining within approval limits on a year-to-year basis.

Financial management efforts within the Division meet the needs of managers.

The sale of goods and services to private citizens, organizations and municipalities (Outside Sales) is a long-standing service offered by the Division. With the exception of services offered to escort houses being moved (e.g., adjusting traffic control signals, etc.) all services and sales offered by the Division are also available through the private sector and the sale of goods by the City appears to be below most private sector providers.

Recommendation 3

That the City review policies related to Outside Sales, immediately removing the City of Ottawa from competition with the private sector for the sale of goods and services that can be provided by others.

Management Response

Management agrees with this recommendation. All outside sales, with the exception of house movers, have been suspended; however, requests from charitable organizations or not-for-profit agencies will continue to be considered on a case-by-case basis using appropriate documentation and procedures until such time as they too can be phased out.

3.4 Human Resources Management

Audit Objective: To assess if appropriate systems, policies and processes are in place to manage staff.

In the course of the audit, a review was undertaken to assess trends in absenteeism, grievances, overtime, and moonlighting.

Senior and intermediate management noted that there had been historic problems with absenteeism and illegal activities at the workplace, which had been addressed and corrected over the past few years. A separate detailed audit of sick leave management in a unit of Traffic Operations has been initiated by the Auditor General's Office. This separate audit found concerns with absenteeism in some areas of the Traffic Operations Division. Overtime and moonlighting are addressed later in this report as well as in the 2008 Audit of Moonlighting and Corporate Risk Issues – Traffic Operations.

The organizational structure of the Division, last reorganized in the spring of 2008, appears to be well considered; with closely linked task groups working under a reasonable number of senior professionals with relevant credential and skills sets.

3.4.1 Culture of Specialized Training

Interviews with senior and intermediate Traffic Engineering staff offered insight into traffic engineering services conducted by the Division. It was noted by interviewees at all levels of the organization that the City has difficulty maintaining an adequately sized trained workforce in traffic engineering to handle ongoing needs and that high demand periods result in significant delays in their work.

While the Division recruits engineers with undergraduate training in civil engineering; the specialized nature of traffic control and management systems selected for use within the Division, requires that most new hires undertake additional internal training of approximately six months to one year. The lack of internal resources coupled with the low number of trained engineers currently available in the current marketplace has increased the pressure on existing staff, with more complex duties (e.g., network engineering and traffic balancing) being delayed and senior managers conducting operating engineers duties.

In general, the Division is faced with a need to address current traffic engineering shortfalls; either by maintaining a larger workforce, seeking private sector engineering firms to equip themselves to meet specialized divisional needs or by off-loading some of the current traffic engineering workload by requiring the conduct of traffic analysis by others (i.e., developers, engineering companies, other City departments) to conform to published technical standards which meets the Divisions needs.

3.4.2 Excessive Overtime

The Division needs to review the causal factors influencing the high number of individuals with high overtime costs and take corrective measures.

Overtime costs, while reported as acceptable and 'not a problem' by all supervisors and managers at all levels of the Division, included over 45 employees earning an average of \$10,271 in overtime wages in 2007. The top 10 overtime earners received more than \$17,000 in overtime with the highest earner making \$21,709 (35% additional to base salary).

While the Division is a 24-hour 7 days a week operation, over the past number of years it has strived to undertake this work in a more efficient manner through the staffing of over-night shifts (e.g., night time line-painting). Most areas of the Division reported that some of their duties are conducted at night or on weekends in planned overtime (to conduct work on higher volume roadways (e.g., arterials, highways, etc.)). Opportunities may exist to assign all or part of this work to an evening/night crew, which would permit the Corporation to claim certain cost efficiencies in the conduct of the work outside of overtime rates.

Given the significant number of staff required to respond to after-hours collisions and unforeseen incidents, the Division should consider whether a regular evening or night shift would offer a more efficient approach to the conduct of collision / repair work in lieu of the current system of paying on-call premiums and overtime for call outs. The Division should also consider establishing a late start time shift for a contingent of staff to cover-off afternoon peak travel period collisions without incurring overtime charges.

3.4.3 Overtime by City of Ottawa employees also working for Partham

We reviewed the overtime levels of Partham employees working at the City of Ottawa. Specifically, we looked at:

- How Partham employees ranked overall in the Division;
- The number of hours each employee worked over a three-year period; and,
- The dollar value this overtime represented.

Our premise is that an employee that constantly earns an additional sum of money for overtime year-over-year may get accustomed to this compensation level. The hours and earnings reported below relate to overtime only and do not account for additional on-call remuneration.

Traffic Operations Division's employees are remunerated for an 8-hour workday equating to 2,080 hours over a year. Furthermore, Partham employees worked the additional numbers of hours as reported in the table below as well as the further hours of employment for Partham.

**TABLE 2: 2006 to 2008 hours and dollar value of Overtime
Partham Employees**

Employee	2006 Overall Ranking within the Division	2006 Number of Hours	Amount	2007 Overall Ranking within the Division	2007 Number of Hours	Amount	2008 Overall Ranking within the Division	2008 Number of Hours	Amount
1	4	630.0	\$27,736	2	497.5	\$21,854	1	681.7	\$32,799
2	2	703.8	\$25,551	13	332.0	\$12,612	12	270.9	\$10,667
3	20	328.5	\$11,958	22	239.9	\$8,967			
4	27	272.9	\$13,214	43	144.6	\$7,540	30	175.6	\$9,452
5	48	154.6	\$8,706	112	42.9	\$2,488	122	31.0	\$1,857
6	68	102.0	\$6,754	114	42.0	\$2,772			
7	83	83.5	\$3,673	76	84.6	\$3,857	125	27.0	\$1,358
8	95	70.5	\$4,275	78	84.0	\$5,247			
9	166	12.0	\$568	168	9.5	\$463	104	49.0	\$2,465
Total		2,357.8	\$102,436		1,477.0	\$65,800		1,235.2	\$58,598

Moreover, as reported in the 2008 audit of Payroll, it was noted employees working overtime could be remunerated at a time and a half rate at two different pay levels. For at least one Partham employee, part of the overtime was paid at their normal time and a half rate, and the rest at a crew leader time and a half rate irregardless that the employee did not have a crew to lead. There is a substantial difference of \$10.91/hour between both rates. Also noted in the Payroll audit was a Partham employee working overtime for five hours, then being absent on sick leave for five hours as well as overtime hours being worked for labour type work not related to his unit’s normal work.

This level of hours worked by some City of Ottawa/Partham employees may have an adverse effect over time on employees’ well being as they may become chronically fatigued and/or be prone to a greater number of accidents, sickness, etc.

Of the Traffic Operations Division employees that worked overtime in 2006, 2007 and 2008, we noted that three in the top 25 of the Division also work for Partham.

Lastly, there may be an adverse effect on the Division employees’ morale as other non-Partham employees may feel envy towards their colleagues who have secured employment with the Manager’s own company where they could not; or may feel that Partham employees get preferential treatment, e.g., overtime. The Office of the OAG has received a Fraud and Waste report alleging such a situation.

3.4.4 Qualifications of On-call Staff

Response to after-hours signals emergencies (e.g., collision damage, repair, construction detour preparation, etc.) should be addressed by qualified front-line staff that rotate on-call duties. In general this system appears to be well considered, with limited managerial costs for after-hours works, and reasonable managerial oversight on after-hours overtime claims.

It was noted however that the rotation of those 'on-call' duties to signal systems crew leaders also includes the assignment of duties to two employees who do not currently hold the position of Crew Leader Signals within the Division, and that the overtime duties they perform in this regard goes unsupervised. These individuals apparently volunteered to assist the current roster of Crew Leaders. In total, these two individuals earned an average of \$17,160 of overtime in 2007, representing two of the highest overtime earners among divisional staff. The Division was unable to explain why they were permitted to conduct after-hours work they do not address in their substantive duties and could not confirm managerial structures in place to scrutinize their claims for overtime compensation.

The two individuals discussed above are also key Partham employees.

3.4.5 Moonlighting

Verifying the occurrence and regularity of moonlighting among divisional employees was a key objective of this audit. More particularly moonlighting activities have been a regular subject of reports to the City's Fraud and Waste Hotline, including complaints about employment of City employees by Partham Engineering. To place the moonlighting issue in context, an understanding of the Partham Engineering Ltd. entity and its evolution is important.

Therefore, a summary of key dates relating to Partham Engineering and Jim Bell are presented in the table below.

Date	Event
█	New Hire - Jim Bell, Manager of Signal and Communication, RMOC
1985 to 1990	RMOC offers inter-municipal support to nearby municipalities and townships to assist with their limited traffic signal needs
1990	Committees directed that the inter-municipal support program cease
1990	Partham was formed. Owned and operated by Jim Bell and Andy Thompson
1996	Jim Bell declares moonlighting conflict of interest
1997	Jim Bell and his wife, Sue McInnis (Office Manager) take over Partham as sole shareholders
1997	Four Traffic Operations employee declare moonlighting conflict of interest
1999	Data Change from Manager of Signal and Communication to Manager Traffic Operations, RMOC
1999 to present	Multilek starts supplying the City of Ottawa the Multilek Traffic Controller
1999 to present	Thompson Technologies (Andy Thompson) first under contract for a number of research and development initiatives and projects related to

Date	Event
	traffic signal technology advances
2001	Promotion: Jim Bell Manager, Traffic Operations Division, New City of Ottawa
2008	City Auditor General undertakes an audit of Traffic Operations Division
Spring 2008	Three additional Traffic Operations employee declare moonlighting conflict of interest
January 2009	City Auditor General raises audit findings pertaining to Partham Engineering conflict of interest to General Manager, Public Works
February 2009	City Auditor General issued, earlier than scheduled, the draft audit report to the City Manager (prior to his bringing the re-organizational restructuring before the March 25, Council)
March 2009	Jim Bell [REDACTED] as part of the City administrative reorganization ([REDACTED])
April 2009	Competition for Manager, Traffic Operations posted
April 27, 2009	Competition for Manager, Traffic Operations closes

Partham Engineering Ltd. (Partham) is an Ontario-registered engineering company, owned and controlled by Jim Bell, Manager of Traffic Operations Division. The firm designs, builds and maintains traffic control signals and related street lighting. Its client base is small municipalities primarily in Eastern Ontario. On occasion, they provide subcontract work to contractors serving these municipalities and work directly with private sector developers in these areas also. There is no evidence that work is done within the City of Ottawa boundaries. Partham evolved based on the need of smaller nearby municipalities requiring affordable, convenient external expertise in traffic signal systems.

From 1985 to 1990, the Regional Municipality of Ottawa-Carleton (RMOC) offered inter-municipal support to nearby municipalities and townships to assist with their limited traffic signal needs. This service was provided on a charge-back basis and was initiated in response to the lack of available private sector expertise and the high cost of retaining private sector service companies, typically required to travel from Central and South-western Ontario, in the traffic signals field.

In 1990, committees directed that the inter-municipal support program should cease. Senior management reports were submitted to relevant committees of Council advising that a separate legal entity, Partham, had been formed, which was owned by two municipal employees (now only Mr. Bell) and substantially staffed by municipal employees. The reports informed committees that this firm would continue to offer traffic signals support services to outlying communities in lieu of

City of Ottawa staff. This arrangement was fully disclosed and accepted by senior management at the RMOC and later by the amalgamated City of Ottawa.

During the 1990's and following amalgamation, Mr. Bell and the relevant City department have repeatedly disclosed the activities of Partham, including staffing, in response to inquiries and complaints received via the anonymous Fraud and Waste Hotline. In addition, this was fully disclosed and deemed to not be a Conflict of Interest by management when Mr. Bell was first promoted to Manager Traffic Operations under RMOC and later the City.

Over the period 1990 to 2008, almost 20 years, Partham has continued to provide a range of traffic signals and traffic lighting services to both eastern Ontario municipalities (outside the City of Ottawa) and private sector companies serving those municipalities. The business, including the size of projects undertaken, level of effort required by Mr. Bell to manage and the staffing resources of off-duty City staff utilized and revenue streams, has grown substantially over this period. It is noteworthy that during this time, Partham has been widely recognized as the leader in traffic signals engineering throughout eastern Ontario, with other players in the field remaining very small and of limited capabilities.

Partham employs, on a casual basis, nine existing Traffic Operations employees and two retired Traffic Operations staff. Mr. Bell's spouse works as the office manager

Most Partham work by existing City of Ottawa employees is reportedly conducted on evenings and weekends, but some is done during weekdays. As part of the detailed review of moonlighting (issued under separate cover due to confidential employee information) timesheets submitted by staff to Partham for payment were matched to employee City records of annual leave, time off in lieu as well as sick leave to determine if staff were working for Partham on days when they reported to be working for the City or were absent on sick leave. As well, a full review of investigations conducted by Corporate Security over the years was also reviewed.

Of note, Mr. Bell voluntarily invited the audit team to examine, in detail, all Partham financial records and documents to facilitate the secondary review. This review was completed by a chartered accountant in October 2008.

3.4.5.1 Disclosure of Moonlighting Activities by Traffic Operations Staff

The City's Conflict of Interest policy states that, "An employee must ensure that "moonlighting" at an external job does not negatively impact on their effectiveness at the City, nor contravene any of its related policies and procedures" and "Employees must act in the best interests of the City and the taxpayer. Responsibility to avoid actual or perceived conflicts of interest lies with the individual employee. Employees should disclose in writing all moonlighting situations with their manager in order to receive their approval and to ensure compliance with the Code and its related policies."

City of Ottawa Employee Code of Conduct (2008) - Relevant excerpts
Outside Business Activity (Moonlighting)

An employee must ensure that “moonlighting” at an external job does not negatively impact on their effectiveness at the City, nor contravene any of its related policies and procedures. Employees considering or already engaged in outside employment activity must comply with the following guidelines:

- The outside job must not conflict with their City hours of work.
- Outside activities must not interfere with the efficient performance of City duties.
- Employee’s external business activities must not compete with City services.
- Employees shall not use the City’s time or resources, such as photocopiers, stationery, computers, e-mail, internet, printers, vehicles, cellular phones, pagers or such, for the benefit of their second job or external activities.
- Employees shall not engage in any business activity or have a financial or other personal interest that is incompatible with the employee’s official duties.

Employees must act in the best interests of the City and the taxpayer. Responsibility to avoid actual or perceived conflicts of interest lies with the individual employee. Employees should disclose in writing all moonlighting situations with their manager in order to receive their approval and to ensure compliance with the Code and its related policies.

Employee Responsibility

Employees of the City must follow the highest standards of ethical behaviour in the course of their work to ensure that public confidence and trust is maintained. The City and all its employees must be above suspicion and beyond reproach, and must be perceived in this manner.

Disclosure

... each employee is required to be knowledgeable about the Code.... each employee is required to address any situations of actual or potential non-compliance. For example, when an employee believes that they may be in breach of the Code, then that employee must make prompt and full disclosure in writing to their Department Head or delegated official. This disclosure should include a detailed description of the actual or potential breach. An actual or potential breach may arise without any intentional wrongdoing or improper conduct on the part of the employee. In those circumstances, employees will not be disciplined or treated adversely for making prompt and full disclosure. However, all employees are expected to make every effort to avoid such circumstances. Employees are to use sound judgment and apply the Code in a proactive fashion in order to maintain the public’s trust in the City’s objectivity and integrity. An employee failing to disclose an actual or potential breach of the Code may be subject to discipline.

Management Responsibility

As part of effective management, each Department must ensure that its employees are aware of, and act in compliance with, this Code and its related policies.

The management of the City is accountable for protecting the assets of, and the public trust in, the City. Toward this end, management must make every effort to establish and maintain adequate systems, procedures and controls to prevent and detect fraud, theft, breach of trust, conflict of interest, bias and any other form of wrongdoing.

Upon receiving written disclosure of an actual or potential breach of the Code, the Department Head shall either determine that no breach exists or take reasonable steps to ensure that the matter is addressed in the appropriate manner. This may include seeking a written legal opinion from the City Solicitor....

It is the responsibility of management to ensure that each incident of suspected wrongdoing is investigated...

Family/Personal Relationships (Nepotism)

As a major public sector employer responsible for providing a variety of programs and services to the Ottawa community, City employees must ensure that their personal lives and their official duties co-exist independent of each other.

One area of concern is with respect to “nepotism” or the appointment to a position or the receipt of an employment benefit based on one’s kinship or family relatives. As in other areas of City business, there is an expectation, shared by the public and City staff alike, that all hiring, promotions, performance appraisals or discipline will be undertaken in an objective and impartial manner. In order to meet this expectation, the City prohibits employment situations where relatives would be:

- Supervised by, or subordinate to, one another
- Given preferential treatment in being recruited and/or selected for vacancies
- Appointed to positions where job responsibilities would be incompatible with positions occupied by relatives

Should these, or any other nepotism issues arise, employees are required to disclose the particulars to their manager for appropriate resolution.

With regard to disclosure, records indicate that Mr. Bell has repeatedly disclosed his work with Partham to his supervisors firstly at the RMOC and again at the City. Similarly, 8 of the 10 Partham employees, including J. Bell have advised their supervisors, including placing letters on their human resources files, that declared their moonlighting activities. However, this has not been done for all Partham/City employees and/or on a regular basis. We noted that the details of the level of work conducted has not been disclosed (nor requested to be disclosed). Prior to the announcement of the audit, some letters on file were several years old; some were updated in spring 2008. The table below summarizes which employee declared their conflict of interest and on which date.

TABLE 3: City/Partham Employees Conflict of Interest Declarations

(Source: Director of Human Resources, April 23, 2009)

Employee Name and Title	Date Declared	Nature of Conflict
1 Manager, Traffic Operations	30-Sep-96	Moonlighting
2 Program Manager, Traffic Engineer	12-Nov-97	Moonlighting
3 Program Manager, Street Light Asset Management	None	
4 Traffic Signal Plant Inspector	12-Nov-97	Moonlighting
5 Traffic Signal Plant Inspector	30-Jun-08	Moonlighting
6 Supervisor Traffic Signals	12-Nov-97	Moonlighting
7 Utility Placement and Investigating Inspector	12-Nov-97	Moonlighting
8 Signal Design Technician	30-Jun-08	Moonlighting
9 Electronic Technician	30-Jun-08	Moonlighting
10 Signs & Pavement Supervisor	None	

Through this audit we confirmed that there are no supporting documents, which expand on the employee disclosure requirements outlined in the City of Ottawa Employee Code of Conduct (2008). In this regard, there is no guidance to assess whether the outside job conflicts with their City hours of work or the efficient performance of City duties. This absence of policy leaves the assessment of conflict of interest to employees and their direct management based on individual interpretations of the intent of the Code of Conduct.

During our detailed review, we confirmed that in several cases where staff submitted Partham timesheets on week days, we were able to match the days to City annual leave or time off in lieu days, indicating that when they did work on these weekdays, it was appropriately accounted for with the City. However, in many cases, we were not able to match this time as Partham work is typically conducted in the evenings and on weekends.

Of concern, we noted that two of the City employees who work the most fieldwork hours for Partham also work significant overtime for the City, the combination of which could compromise their effectiveness at the City.

Beyond the activities of Partham, only a few employees were identified as being involved in moonlighting activities, either as home-based sole-practitioners involved in non-work-related activities or as occasional labourers for firms undertaking work for the private sector (line painters). The actions of these other employees appeared to remain well within the provisions of the Code of Conduct policy.

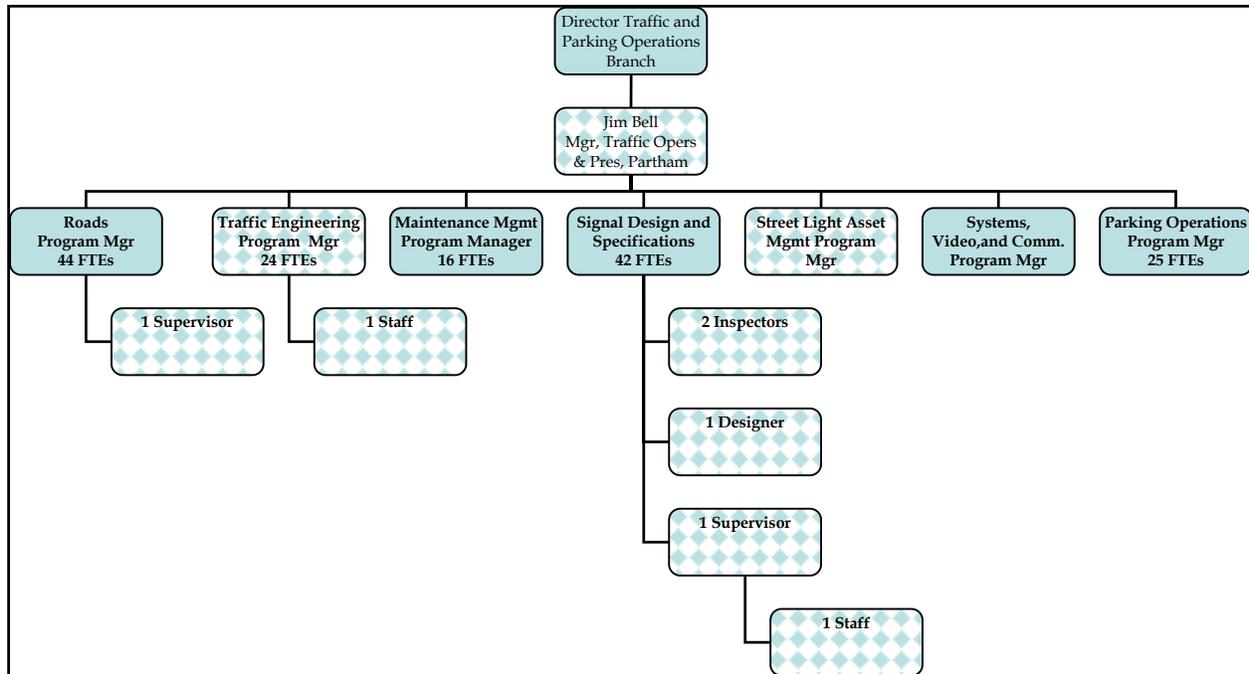
3.4.5.2 Supervision of Moonlighting Activities by Traffic Operations Staff

The inherent and implicit internal controls to manage moonlighting which exist in the organizational structure of a normal business environment are compromised and ineffective within the Traffic Operations Division due to the presence of Partham employees and the owner at many levels within the City's reporting structures.

City employees who moonlight for Partham Engineering Ltd. are not adequately supervised by their City supervisors, both immediate supervisors and supervisors, to ensure that the moonlighting activities do not interfere with City responsibilities. City supervisors, including Mr. Bell, who work for Partham cannot, based on the concepts of standard management practises, effectively ensure that City work is not being compromised as a result of the Partham work.

The Code of Conduct states that "management of the City is accountable for protecting the assets of, and the public trust in, the City. Toward this end, management must make every effort to establish and maintain adequate systems, procedures and controls to prevent and detect fraud, theft, breach of trust, conflict of interest, bias and any other form of wrongdoing...Upon receiving written disclosure of an actual or potential breach of the Code, the Department Head shall either determine that no breach exists or take reasonable steps to ensure that the matter is addressed in the appropriate manner. This may include seeking a written legal opinion from the City Solicitor...."

In the case of Traffic Operations Division, there are instances where Program Managers who are directly supervised by Jim Bell work regularly for Partham. In one case, a staff member is supervised directly and indirectly by a Partham employee, and in two cases Program Managers reporting to Jim Bell supervise five Partham employees. The following Traffic Operations organizational chart identifies the Partham staff in the chequered boxes. In some cases the Program Managers were promoted into their positions after working for Partham for extended periods of time.



The reporting relationship does not mean that wrongdoing has occurred, however, the internal controls for detecting and reporting inappropriate conduct have been compromised. For example, if a non-Partham Program Manager had an issue with an employee who worked at Partham, they may not feel comfortable disciplining the employee or discussing the issue with the other Program Managers or Mr. Bell. They have been placed in a very difficult position, especially if new to the organization, given that the Partham work has been disclosed and is long standing.

While we have been told that every effort is made to ensure moonlighting does not interfere with City work, the focus has been on ensuring work is not done on City hours (largely on an honour basis) but not on whether supervisors and program managers can effectively perform their supervisory duties, including hiring, promoting, assessing performance, assigning overtime, approving time off and maintaining general morale. As a result, we find that City supervisors are in violation of the Code requirement that, "Outside activities must not interfere with the efficient performance of City duties". In this regard, the issue is not whether some employees have received preferential treatment (as this has not been substantiated) but whether there has been the opportunity for preferential treatment, whether real or perceived, as a result of the City maintaining an organizational structure which may be biased toward Partham employees and whose ability to ensure the City's objectivity and integrity while maintaining public trust is compromised.

As City of Ottawa employees working for Partham are employed at most supervisory levels within the Division, it is impossible to properly supervise the

City workforce. In addition, with many senior supervisors also employed by Partham (including Partham owner, Jim Bell), reporting on questionable work performance by Partham moonlighting staff is difficult if not impossible. This viewpoint was upheld through audit interviews in which a number of employees and managers expressed a desire not to answer questions regarding employee activity related to Partham.

We attempted to assess if City staff were conducting Partham work on City hours and were less effective in their City work as a result of their outside work. We found little hard evidence to make an assessment. The only effective way to verify this is by regular monitoring by the immediate supervisor; something which should be done by each supervisor for all staff within the City as part of their supervisory responsibilities. This is impeded by the incompatibility of the job functions vis-à-vis Partham relationships.

While Mr. Bell offered assistance to this audit team, there was regular evidence gathered through the interviews that both senior and lower level subordinates within the Division were reluctant to discuss Partham activities with the auditors. The 'one team of good guys/gals' culture promoted and nurtured by Mr. Bell with his Traffic Operations employees led us to believe that staff might not question his direction, nor question the actions of Partham/City employees whom he regularly described as 'the best of the lot' (best of his employees at the City).

We found no action by senior branch or departmental management aimed at monitoring or assessing conflict of interest by Partham employees. That is there are no systems, procedures or controls in place to prevent or detect excessive and/or inappropriate moonlighting. There was no evidence of seeking advice from the City Solicitor or City Treasurer (regarding internal controls). It was evident however that senior management had been involved in investigating and responding to complaints received through the Fraud and Waste Hotline; the subject of significant resources by Corporate Security over time.

The basis of senior management decisions not to intervene or undertake inside audits of management and internal controls appears to be based on their faith in Jim Bell, that he would protect the interests of the City of Ottawa over his own profit motive or personal interests. This has also put Mr. Bell in a difficult position of "wearing both hats" while managing approximately 170 City employees under his direction; and as a result being the target for numerous accusations of inappropriate behaviour.

When Partham was first created, it was a very small entity with small weekend projects. In subsequent years, Mr. Bell was promoted. Through this period Mr. Bell maintained full disclosure of Partham activity. It is apparent from our review that Partham Engineering was considered to have received acceptance at its inception and that the need to revisit the appropriateness of its growing activity

level has never been questioned, notwithstanding investigations arising from Corporate Security.

In our opinion, the issue was never subjected to due diligence³ to address the impact on internal controls within Traffic Operations or from the view of ensuring the “protection of Public trust”, both real and perceived. Rather, it was approved as it was seen as a way of providing a service to small neighbouring municipalities without involving the then Regional Government.

The Code of Conduct does not adequately provide direction on the moonlighting issues. Specifically, it is based on the notion that moonlighting activities will be conducted by individual employees or co-workers – but not supervisors and subordinates, and it does not address the possibility that employees will be conducting moonlighting activities with an individual to whom they report to (directly or indirectly) for their City work.

The lack of a comprehensive Moonlighting policy (to specifically address supervision and moonlighting) has contributed to this undesirable and inappropriate situation continuing, as it does not provide any guidelines or direction on this topic. More to the point, it currently does not forbid this type of relationship.

By way of similar comparison, the Code of Conduct addresses similar situations for family members. Specifically under Family/Personal Relationships (Nepotism) it states, “City employees must ensure that their personal lives and their official duties co-exist independent of each other...One area of concern is with respect to “nepotism” or the appointment to a position or the receipt of an employment benefit based on one’s kinship or family relatives. As in other areas of City business, there is an expectation, shared by the public and City staff alike, that all hiring, promotions, performance appraisals or discipline will be undertaken in an objective and impartial manner. In order to meet this expectation, the City prohibits employment situations where relatives would be:

- Supervised by, or subordinate to, one another
- Given preferential treatment in being recruited and/or selected for vacancies
- Appointed to positions where job responsibilities would be incompatible with positions occupied by relatives”.

In our opinion, the same regulations should apply in instances of moonlighting, particularly when moonlighting is regular and involves significant sums of money, as in the case of Partham Engineering. While, not actual family members, because of the personal Partham relationships, if the intent of the Nepotism section of the Code of Conduct is applied to Traffic Operations, there are numerous major violations to

³ Defined as “Measure of prudence, responsibility, and diligence that is expected from, and ordinarily exercised by, a reasonable and prudent person under the circumstances.”

items 1 and 3 above. While we found no evidence to indicate that violations to item 2 above, has occurred, we acknowledge that this has been the topic of some Fraud and Waste reports.

In order for the management of Traffic Operations Division to ensure and be accountable for protecting assets of the City and the trust of both the public and other employees, they have been required to make every effort to establish and maintain adequate systems, procedures and controls to prevent and detect fraud, theft, breach of trust, conflict of interest, bias and any other form of wrongdoing. In our view, this should have started with a sound organizational structure. This is a very basic management control issue, as evidenced in the Nepotism section of the Code of Conduct.

In order to properly exercise management responsibilities regarding Partham, that is the decision to permit several staff (supervisors and subordinates) within a single work unit at the City, to actively work for a separate private sector business, senior management would have to take on the added role of the Division's management, control and oversight with a special need to address anticipated conflicts of interest. Such a decision by senior management would have placed significant additional demands on their own shoulders and would have resulted in significant additional management and control costs for the City. This should have been addressed when Mr. Bell's promotion was first contemplated and revisited over time to ensure its effectiveness. There is no evidence that senior management established any such systems of oversight and control.

Even if there is no evidence of inappropriate behaviour on Mr. Bell's part, as a senior manager, he should have recognized the inappropriateness of the reporting relationships and highlighted them when documenting the staff working for Partham as well as highlighting them when staff were promoted to supervisory positions.

In summary, we believe that senior management should not have promoted Mr. Bell to Manager Traffic Operations at the City, while he openly encouraged moonlighting and directly or indirectly hired, supervised and disciplined staff while they were working for both Partham and the City.

In order to ensure City management was fully informed prior to bringing the organizational restructuring before Council on March 25, 2009, we raised the issues relating to Partham Engineering conflicts to the General Manager, Public Works on January 23rd. We also subsequently issued on February 2nd, earlier than had been scheduled, the draft report to the City Manager.

3.4.5.3 Management of the Signals, Data and Video Unit of Traffic Operations Division

The City hired Mr. Zimmerman on [REDACTED]. After holding various positions, on June 19, 2006, he was promoted to Program Manager, Signals, Data and Video Unit with the Traffic Operations Division.

The Manager, Traffic Operations indicated that Zimmerman was hired specifically to make difficult decisions, which would be unpopular with employees. Among other things he was tasked with taking away vehicles from supervisors, reducing sick leave (where sick leave had been used in lieu of annual leave), monitoring and enforcing uncertified leave allotment, etc. - in essence, management of employees.

All parties agreed that upon assuming the duties of the position, Mr. Zimmerman set out to manage his employees and make them accountable where they had previously not been managed. For example:

- Staff noted that the program manager complied with and made use of corporate policies and the collective agreement;
- Held monthly meeting with staff and put up posters in the workplace in an attempt to motivate;
- Discussed with employees the code of conduct, attitude, mutual respect, HREE matters;
- Introduced winterized clothing for outside staff;
- Managed overtime and on-call:
 - Suspecting that employees may have been falsely claiming overtime he took over the timesheet responsibility from his supervisor – personally managing employees overtime and on-call; and,
 - Addressing staff exceeding the maximum allowable weekly overtime hours of 40 hours (at time and one half equals 60-hours of paid time) and/or maximum legislative single shift of 15 hours per day.
- Managed work hours (i.e., suspected employees were conducting personal business during work hours: going shopping, visiting girlfriends, etc.)
- Managed time off (i.e., Discontinued the practice of taking four to five weeks of holidays during the summer as it affects operations (unit's busiest season) and implemented a directive of two weeks annual leave at a time during the summer);
- Managing attendance:
 - Used SAP systematically and monitored his direct reports' sick leave;

- Drafted an uncertified sick leave procedure, which is still used by the Division, and instituted the recovery of compensation for uncertified days greater than the allowable limit;
- Referred and/or requested that EH&W review employees sick leave for certain sick leave days that cast doubt. One employee was issued a recovery of compensation letter;
- Staff noted that supervisors could no longer do what they were used to and that everything went through the program manager accountable for the unit. The Manager was aware that the supervisor (reporting to the program manager) were not filling the requirement of their positions (i.e., managing employees) and preferred being “one of the boys”; and,
- Provided cross training for staff in various areas.

In our opinion, the program manager was attempting to manage staff that had previously been allowed much latitude.

A complaint against [REDACTED] started a labour relations investigation. Some Traffic Operations staff complained that they were being intimidated into signing a letter of complaint against [REDACTED]. The Manager was aware of this. [REDACTED] was subsequently terminated.

It was the Manager, Traffic Operations opinion that, “[REDACTED] was not let go for any re-organizational reasons. There had been a number of instances of abuse and poor judgement and was uncovered following a harassment investigation conducted by [staff]”. It was also his opinion that “there was closer supervision on those guys than there ever was in the last 15 years”.

Although the Manager indicated that [REDACTED] was relieved from [REDACTED] function for cause, we noted that SAP indicated it was an Involuntary Termination and that the former employee had been awarded a monetary package equating to six-month salary, which is usually indicative of dismissal without cause. The dismissal was effective [REDACTED]

Recommendation 4

That the City review traffic engineering practices within the Division and the need for upward of 6 to 12 months of internal training before new hires are able to contribute to Division traffic engineering and consider either:

- a) Modifying divisional structures to permit the employment of additional lower qualified engineers who would be retained/advanced over time;**
- b) Identifying opportunities for external engineering resources to assist the unit in the traffic engineering analysis during seasons of peak demand/reduced staff; or,**

- c) **Maintaining published standards for traffic engineering which place added responsibilities for advanced traffic engineering unto proponents of projects that impact traffic flows (e.g., developers, other government agencies, etc.).**

Management Response

Management agrees with the intent of this recommendation.

The City believes it has been successful over the past 30 years in recruiting and retaining qualified engineers, technologists, and technicians in the field of traffic engineering. Moreover, many of the City's current professionals were hired for full-time positions after having completed successful co-op terms in the Traffic Engineering unit.

Through a cross-training program, engineers are also routinely rotated between the Traffic Engineering, Design Review and Traffic Engineering Technical Support units.

The Roads and Traffic Operations and Maintenance branch will review opportunities to engage external engineering services as required through the Professional Engineering Services Standing Offer. However, a considerable portion of the traffic engineering analysis undertaken by staff involves the review of Traffic Impact Reports submitted by consultants to the City. In these instances, the effect of this recommendation would be a situation in which external consultants were reviewing other external consultants' traffic engineering submissions.

The City currently follows requirements contained in the Transportation Impact Assessment Guidelines.

Recommendation 5

That the City review causal factors influencing the large number of individuals with high overtime costs, and investigate the best means of reducing overtime costs; and that such a review include the assessment of the creation of an after-hours crew (e.g., to cover the afternoon peak traffic period, etc.) to reduce overall overtime and call-out costs.

Management Response

Management agrees with this recommendation. The Roads and Traffic Operations and Maintenance branch, in conjunction with Legal Services, Finance and Employee Services, is currently conducting a review of employee overtime and is taking steps to reduce overtime costs where possible. This review will be completed by Q3 2009.

The new management team has implemented a monthly financial report for all functional areas in the new Public Works department, which monitors all

program areas and tracks key expenditures, including overtime. The departmental senior management team reviews this report on a monthly basis.

Recommendation 6

That the City plan and implement a program of staff involvement in existing traffic operations organizations (International Municipal Signal Association, Institute of Transportation Engineers; Transportation Association of Canada, etc.) with a view to enhancing technology and knowledge transfer and bridging the growing uniqueness of Ottawa's Traffic Operations standards and procedures (i.e., signals, communications, signs and painting) and ensure a higher degree of industry conformity.

Management Response

Management agrees with the intent of this recommendation. Staff from the Roads and Traffic Operations and Maintenance branch are actively involved with, and participate in the identified organizations, as the City's traffic operations system is considered best practice in the industry. For example, an employee from Traffic Engineering represents the City on the Canadian Association of Transportation Engineers (CATE).

Traffic engineering staff regularly sit on project steering committees for the Traffic Operations Management Steering Committee of the Transportation Association of Canada. Traffic Operations employees, representing the City, have also assisted with the development and updating of Ontario Traffic Manuals, including Book 12 - Traffic Signals.

In addition, Traffic Signals, Signs and Pavement Marking employees have received training at varying levels from the International Municipal Signal Association (IMSA), commensurate with their positions. In fact, in recent years the organization has conducted training in Ottawa, as opposed to Mississauga, where it did so previously, because of the high number of City staff enrolled in the IMSA training program. As a result, the City was able to avoid considerable travel expenses it would have otherwise incurred.

The Roads and Traffic Operations and Maintenance branch will continue to encourage branch staff to participate in these organizations, as well as any others that may enhance the City's traffic operations systems.

Recommendation 7

That the City ensure that on-call traffic signal staff hold all necessary certification, and ensure that adequate management oversight is in place to ensure that no individual be responsible for excessive amount of shift work.

Management Response

Management agrees with this recommendation. A training matrix has been developed that tracks and flags training requirements for individual employees commensurate with their position. The Roads and Traffic Operations and Maintenance branch are reviewing the current certifications held by Traffic Signal staff, identifying any gaps, and will implement appropriate training by Q1 2010 in order to ensure that shift work requirements are balanced throughout the work unit.

Recommendation 8

That the City immediately clarify the Employee Code of Conduct to provide that employees involved in moonlighting be prohibited from working as supervisor-subordinates (direct or indirect subordination) within a single department work unit at the City.

Management Response

Management agrees with this recommendation. The Legal Services branch will be undertaking a significant review of the Employee Code of Conduct in order to clarify and consolidate various sections that have been noted in audit reports over the course of the past few months, including the "Outside Business Activity (Moonlighting)" provisions. The Legal Services branch will complete this review by the end of Q3 2009.

Recommendation 9

That the City clarify the Employee Code of Conduct - Moonlighting through supporting procedures, systems, documents and forms to provide guidance to managers and supervisors in assessing whether moonlighting is appropriate.

Management Response

Management agrees with this recommendation. Within the context of the aforementioned review, the Legal Services branch proposes to include a "Supplementary Questions and Answers" section to the "Outside Business Activity (Moonlighting)" section of the Employee Code of Conduct by the end of Q3 2009. (Similar guidance is already provided with respect to the Gifts, Entertainment and Hospitality Corporate policy, and is intended to provide managers and supervisors with practical examples to assist in outlining the City's ethical requirements.) Legal Services will also reinforce the fact that any questions regarding the interpretation or application of the Code, or other related advice or guidance, may be sought from the City Clerk and Solicitor.

Recommendation 10

That the City take immediate action to put in place necessary interim management oversight and controls over the activities of Partham Engineering and their employees consistent with the provisions of the current Employee Code of Conduct.

Management Response

Management agrees with this recommendation. The Public Works department is working in collaboration with Legal Services, Human Resources and Labour Relations to identify, implement and monitor measures and controls to ensure there are no conflicts or violations of the *Employee Code of Conduct* by the end of Q2 2009.

Recommendation 11

That the City take immediate action to cease the moonlighting activities of all City employees, including Mr. Jim Bell, with Partham Engineering.

OAG COMMENT: In order to ensure City management was fully informed prior to bringing the organizational restructuring before Council on March 25, 2009, we raised the issues relating to Partham Engineering conflicts to the General Manager, Public Works on January 23rd. We also subsequently issued on February 2nd, earlier than had been scheduled, the draft report to the City Manager.

Management Response

Management agrees with this recommendation. The Legal Services branch will work closely with senior management in the Public Works department to address any real or perceived conflicts of interest or violations of the *Employee Code of Conduct* within the context of the revised organizational structure and in compliance with the requirements of any contract of employment or collective agreement, by the end of Q3 2009.

OAG COMMENT: The OAG considers that this recommendation should be forwarded to the Audit, Budget and Finance Committee for discussion.

3.5 Performance (Value-for-Money)

Audit Objective: To assess if the City receives value for money for services performed.

The Traffic Operations Division, first developed as a stand-alone organization unit, has addressed expanded service requirements associated with amalgamation.

Due the highly variable delivery approaches for Traffic Operations across Ontario and other jurisdictions across North America; the comparison of cross-jurisdictional financial outcomes is not feasible.

There are a number of key areas where the Division faces challenges to the effective delivery of services as addressed in the following sub-sections.

3.5.1 Office and Warehousing Facilities

Based on detailed interviews with managerial and front line staff, and having conducted site visits to the offices, workshops, storage areas and yards at Loretta Avenue and Bayview offices; it is evident that the effectiveness and efficiency of work by the Traffic Operations is negatively impacted by a lack of sufficient space. In particular, City Stores / Traffic Operation which both have facilities at Loretta must act as a just-in-time suppliers and stock managers due to the lack of sufficient stock piling space. At present the City is incapable of meeting the sensitive supply requirements of such an arrangement, thereby leading to costly administration as managers are required to undertake daily and weekly ordering of basic materials, and the resulting loss of productivity when City Stores is unable to meet minimum supply requirements to support Traffic Operations staff shifts with necessary materials (e.g., road paint, signage materials, etc.). Issues of insufficient space were raised in interviews related to controller assembly; signals assembly and pavement markings. Our 2007 Audit of Inventory and Asset Management Processes made specific observations and recommendations relating to the General Stores located at Loretta.

Solutions to this issue include increasing storage space available or reducing demands on current building (acquiring new buildings and/or yard space; or outsourcing or alternate use of private sector resources).

The need for new /additional space has been adequately addressed in recent studies conducted by the City and is beyond the scope of this audit. However stand-alone work units which could be relocated to alternate locations or sub-contracted to the private sector as a mean of relieving 175 Loretta from current space limitations (e.g., signs making shop, space required for handling of materials for use by private contractors, traffic engineering work unit, etc.) should be identified by the Division as possible space saving changes which may significantly benefit divisional productively and efficiency.

In this regard, while we note that site storage may be positively impacted by cessation of Outside Sales activities, these changes to Outside Sales are not expected to adequately advantage the current situation and a mid term solution is required.

3.5.2 Black and MacDonald Street Lighting Contract

In 2005, the City entered into an Ottawa-Option contract with Black and McDonald Limited (B&M), an international multi-disciplinary services contractor, for street lighting systems maintenance across the City. While the contract documents supporting this agreement provide added detail, B&M effectively offered to

provide the City all pre-2005 street light maintenance services conducted by Ottawa Hydro at a 20% reduction in costs.

During audit interviews with Traffic Operations Division employees and the Vice President (Ottawa) Black and MacDonald, we observed the following issues:

- Original contract documents were insufficiently detailed to address a number of key implementation areas. Both parties are displeased with certain aspects of the contract implementation and complain that they are exposed to higher costs than anticipated. It is expected that both parties will be well prepared to address these insufficiencies when the contract is up for renewal in 2010.
- Services originally offered by Hydro Ottawa under the pre-2005 street lighting maintenance contract included a number of services not supported by B&M's work force (due to insufficient qualifications) as well as certain duties which cannot be wholly assigned to B&M due to complex wiring of certain lighting systems (which still require Ottawa Hydro and City involvement). In this regard, the City is subjected to additional costs and work demands than originally anticipated.
- B&M is experiencing higher work demands and costs than originally anticipated, and due to changes in privacy legislation has a multi-year backlog of damage claims which it has been unable to process to recoup costs/extend revenues.
- B&M claims against the City for snow plow damage to street lights/poles are the subject of ongoing dispute, and represent a significant cost to B&M.

In general, our audit did not identify any significant issues with the B&M street light maintenance contract that were not resolvable in time. In this regard, it is evident that the City must maintain a team of well-qualified individuals able to police, enforce and provide oversight to the contract, including individuals with strong technical competencies in urban electrical and street lighting systems. In 2010 the City should carefully consider the merits and/or disadvantages of contract renewal as compared to seeking a competitive bid from other qualified workforce.

3.5.3 'Do It Ourselves' Procurement Model

It is not unusual for specialized work units in the municipal public sector whose activities are unique and not well supported by private sector vendors to develop their own solutions to problems. This can at times involve the development of specialized practices, tools and equipment, which draw on available expertise in other vocations to address the technical problems they face. Usually, over time, as these 'shops' mature, they attract or spin-off private sector vendors prepared to support them.

The Traffic Operations Division, first under the RMOC and later the City of Ottawa, appears to have similarly developed a 'do it ourselves' culture, and although this

group is now mature enough to work in tandem with the private sector for the development and supply of the majority needed equipment, there is evidence at many levels of the organization that this 'do it ourselves' culture has extended unique procedures, analytical approaches and product manufacturing, including the following three areas:

1. Specialized Engineering Traffic Analysis: As discussed earlier in the report, Traffic Operations Engineers employed by the City for intersection analysis and traffic signals optimisation currently require 6 to 12 months of intensive training over and above their engineering experience. Notwithstanding the human resources problems this creates in the current environment of low candidate availability, the group chooses not to retain temporary staff/private sector engineers to assist them in their work.
2. Research and Development into Traffic Signals Software and Hardware: From the mid 1990's onwards the City of Ottawa and its predecessors have invested over \$1.7 million in sole-source contracts (and later competitive bids responded to by only one firm) for research and development of software and hardware to operate it's traffic signals. In addition, over \$2.8 million has been spent since 2000 for the manufacture and supply of traffic controllers and communications equipment to meet City research and development (R&D) specifications. Similar to R&D work in this area, sole sourcing of manufactured goods has been used for the supply of traffic controllers and communications equipment. No evidence was provided during the audit to suggest that competitive contracting was considered for traffic signal and communications equipment.
3. Corporate purchasing of parts and equipment for intersection traffic control systems construction: At present, pre-qualified local contractors construct intersection traffic control plant. However, all ducts, utility holes, caps, etc., are purchased, stored, organized into pallets and made available to the contractor. While this procurement model has been selected to ensure the quality of materials used in plant construction, it is unlike any other construction contracting work we have experienced in Eastern Ontario. Normally contracts are supplied with detailed materials specifications, which are policed by owner representatives at the time of construction.

These three areas of divisional work have been presented here as they represent work of widely divergent types, conducted in different units within the Traffic Operations Division, yet each have selected a 'do it ourselves' approach which sidesteps the normal government procurement model of specifications development and private market supply. Additional examples of research and development (e.g., pedestrian push buttons research, development and sales, wholesale light bulb purchasing for resale to regional traffic signal owners, etc.) also exist. In each of these areas, the Division takes on the cost of research, development

and training; or for equipment, the costs of equipment storage, handling, breakage and loss.

At this stage in the Division's growth and maturity, it is expected that a reasonable degree of private sector interest should be available in lieu of the expenditure of municipal taxes to support research and development in these areas. This procurement approach is unlike most other municipal engineering activities that relies on procurement from the private sector and the publication of technical specifications to instruct contractors of materials and processes for construction.

Recommendation 12

That the City identify work units whose work can be effectively conducted off-site from 175 Loretta or sub-contracted to the private sector as a means of relieving the pressures of core divisional activities and reduce the need for just-in-time materials supply and improved storage.

Management Response

Management agrees with this recommendation. Currently, there are traffic sign and pavement marking crews operating off-site from 175 Loretta at three different roads and maintenance facilities throughout the City; however, by Q1 2010, the Roads and Traffic Operations branch will review opportunities for locating additional work units off-site and will explore further opportunities to contract out work unit activities within the parameters of the applicable collective agreements.

Recommendation 13

That the Traffic Operations Division maintain a staff of highly qualified individuals to oversee and police contractual obligations for contract delivery of street lighting services.

Management Response

Management agrees in principle with this recommendation. Lessons learned from the first five years of the street light maintenance contract will be incorporated into future discussions regarding the extension of that contract scheduled for Q3 2010. The future direction of this contract is being led by the General Manager of the Public Works department.

Recommendation 14

That the City undertake a full review of the current 'do it ourselves' procurement model, with a view to shifting the cost of research and development as well as material purchasing and handling to the private sector. More particularly, where continued procurement of locally developed technology is justified, it is

recommended that the City initiate a process to introduce healthy private sector competition in the supply chain; and that a long range plan for traffic control signals control and communications be developed that reduces City of Ottawa risk by soliciting expertise from a broad base of traffic control experts and manufacturers.

Management Response

Management agrees in principle with this recommendation; however, it is important to note that the decision to move towards a 'do it ourselves' model was based in large part on a lack of both a commitment from the private sector and the technical support needed to maintain and expand their products in a timely and cost-effective manner due to the relatively small niche market and the complications associated with bringing different technology processes together. Details and a full rationale are contained in the Transportation System Management (TSM) Working Paper, prepared for the former Region of Ottawa-Carleton's Transportation Master Plan in 1997.

The 'do it ourselves' approach is not unique to Ottawa: other cities, such as San Francisco, Los Angeles, New York City and Winnipeg, are using the same approach. However, Supply Management will work with Roads and Traffic Operations and Maintenance to undertake a full review of the current 'do it ourselves' procurement model by Q1 2010 with the objective of shifting the cost of research and development, as well as material purchasing and handling, to the private sector. A further objective will be to introduce healthy private sector competition in the supply chain, with the goal of safeguarding the City's future ability to meet traffic operations technology needs and to achieve best value.

3.6 Compliance

Audit Objective: To assess if appropriate standards exist, are communicated to staff, are maintained, monitored and enforced; and, are used to assess performance and refine practices.

Without exception, Division staff were able to identify legislation, regulations, guidelines and best practices that direct their work. Technical standards that impact safety practices, in particular Ministry of Transportation regulations related to roadway operations and safety were identified as the basis of comprehensive training and corporate practice.

While all work units could identify the relevant standards and guidelines that direct their work; it was apparent that limited technical interaction occurs between Division staff and staff of other government jurisdictions. In this regard, Division staff could benefit from technical skills sharing and transfer with other jurisdictions. This could include consideration of other methods of materiel procurement, private sector contracting and quality control and policing.

As part of our audit, we found inefficiencies in the following work units: signage installation, street lighting, traffic engineering and pavement marking including:

- **Roadway Signage Inventory System:** At present there is no system to track non-regulatory signage requirement for roadways and the Division relies on the memory of a small contingent of staff. This is inadequate and a signs inventory system should be created to track both regulatory and required non-regulatory standard and special study signage (warning signs, hazard markers, etc.).
- **Roadway Signage In-Field Quality Testing:** Over time signs deteriorate and fade. Signs with below-standard reflectivity / luminosity do not protect the municipality from significant liability related to motor vehicle claims. MTO Book 1 clearly specifies that lower quality signs do not meet government standards; and should be checked in the field in the spring and fall season (e.g., twice yearly). Historically, staff have been equipped to undertake field testing of sign luminosity. They also report that significant additional work taken on post-amalgamation lead to a reprioritization of Division activity and the cessation of in field signs testing.
- **Traffic Engineering:** Due to staff shortages, the extended in-house training period and /or vacancies associated with market availability of civil engineers; the traffic engineering unit notes that their work is limited to the analysis of high demand intersections; and that they are not staffed to adequate levels to undertake more complex network analysis and optimization.
- **Signs Installation:** Due to increased demand for signs installation, crews report they are unable to meet current demand for new signs and signs replacement. Staff have suggested alternatives to save time including improved tools (e.g., augers in lieu of shovels, alternative construction standards, etc.) as a means of improving staff productivity to meet current demand.
- **Signage Coordinators:** Similar to signage installation staffing, above, those responsible for the pre-survey of signage locations and utility clearances noted that they were understaffed and unable to meet current demand.
- **Pavement Line Painting:** While the unit appears to work in an efficient manner; they note that with additional staff they could take over work currently being let to private contractors at significant additional cost. A cost-benefits analysis of retaining additional staff in this area should be contrasted against the results of a review of line painting standards as certain annual line painting duties appear to be unnecessary or not imposed by regulations or best practices.
- **Street Lighting:** Staff responsible for design of street lighting systems currently carry over 50 projects per person, leading to reduced project quality and reduced performance.

All groups reported that the lack of adequate staff has limited their ability to remain in compliance with regulations and/or best practices noted above. However, we believe that much of this workload could be relieved by reliance, from time to time, on external private sector companies as well as requiring construction/contractors to supply their own materials, according to City specifications, as discussed in other sections of this report.

As discussed in Section 5 Performance, there is no Performance Measurement system established by which the Division tracks and reports on adherence to established standards, guidelines or best practices. Specifically, the Division does not report to Council any measured results of ongoing adherence to general OP and TMP policies nor does it publish measures of Division effectiveness and efficiency.

3.6.1 Conclusion

Notwithstanding this general tendency toward compliance, audit interviewees consistently reported there was a backlog of work and a lack of adherence to regulations and best practices. While some of these trends may expose the City to very little risk; others (e.g., ensuring signage meets luminosity / maintenance standards) can lead to high levels of risk or liability. Recent decisions in the courts expose the City to a greater level of financial risk.

Recommendation 15

That the City develop a formal inventory of regulatory and non-regulatory roadway signage for all City roadways.

Management Response

Management agrees in principle with this recommendation. Staff are currently developing a procedure for labeling and tracking newly-issued regulatory signs which will be completed by Q1 2010. In addition, the Roads and Traffic Operations and Maintenance branch will identify the financial impacts of, and timeframe associated with the development of a formal inventory system for all roadway signage by Q2 2010.

Recommendation 16

That the City meet all regulations and best practices related to ensuring the inspection and maintenance of minimum condition standards for regulatory /traffic control signage.

Management Response

Management agrees with this recommendation. The Roads and Traffic Operations and Maintenance branch will continue to develop and refine a series of policies, procedures, manuals and best practices with respect to the inspection, maintenance, manufacture and installation of all regulatory, warning, guide and

information signs in order to ensure that appropriate signage standards are achieved in conjunction with the Ontario Traffic Manual and the Ontario Highway Traffic Act.

Recommendation 17

That the City report to Council on staffing levels required to meet current demand for all areas of activity directed by City Council approved policy, Provincial Legislation/Regulations and industry best practices, with an explanation of risks to the Corporation should Council decide to provide reduced staffing levels than required to meet minimum standards.

Management Response

Management agrees with this recommendation. Council will be presented with a comprehensive report identifying budget and resource requirements in Q3 2010.

3.7 Corporate Risk

Audit Objective: To assess if the City has risk management processes in place to identify risk (the chance of something happening that will have an impact on objectives) and implement mitigating procedures.

In the early 1990's, a decision was made to shift to a technological base for the RMOC Traffic Control and Traffic Management systems that would be managed by a specialized team of experts under the employ of the Corporation. This 'do it ourselves' specialist culture has infused a broad number of management decisions since the late 1980's. Simply characterized as a 'go it alone' mentality or 'we can do it better ourselves' sensibility; the Division has adopted a number of practices which reflect this 'culture'; and which may in fact present serious flaws to overall Division management. Two main areas were identified: in-house specialization and reliance on small, specialized suppliers.

3.7.1 In-House Specialist Culture: Traffic Engineering

As addressed earlier in this audit, traffic engineering conducted by the Division is an Ottawa-specialized function requiring new hires to undertake upwards of 6 to 12 months of internal training. Little or no use is made of outside resources/engineering companies to undertake analysis for the Division.

The decision to conduct work so specialized as to require months of in-house training paired with the decision not to outsource traffic expertise from the local engineering community, places significant additional HR demands on this unit, exposing them to extended vacancies (occurring now) or becoming backlogged without an option to outsource work to engineering firms to address peaks in work demand.

In our view, the current model of acquiring engineering services (almost exclusively through full time employment) represents a substantial risk and cost to the Division and City; whereas a model that established prerequisite standards for engineering analysis and requires external agencies to meet these technical standards (either in submission on behalf of the development community or when conducting work for the Division) represents a resourcing model which places some of the cost and risk of engineering analysis on the private sector.

3.7.2 Sole Source Suppliers and Consultants

As addressed earlier in this report, the Traffic Operations Division sponsors research, development, production, deployment, maintenance and optimization of various hardware and software innovation for use in the traffic management systems including: modified traffic controller housings; traffic controller hardware and software; pedestrian push buttons; hard-wired and wireless communications processes and protocols. At this time the Division reports that the entire Ottawa traffic management system has been assembled with controllers and software supplied by a limited number of small local suppliers and that the technology employed is beyond that available through other manufacturers. These devices are in active use in the vast majority of the City's intersections and data communications systems. In general, this approach to traffic controller sourcing is considered risk intensive, with the City of Ottawa assuming all of the risk (e.g., development costs, risk of failure, risk of service loss, risk of long range servicing failure, etc.).

3.7.3 Traffic Signal Controllers and Communications

Interviews with Traffic Operations officials revealed early in the audit that a shift in engineering services and materials procurement had begun in the late 1980's / early 1990's after an unsuccessful attempt to solicit private sector involvement in a revised Traffic Signals procurement and operations model. Under the direction of now-retired and current senior management, the adapted procurement approach of the early 1990's has been continued through to 2008, with the overall traffic signals organization, structure, services and materials procurement, and construction slowly building on the foundations set out in the 1990's. Having been unsuccessful in their efforts to involve the private sector in signals planning and design; the Traffic Operations unit turned to their own engineering skills supported by locally available specialists and manufacturers to conduct research and development, design, refine, test, manufacture and implement a network-wide 'made in Ottawa' solution to intersection traffic control and system-wide monitoring and optimization.

To support this effort senior management embarked on a multi-year sole source contracting of key private sector firms. These firms, discussed individually below, were initially contracted through sole source procurements. Although a competitive

process for specialist signals software engineering services was let by the Branch in 2004, the sole respondent was the same firm (Thompson Technologies) which had been under sole source contract for the previous decade.

Thompson Technologies is a Gloucester-based consulting organization owned and operated by Andy Thompson, a former City of Ottawa employee and original founding partner of Partham Engineering Inc. Thompson Technologies, an unincorporated organization, first began to produce work for the City in the mid 1990s when Mr. Thompson was co-owner in Partham Engineering with Jim Bell (Mr. Bell and his spouse took over as sole shareholders in 1997).

Thompson Technologies conducts research and development for the City of Ottawa on the design and manufacture of traffic controllers. These specialized circuit boards are installed at every signalized intersection to read, interpret, and control traffic flows, and, for most intersections, to then communicate with the central Traffic Operations Control Room on ongoing traffic operations. It is estimated that there are over 1,000 such controllers in current operation at all times within the City. Mr. Thompson, a former City employee, is Thompson Technologies' only identifiable technical employee.

Reviewing work conducted for the City of Ottawa over the period 1999 to 2005 (available records), Thompson Technologies has been under contract for a number of research and development initiatives and projects related to traffic signal technology advances. From 1999 to 2004, Thompson Technologies were retained without competition (e.g., under sole source contracts) totalling \$809,500. Beginning in 2005, Thompson Technologies submitted a priced proposal for work under a competitive bidding process for Traffic System Software Support (City of Ottawa RFP 00105-92047-P01) however they were the sole bid received. Finally, under a separate standing offer contract (City of Ottawa RFSO 09705-92500-S01), Thompson was pre-qualified to conduct additional work related to Transit Priority and Traffic Signals consulting services. Total invoicing by Thompson Technologies over the period 2004 to 2008 (September) are reported to be \$896,518. In total over the period 1999 to 2008, invoices by Thompson Technologies to the City of Ottawa are estimated at **\$1.7 million**.

Luxcom Technologies, an Ottawa-based manufacturer of electronic communication equipment, is the manufacturer of specialized communication devices (e.g., telephone lines and cellular modems) used by the City of Ottawa for the transmittal of digital information from traffic signal controllers. In audit interviews, City staff reported that Luxcom was introduced to Thompson Technologies by the City of Ottawa, as Thompson Technologies research and development projects were used to develop designs and specifications for modems and traffic controllers.

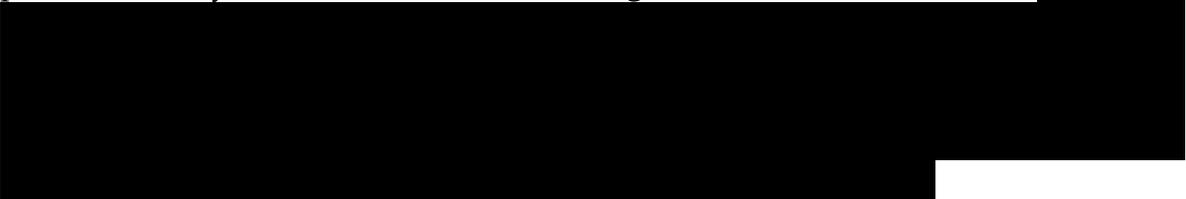
Audit interviews confirmed that **Luxcom** has been used exclusively for the supply of traffic information modems; although they are but one of a number of companies potentially able to supply the required parts. Over the period 2001 to 2008, sole

source contracts approved for Luxcom Technologies have totalled over **\$360,000** with average annual payments over the period 2005 to 2007 of over \$47,000 for the supply of computer systems hardware and supplies. Limited records provided suggest that Luxcom modems are purchased on an as-needed basis.

Multilek Systems is an Ottawa-based manufacturer of civilian and military grade electronics. Available records show that over the period 1999 to 2008, Multilek has been supplying the City of Ottawa the 'Multilek Traffic Controller' and related traffic controller computer hardware used exclusively in traffic controllers and traffic control systems across the City of Ottawa.

Records document sole sourcing contracts totalling to **Multilek** of approximately **\$2.5 million** over the period 1999 through 2008 inclusive, with average annual contracts of over \$250,000. City staff indicate that they have encouraged other manufacturers of traffic controller hardware to offer similar systems and are considering adopting generic controllers used elsewhere in North America or developing technical specifications which would better permit competition for Multilek.

Rogers Digital Communications is a major market Canadian player in the delivery of digital cellular communications services including voice and data transfer. In audit interviews, City staff have confirmed that Rogers has been contracted to provide cellular data transmission for an increasing number of traffic signal controllers equipped with newer generation traffic controllers designed by **Thompson Technologies** and **Multilek** and equipped with modems developed by **Luxcom**. In 2006, **Rogers Digital Communications**, in a national business presentation by the Vice President of **Rogers Communications Inc.**, 



3.7.4 Assessment of Sole Source Contracting Practices

Senior management's decision to rely on Thompson Technologies with a single technical employee for the planning, design and specifications of all traffic controllers used in the City, leaves the City without fall back or any quick alternative should Thompson Technologies, for any reason, be unable to meet their obligations. In particular, the use of sole source contracts with a single qualified contractor for traffic controller development through Thompson Technologies now exposes the City to substantial risk of service loss, price gouging and/or added service costs.

Given the strong historic linkages between Jim Bell, (Traffic Operations/Partham) and Andy Thompson (Traffic Operations / Partham/ Thompson Technologies) and

the strong reliance the City now has on Multilek and Luxcom for the supply of traffic technological products, it is critical that the City safeguard its future ability to meet traffic operations technology needs through the development of a longer term strategic plan which provides for the supply of an integrated traffic control system while also addressing these risks. In addition, the City needs to explore legal options for ensuring its ability to profit from technology developed through municipal research and development funding, including that produced by Thompson Technologies, while under contract to the City of Ottawa (e.g., technology [REDACTED]).

The progressive development of a management culture within the Traffic Operations Division that favours a 'do it ourselves' approach to procurement, assessment and service delivery presents certain significant added costs and risks to City operations. The City's approach to traffic management includes significant program cost associated with research and development for traffic technology development (in lieu of market acquisition of commercially available product).

3.7.5 Conclusion

The City relies completely on a business in the technology industry with a single technical employee for the planning, design and specifications of all traffic controllers used in the City. This leaves the City without fall back or ready alternative should this business, for any reason, be unable to meet its obligations or establish unfair pricing for its services.

In order to manage risk abatement, there is a need for the City to develop a longer range plan for the sourcing of traffic controller and communications equipment through a competitive process in the private sector; with the successful firm offering the City a reduced risk envelope.

The Division needs to better understand the nature of risk and how to control it while also leveraging opportunities. This will assist staff in taking more ownership of their own risks and how to mitigate them. Staff need to understand risk, consequences and existing controls to avoid, reduce, transfer, accept or retain the risk. An approved framework should allow for continuous review and updating at both the detailed level for operational purposes and at a high level for strategic planning and accountability purposes. Currently, this does not exist.

The progressive development of a management culture within the Traffic Operations Division that favours a 'do it ourselves' approach to procurement, assessment and service delivery presents certain significant added costs and risks to City operations. As noted this include significant programs of research and development for traffic technology development (in lieu of market acquisition of commercially available product), development of local engineering analysis standards (in lieu of standards engineering practices); purchase, storage and

handling of materials for construction (in lieu of establishment and policing of specifications, etc.).

Given the strong reliance the City has developed to the supply of traffic technological products from a limited number of small suppliers, it is critical that the City safeguard its future ability to meet traffic operations technology needs through the development of a longer term strategic plan which plans for the supply of an integrated traffic control system while also addresses these risks.

Recommendation 18

That the City undertake a review of the procurement practices in place within the Traffic Operations Division in the areas of engineering services acquisition; traffic controllers hardware and software purchasing; and, materiel purchasing (in lieu of specifications development) to ensure that the City's best interests are met and that the current practice does not expose the City to unreasonable additional costs or risk assignment.

Management Response

Management agrees with this recommendation. Supply Management will work with Roads and Traffic Operations and Maintenance to develop a supply chain strategy by the end of Q1 2010 for the acquisition of engineering services, traffic controller hardware and software and associated materials with the goal of safeguarding the City's future ability to meet traffic operations technology needs and to achieve best value. Staff will also work with Legal Services to ensure that any necessary changes are incorporated into the terms of the City's standard contracts.

Recommendation 19

That the City explore opportunities to derive profits from technologies sales and services derived from the development of existing and future technology and products developed through City of Ottawa research and development funding, and, in particular, products developed by Thompson Technologies, Luxcom, Multilek and/or Rogers Digital Communications while under contract to the City.

Management Response

Management agrees with this recommendation. The Roads and Traffic Operations and Maintenance branch has asked IBM to examine the possibility of generating revenue from the use of the City's intellectual property rights as part of the Corporate Efficiency Review, recognizing the legal limits of the City's ability to generate profits and the practical difficulties associated with the management and marketing of the City's intellectual property. IBM is expected to report on its findings by Q3 2009.

Recommendation 20

That the City develop a long range plan for the design and sourcing of traffic controller and communications equipment (through standard competitive processes) and that contracts with successful firms include a significantly reduced degree of risk for the City (e.g., private sector involvement in R&D funding; Public-Private Partnership, etc.), or, if technology is developed at the cost and risk of the City, that the ownership, application rights and proceeds of R&D is wholly owned by the municipal corporation, with the City maintaining detailed full specifications of all R&D products to allow for the City's use in future competitive contracts.

Management Response

Management agrees with this recommendation. Supply Management and Roads and Traffic Operations and Maintenance have taken significant steps to open up competitive bidding on traffic controllers in the past year. There are now two competing suppliers for traffic controllers.

Supply Management will continue to work with Roads and Traffic Operations and Maintenance to develop a sourcing plan for the acquisition of traffic controllers and communication equipment by Q1 2010, with the goal of increasing competition in order to net more competitive pricing, properly allocate risks between the supplier and the City, and explore options for ownership of technology.

Legal Services, in cooperation with Supply Management and Roads and Traffic Operations and Maintenance, will review the standard terms and conditions of contracts on an ongoing basis to ensure they fully protect the City's intellectual property interests.

4 CONCLUSION

The audit of the Traffic Operations Division confirmed that the full range of day-to-day services are offered by the Division. In general, the Division provides some training opportunities for their staff, and their services are generally provided in a manner as to ensure that they remain in compliance with legislation, regulations and industry best practice. Administrative support systems are in place and the Division's senior management is supported by Financial Services in the conduct of their work.

Notwithstanding the condition of the current operation and maintenance activities, 20 recommendations for change are provided. Key findings address the lack of sufficient strategic planning, insufficient reporting of important performance measurement outcomes provided to Council, and serious human resources management problems. These staffing issues range from excessive overtime, an

inadequate complement of trained staff and a significant lack of related management oversight, monitoring and controls related to extensive moonlighting.

There are widespread problems related to the retention of a significant number of divisional staff by Partham Engineering. We have serious concerns about the lack of preventive and detective internal controls, especially with respect to the management of these employees and related financial systems (e.g., overtime, outside sales, etc.). Additionally, we are very concerned that this situation had been allowed to continue unquestioned for such an extended period of time (i.e., 17 years) without senior management intervention to address needed management oversight, supervision and controls.

We further believe that the City should, in compliance with the current Employee Code of Conduct, immediately cease to allow the moonlighting activities of City employees with Partham Engineering. Further, to arrest risk to the City related to the long-term relationship that has existed between the City and Partham employees, that the divisional employees be directed not to have any relationship or conduct business (including outside sales) with Partham and/or their clients.

As discussed in the report, we believe that there are several violations of the current Employee Code of Conduct by numerous levels of senior management, managers and supervisors. We firmly believe that the current situation would not have arisen had Jim Bell (owner of Partham Engineering) been denied permission to operate Partham in tandem with the City's operations, and that senior staff hold responsibility for the current situation based on decisions made when presented with the situation over the years.

We believe risks to current City operations related to Partham Engineering will be satisfactorily mitigated only if recommendations 10 and 11 (the ceasing of moonlighting activities) are adopted and fully acted upon. In addition, audit recommendations 8 and 9 call for changes to the Employee Code of Conduct which, while arising out of the situation presented by Partham Engineering, are offered as appropriate changes in policy across the Corporation to prevent similar situations from arising in the future.

Finally, recommendations are made to address problems with a long-standing practice of operating a City sponsored research and development program through the letting of sole source contracts and sole respondent competitive contracts. More particularly, the audit concludes that current contracting practices for the design, development and manufacture of traffic controllers are risk intensive, and that senior management must take action to reduce the City's risk exposure, ensure the City recoups research and development costs through contracted profit sharing, and establish a longer range plan to acquire traffic controllers through a process that promotes healthy private sector competition.

More generally, a number of recommendations are also set out to address deficiencies or improve Division management, these relate to:

- Improved strategic planning;
- Development of a performance measurement system;
- Changes to systems which allow for sale of goods and materials to other organizations;
- Changes to goods and services procurement to increase private sector competition;
- Changes to traffic engineering services to address shortcoming of current services;
- Opportunities to reduce excessive overtime, including a review of alternate shifts;
- Increased staff involvement in external professional development / training organizations;
- Ensure that staff meet minimum training requirements for after-hours crew chief duties;
- Implement improvements to the road signs inventory, and generally ensure that they meet minimum standards for regulatory and traffic control signage; and,
- Reductions to the Corporate risk exposure through a thorough review of procurement standards for traffic control and communications systems.

5 ACKNOWLEDGEMENT

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