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GREATER TORONTO AREA CENTRAL AMBULANCE COMMUNICATION CENTRE CONSULTANT REPORT

The Community and Health Services Committee recommends the adoption of the recommendation contained in the following report dated May 31, 2010, from the Commissioner of Community and Health Services.

1. RECOMMENDATION

It is recommended that this report be received for information.

2. PURPOSE

This report provides Council with an update respecting the Greater Toronto Area Central Ambulance Communication Centre Consultant Report (*see Attachment 1- Executive Summary*) initiated by the Regions of York, Peel, Durham, and Halton, and the County of Simcoe.

3. BACKGROUND

Five Greater Toronto Area (GTA) municipalities partnered to review the current performance of the provincial Emergency Medical Services dispatch system and make recommendations for improved system efficiencies

The Greater Toronto Area Central Ambulance Communication Centre Review was initiated by the Regions of York, Peel, Durham and Halton, and the County of Simcoe in 2009. The review was based on concerns with Ontario's ambulance communication centres meeting common industry performance benchmarks and concerns with the technology being used. As such, it was questionable as to whether the current system was capable of meeting the growing needs of the GTA Emergency Medical Services (EMS) group in the delivery of land ambulance services.

The partner municipalities selected POMAX Public Safety, an Ontario firm which specializes in supporting government and public entities at all levels. Their specialty is in public safety operations and communications including organizational analysis, consolidation, implementation, staffing, technology, planning, and project management.

The review was focused to assess current, and recommend future, dispatch and communications operating models, technology, and governance to meet program management and delivery requirements of the local municipalities. Further, the review also assessed and recommended organizational functions and structures through:

- Research
- Discovering and assessing best practices
- Examining existing data and reports

A review of industry best practices and financial analysis formed the core of the consultant report deliverables

The primary deliverables of the consultant report were to:

- Recommend, with rationale, the most appropriate dispatch/communications program to meet current and future requirements of the GTA EMS group.
- Assess and recommend governance, organizational, and managerial structures.
- Present a detailed comparative analysis and implications associated with the findings of the investigations.
- Present a detailed cost analysis and outline the implications associated with the findings and recommendations.
- Develop a conceptual technology model to support an enhanced computer-aided dispatch configuration/program to support all functional areas within the Central Ambulance Communication Centre and land ambulance services.

Partner municipalities have provided progress updates to their respective Council

The Region of Durham plans to present their Council with the consultant report findings in June 2010. The other partnering municipalities have provided verbal updates on the progress to their respective Council with plans of a formal presentation in the fall 2010.

4. ANALYSIS AND OPTIONS

The completed consultant report presents a series of recommendations towards achieving improved operational efficiencies and cost avoidance

The consultant report identified key areas that could be optimized with implementing new practices and technology. This would result in improved response time performance, and maximize resource utilization while achieving current and future cost avoidance. The consultant report recommended that the Regions of York, Peel, Durham, Halton and the County of Simcoe:

1. Immediately take whatever steps may be necessary to convince the Province that governance and operational responsibility for land ambulance dispatch services in the GTA should be transferred to the municipalities. And further, that the Province should assume a legislative, regulatory, and continued funding role only. The Ministry of Health and Long-Term Care (the Ministry) currently provides 100% of operating costs to non-ministry dispatch centres in the province.
2. Adopt a 'Single GTA Dispatch' center model with mutual backup and redundant services with Toronto Emergency Medical Services Dispatch. However, there could be reasons, that are not purely financial, for municipalities to contemplate other options, such as a consolidation into two centres, or an integrated model in which every municipality would have its own centre. The 'Single GTA Dispatch' model should be the primary option, based on operational and financial efficiencies while the integrated model should be the lowest on the list of considered models.
3. Implement a shared governance and responsibility amongst the five municipalities as detailed within the consultant report.
4. Adopt all the technical systems and operational programs detailed in the consultant report, including a business intelligence and information system program that provides up-to-the-moment dispatch and fleet responder information to managers and dispatchers so that response resources can be adjusted as required and efficiencies and productivity achieved.
5. Adopt either the Medical Priority Dispatch System or Criteria-Based Dispatch as a call taking and prioritization tool to replace the Province's Dispatch Priority Card Index II.

Limitations identified respecting the implementation of new Response Time Performance Plan requirements would be resolved

Limitations have been identified with the current call prioritization system and resulting mismatches with the actual patient acuity, as well as in the completeness of the available response data to permit a comprehensive data analysis of current performance. Given that new response time parameters will be introduced without any changes being made to the current dispatch process, the opportunities to advance response time improvements are limited. The recommendations provided in the consultant report could resolve these limitations leading to accurate call prioritization, valid and timely access to robust data and support advancing response time improvements. Further analysis, however, would be required.

Regional Chairs and Warden have engaged the Minister of Health and Long-Term Care regarding the consultant report recommendations

In January 2010, the Regional Chairs and Warden, Chief Administrative Officers and Paramedic Service Chiefs/Directors met with the consultants to review the consultant report findings and develop a unified strategy to move the consultant report recommendations forward. Subsequently, the Chairs and Warden wrote to Minister Deb Matthews in February 2010, stressing the importance of introducing a model based on the consultant report recommendations that is efficient, cost-effective and increases productivity.

EMS Chief/Directors are pursuing discussion with Ministry staff

In April, 2010, the EMS Chiefs/Directors group wrote the Director of the Emergency Health Services Branch of the Ministry requesting an opportunity to present the consultant report in order to determine a path forward for improved ambulance services in the GTA. Staff will report back on the outcomes of these discussions.

5. FINANCIAL IMPLICATIONS

There are no financial implications associated with this report.

6. LOCAL MUNICIPAL IMPACT

The implementation of the recommendations provided in the consultant report will lead to improved service delivery and financial efficiencies to all local municipalities.

7. CONCLUSION

The completed Greater Toronto Area Central Ambulance Communication Centre consultant report has identified a number of recommendations that would result in significantly improved operational efficiencies coupled with financial savings. Staff will continue to work with the Ministry towards developing the framework to implement the consultant report recommendations. Updates on the progress of this initiative will be brought back to Council in subsequent committee reports.

Report No. 5 of the Community and Health Services Committee
Regional Council Meeting of June 24, 2010

For more information on this report, please contact Norm Barrette, General Manager, Emergency Medical Services, at extension 4709.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause was included in the agenda for the June 9, 2010 Committee meeting.)

Executive Summary

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Recommendations

We recommend that:

1. the Regions of Peel, Halton, Durham, and York, and the County of Simcoe should immediately take whatever steps may be necessary to convince the province that governance and operational responsibility for land ambulance dispatch services in the Greater Toronto Area should be transferred to the municipalities. And further that:
 - a. the province should assume a legislative, regulatory, and continued funding role only. The Ministry of Health currently provides 100% of operating costs to non-ministry dispatch centres in the province.
2. the GTA regions and county should adopt a 'Single GTA Dispatch' center model with mutual backup and redundant services with Toronto Emergency Medical Services Dispatch. However, there could be reasons, that are not purely financial, for municipalities to contemplate other options, such as a consolidation into two centres, or an integrated model in which every municipality would have their own centre. The 'Single GTA' model should be the primary option, based on operational and financial efficiencies while the integrated model should be the lowest on the list of considered models.
3. the governance model should be shared governance and responsibility amongst the five municipalities as detailed within the report.
4. the regions should adopt all the technical systems and operational programs detailed in the report, including a business intelligence and information system program that provides up to the moment dispatch and fleet responder information to managers and dispatchers so that response resources can be adjusted as required, and efficiencies and productivity achieved.
5. the regions should adopt either the Medical Priority Dispatch System or Criteria Based Dispatch as a call taking and prioritization tool to replace the province's Dispatch Priority Card Index II.

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Introduction

The Greater Toronto Area Ambulance Communication and Dispatch Services Review was initiated by the Regions of Peel, Durham, York, and Halton, and the County of Simcoe.

The catalyst for this review is a desire on the part of the Emergency Medical Services Directors and the municipalities to strive for the greatest level of efficiency and productivity within the pre-hospital emergency care system, while ensuring the highest level of care for their patients.

The Emergency Medical Services Directors in the GTA believe that the current governance model does not create or foster a true partnership with the land ambulance service providers and efficiency and productivity are being compromised by the existing process of ambulance call taking and dispatching, and are seeking reasonable alternatives to the existing system.

The GTA EMS Directors believe that dispatch services are a fundamental component of any land ambulance delivery system and contracted with POMAX Consulting Inc. to research, advise, and make recommendations for optimal land ambulance dispatch services operations and governance, as key components of an effective, efficient, and seamless land ambulance service.

Current Status

In the province of Ontario the Ministry of Health and Long Term Care has had responsibility for all aspects of ambulance communications, including the answering and processing of incoming requests for ambulance service, the assignment of ambulances to emergency and non-emergency calls and, traditionally, the deployment of available resources within the requirements of the municipalities' deployment plans.

Significant challenges exist within this model of pre-hospital call taking and ambulance dispatching including:

- The province controls all call data generated by the computer aided dispatch (CAD) system. The responsibility for producing reports through the Ambulance Response Information System (ARIS) and the Ambulance Dispatch Data Access Service (ADDAS), resides with the Ministry of Government Services, not Emergency Health Services Branch of the Ministry of Health. The majority of the data within the reports pertain to the performance of the municipalities' emergency medical services systems, but the results of the standard ADDAS reports are questionable as they rarely duplicate the results of queries run on the source data.
- The province's central ambulance communication centres, which dispatch ambulances in the GTA, utilize a computer aided dispatch program that, while robust and capable of operating technology that is identified as best practices in other parts of North America, the United Kingdom, and Australia. lacks integration with systems that would ensure greater accuracy, reduce call taking and dispatching time and effort, and improve safety, effectiveness and efficiency.

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- There are no formal performance agreements in place between the GTA emergency medical services and the province as is common in many other jurisdictions. The GTA Directors report that they have requested performance agreements but the Ministry of Health has declined. Even if performance agreements were in existence, there would be no way to ensure compliance as there is no independent authoritative body to ensure the province meets its commitments. In addition, legislation that governs the operation of ambulance services and dispatch services do not apply to provincially operated entities such as the CACCs that dispatch the GTA ambulance services.

Project Purpose

The purpose of this assignment is to assess current – and recommend future – dispatch and communications operating models, technology, and governance to meet program management and delivery requirements of the area municipalities. And, also to assess and recommend organizational functions and structures through:

- research,
- discovering and assessing best practices, and
- examining existing data and reports.

The primary deliverables of the project are to:

- recommend, with rationale, the most appropriate dispatch/communications program to meet current and future requirements of the GTA EMS group.
- assess and recommend governance, organizational, and managerial structures.
- present a detailed comparative analysis and implications associated with the findings of the investigations.
- present a detailed cost analysis and implications associated with investigations and recommendations.
- Develop a conceptual technology model to support an enhanced computer aided dispatch configuration/program to support all functional areas within the CACC and land ambulance services.

Approach and Methodology

The GTA EMS Directors believe that the challenges and issues within the current land ambulance dispatch system directly affect the municipalities' delivery of emergency medical services and their ability to monitor productivity and manage costs; for example, incomplete or inconsistent provincial data, and the apparent over-prioritization of call severity by the province's dispatch centres, makes it difficult to determine actual resource need and allocation.

The GTA EMS Directors and the consulting team decided to approach this assignment in a positive manner; that is, to report facts but avoid blame, and to find, at peer ambulance and communication services, examples of successful service delivery and monitoring of productivity

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and costs that would be applicable to the GTA municipalities. The consulting team examined methods in North America, Australia, the United Kingdom, and Denmark that showed evidence of success. A list of our contacts is included in **Appendix A** of the report.

Findings

We found that:

- The GTA EMS Directors are right in their belief that the current overall land ambulance dispatch system directly affects the municipalities' delivery of emergency medical services. In fact, it has a considerable detrimental impact on the management of productivity and costs. Further, the existing system removes the opportunity for municipalities to assess and implement system improvements, and is extremely expensive for the taxpayers of Ontario in comparison to some municipally operated dispatch options.
- ADDAS standard reports are not acceptable for the purpose of operating productive and efficient emergency medical services. The report results sometimes vary, there is no way of ensuring that the results reflect the query intended, and the standard reports did not reflect the same results as those discovered when we queried the underlying data. We recommend that the GTA EMS should not rely on the results of the ADDAS standard reports, but only query the underlying data.
- Compounding this issue is the fact that Emergency Health Services Branch no longer has control of the critically important information systems that could supply performance data to municipal ambulance services.

In a letter dated August 4th, 2009, from Mr. Dennis Brown Senior Manager, Performance & Quality Management to Mr. Norm Barrette, General Manager, Regional Municipality of York, Emergency Medical Services, Mr. Brown states that "... the responsibility for considering and assessing the viability of alternate technical solutions for communications between paramedics and Ambulance Communications Officers now resides with the Health Services I&IT Cluster" (which is part of the Ministry of Government Services).

Therefore, vital EMS system management information has been transferred from the Ministry of Health, and Emergency Health Services Branch, and now resides with the Ministry of Government Services. Perhaps, what may be more serious, is that the assessment of the viability of technical solutions, that have a direct impact on EMS and municipal productivity, resides with a provincial Ministry that is unlikely to have basic knowledge about the needs and operations of EMS provision and technology. And, the opportunity to move forward and implement – what have become – standard technological practices that assist in improving accuracy and safety, and saving money, is subject to the priorities of the overall Ontario government system. Emergency Health

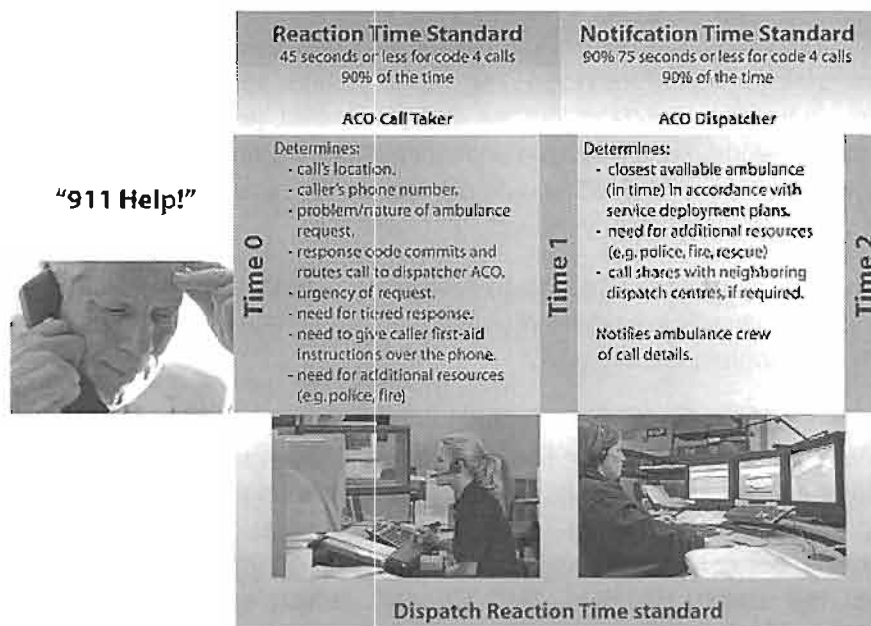
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Services Branch, and possibly even the Ministry of Health, have little influence over these wider priorities.

- The performance of the existing CACCs frequently does not meet the Ministry of Health's performance standards, or what will become legislated standards for non-Ministry of Health dispatch centres in 2010.

The Ministry's standards require a maximum elapsed time of two minutes for the call taking and dispatch process in cases of emergency calls for assistance, 90 percent of the time (Figure 1; Source: the Ministry of Health's web site). But the Ministry's CACCs fall short of those targets, particularly at the Mississauga CACC (Table 1).

Figure 1 – Ambulance dispatch reaction/notification time



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Table 1 – 2008 Call Taking and Dispatch Times by Region at the 90th Percentile

2008 P-4 90th Percentile Time				
CACC	GTA Region	T0 to Received (T0 – T1)	Received to Crew Notified (T1 – T2)	T0 to Crew Notified (T0 – T2)
Oshawa	Durham	0:01:19	0:01:05	0:02:09
Mississauga	Peel	0:01:53	0:01:43	0:03:11
	Halton	0:01:53	0:01:34	0:03:04
Georgian	Simcoe	0:01:25	0:01:08	0:02:15
	York	0:01:25	0:01:20	0:02:26

One might expect that, in Table 1, the T0 to T1 times plus the T1 to T2 times should equal the T0 to T2 times; but they don't. This is because each stage of the call taking and dispatch process (reaction/notification), shown in the table, is based on a varying number of records. In other words data is missing from some of the records, so the 90th percentile calculations are based on a different number of records in each category.

It might also be thought that the Oshawa and Georgian CACCs are over the target by only 10 to 26 seconds, and that is not a major concern. But it takes considerable effort and resources to decrease the 90th percentile by 10 seconds based on the tens of thousands of calls received by the CACCs.

- There are best practices and system management strategies in dispatch center technology, processes, and human resource interaction (detailed in **Sections 3 and 4** of the report), that have been proven effective in other countries and jurisdictions, and published as critical success factors, that are not practiced by the Ministry of Health and its CACCs. In addition, the organizational structure of the Ministry of Health is such that even if the Emergency Health Services Branch wished to implement some of these best practices and strategies, systemic issues and other priorities within the Ministry of Health would make that accomplishment highly improbable (**Section 6.2.3** of the report).
- The existing call taking prioritization tool – called the Dispatch Priority Card Index II – is used throughout Ontario, except in Toronto and Niagara Region. The DPCI II is as capable of accurately gathering information from callers as any other prioritization tool but it does not benefit from the ongoing research and improvement that other commercial or 'shared' prioritization tools do. There is a desire by the Emergency Health Services Branch to study the sensitivity and specificity of the DPCI II and modify it to reflect study findings, but a lack of funding has prevented this objective from occurring.

The DPCI II, and its predecessor the DPCI, as it is used by the Ministry of Health CACCs, over-prioritize calls in comparison to other call taking and prioritization tools, and thereby significantly contributes to an expenditure of 3.3 million dollars a year, in the

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GTA, due to inefficiency and a shortfall in productivity (Please see Productivity and Efficiency within the Executive Summary).

We recommend that dispatch centres in the GTA should utilize either the Medical Priority Dispatch System, which is a commercial prioritization tool produced by Priority Dispatch Corporation; or the Criteria Based Dispatch System, produced by the King County, Washington, Public Health Department.

- The GTA Regions, and municipalities throughout Ontario, are legislatively responsible for ensuring the proper provision of land ambulance services in accordance with the needs of persons in the municipality, and are responsible for all costs associated with the provision of land ambulance services. But they have little, if any, daily operational impact on the efficiency, effectiveness and productivity of the EMS and patient care system. In fact, even the Emergency Health Services Branch is in the difficult position of not having a great deal of positive impact on the EMS dispatch system in Ontario by virtue of its position within the hierarchy of the Ontario government (Section 6.2.3 of the report).

Governance and Organizational Options

We examined five organizational and governance models (Section 6 of the report):

1. The status quo which means that the current situation, where the municipalities do not have a role in setting policy and strategy for the GTA dispatch centres, would continue;
2. An oversight model, which includes governance and system ownership by the Ministry of Health, as it currently exists, but with oversight and real influence on the operations by the GTA emergency medical services;
3. A shared governance with the Ministry of Health;
4. Governance by the GTA EMS Group wherein the GTA municipalities would set strategy and policy for one or more dispatch centres in the GTA, and the Province of Ontario's and the Ministry of Health's role would be regulatory and legislative, only, similar to the way it legislates and regulates ambulance services but with continued 100% funding support from the Ministry of Health; and,
5. An integrated model where dispatch centres become part of a region's EMS organization, similar to Niagara Region or Toronto Emergency Medical Services, also with 100% funding support from the Ministry of Health.

Our recommendation is that the GTA Group take steps to assume full governance and operational control of ambulance dispatch functions, and that the Ministry of Health should take on a legislative and regulatory role as it has for ambulance services, and the same funding role as it has for other non-ministry operated dispatch centres. The Ministry of Health currently provides 100% of operating costs to non-ministry dispatch centres in the province.

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There is ample proof of the efficacy of such a model which can be found in other provinces and countries, and the City of Toronto. In addition, we have provided evidence in **Section 9** of the report that full governance and operational control by the GTA municipalities would avoid millions of dollars in costs annually.

Operating Models

We examined 3 GTA regional operating models (**Section 6** of the report):

1. An 'Integrated Model' where dispatch centres would become part of a region's EMS organization. In this scenario each regional and county emergency medical service would create a department for the purpose of receiving calls for assistance and dispatching ambulances.
2. The consolidation of GTA dispatch functions into two dispatch centres; one would serve Peel and Halton Regions, the other would serve York and Durham Regions, and Simcoe County.
3. A single consolidated EMS communications center for the GTA that would be similar in size and capabilities to the Toronto Emergency Medical Services Dispatch Center.

A fourth operational and governance model that was considered is that of another emergency service dispatch center, such as a regional police force or fire service, providing dispatch services. Although theoretically possible, the concept of an emergency communications center where call takers and dispatchers receive and dispatch calls for different emergency service disciplines is extremely difficult to achieve. Except for communication centres in small municipalities, most dispatch centres that try to achieve the objective of having staff members become proficient at call taking and dispatching for more than one type of emergency service (police, fire, EMS), have very little success due to the disparate call taking and dispatch methods, and the problems associated with 'spur of the moment' switching between call types. In fact most staff members achieve proficiency in only one or two of the dispatch disciplines and are scheduled to call take or dispatch only police or fire or EMS.

One of the dispatch operating models that was considered during this assignment was that of consolidating the GTA EMS dispatch services with the City of Toronto's emergency medical services dispatch (TEMS). Our partners at Stantec's architectural and engineering division toured Toronto's EMS dispatch as part of a preliminary assessment of that option. However, their opinion was that there are substantial space and site limitations at the TEMS location to the extent that any renovations, to house the GTA EMS function, would have to be assessed against the scope and cost of building a new facility on the site or elsewhere in the Toronto – GTA area. Since substantial resources would have to be put into even a preliminary feasibility assessment, a decision was made that this option would be put aside.

We discovered that the single GTA EMS dispatch model was the most cost effective, both from a first year startup capital and operating cost (**Table 2**), and a ten year growth and operating perspective (**Table 3**).

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Column 4 of Table 2 shows that the rolled-up total capital costs of the 'Integrated into Regional Services' model is \$30.226 million, \$15.5 million more than the 'Consolidation into Two Centres' model, and \$18.2 million more than the 'Single GTA Center' model. A significant portion of the cost in the 'Integrated into Regional Services' model can be attributed to technology capital costs which would have to be duplicated in each region.

The 'Consolidation into Two Centres' model has a rolled-up facility and technology capital cost of \$14.7 million, almost \$2.7 million more than the 'Single GTA Center' model.

The 'Single GTA Center' model will incur operating costs (including staffing), of almost \$8.8 million annually (column 8). The rolled-up annual operating costs for the 'Consolidation into Two Centres' model is almost \$2.8 million greater at \$11.567 million, and the 'Integrated into Regional Services' adds another \$7.677 million to the annual operating costs, GTA-wide, resulting in an annual operating estimate of \$19.245 million. A large part of the rolled-up annual operating costs in the 'Integrated into Regional Services' model is attributable to the number of staff required at five distinct centres; there is greater staffing efficiency within consolidated centres.

Table 2 – First Year Capital, Operating, and Human Resource Costs by Dispatch Organizational Model (\$ Thousands)

MODEL	Capital Costs				Annual Operating Costs				
	1	2	3	4	5	6	7	8	9
	Facility Capital Costs	Technology Capital Costs	Total Capital Costs	Rolled-up Total Capital Costs	Human Resource Costs	Facility Operating	Technology Operating	Total Annual Operating Costs	Rolled-up Total Annual Operating Costs
Integrated into Regional Services				\$30,290.8					\$19,248.4
Halton	\$1,337.3	\$4,386.6	\$5,723.8		\$2,324.0	\$219.3	\$688.7	\$3,232.0	
Simcoe	\$1,671.6	\$4,386.6	\$6,058.2		\$2,843.7	\$219.3	\$688.7	\$3,751.8	
Durham	\$1,337.3	\$4,386.6	\$5,723.8		\$2,846.8	\$219.3	\$688.7	\$3,754.8	
York	\$2,005.9	\$4,386.6	\$6,392.5		\$3,296.1	\$219.3	\$688.7	\$4,204.1	
Peel	\$2,005.9	\$4,386.6	\$6,392.5		\$3,397.6	\$219.3	\$688.7	\$4,305.7	
Consolidation into Two Centers				\$14,730.9					\$11,569.2
Halton-Peel	\$2,674.6	\$4,494.9	\$7,169.5		\$4,264.4	\$224.7	\$690.6	\$5,179.8	
Simcoe-York-Durham	\$3,008.9	\$4,552.5	\$7,561.4		\$5,470.8	\$227.6	\$691.1	\$6,389.5	
Single GTA Center				\$12,024.8					\$8,789.9
GTA	\$6,686.4	\$5,338.4	\$12,024.8		\$7,632.6	\$266.9	\$890.4	\$8,789.9	

The operating cost comparison, shown in Table 3, includes all human resource, facility operating, technology operating and maintenance, and information technology maintenance and replacement for a ten year period.

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Table 3 - Ten Year Operating Cost by Operational Model

MODEL	Multi-Year Operating Costs (\$Thousands)
	2010 - 2020
Integrated into Regional Services	\$258,621.2
Consolidation into Two Centers	\$153,997.2
Single GTA Center TOTAL	\$114,040.0

All indicators point to the fact that there is substantially less impact upon the taxpayers of Ontario and the GTA if the choice is made to implement a 'Single GTA Center' EMS Dispatch model of emergency medical services dispatch. The 'Integrated into Regional Services' model has an impact of over one-hundred million dollars more in the ten year operating period than the 'Consolidation into Two Centres' model, and one-hundred and forty-four million dollars more than the 'Single GTA Center' model.

The capital costs of the 'Integrated' model, on a GTA-wide basis, is substantially greater than the other two models, and the multi-year operating costs of the 'Integrated' model have a significant impact upon the taxpayer in comparison to the other models. We would not recommend the 'Integrated' model from a purely financial perspective. However, there may be other reasons that are not apparent to us that may cause municipalities to contemplate this option. In any event, the 'Integrated' model should be the lowest on the list of considered options.

An interesting discovery is that the number of staff at the three existing GTA CACCs is virtually identical to the number of staff that would be required in an 'Integrated' regional model. We estimated the ten year cost of staffing at the CACCs using the same parameters as for the three GTA operational models under consideration. We found that the estimated ten year cost of CACC staffing, including benefits, is expected to be \$156.3 million dollars (Section 9.5.1 of the report).

This amount is comparable to the estimated ten year operating cost for the 'Consolidated into Two Centres' model, which is \$154 million, and \$42.2 million more than the 'Single GTA Center' model. However, the estimated cost of \$156.3 million at the existing CACCs represents only staffing and benefits but both the 'Two Center' and 'Consolidated' models include, in addition to staffing, the cost of:

- facility operation,
- technology operating and maintenance, and
- information technology maintenance and replacement

for a ten year period.

We are awaiting information from the Ministry of Health as to the current cost of comparable facility and technology operation and maintenance.

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Productivity and Efficiency

The Effects of a Reduction in High Priority Calls in the GTA

We have provided ample evidence within the report that other jurisdictions have a lower incidence of ambulance calls prioritized as life threatening. For example, in **Section 5.3.5** of the report we show that in 2008, in the GTA, up to 84% of potential patient carrying calls were dispatched as Priority 4. As a comparison, 60% of calls at Ambulance Victoria in Australia are rated as Code 1 (comparable to Priority 4), and in the UK 40% are Priority A8 (same priority comparator). According to the presentation on a *Comparison of Ambulance Dispatch Systems* at the 2007 Counties, Regions and Single Tier (CRST) and District Social Service Administration Boards (DSSAB) Annual Conference, 75% of calls dispatched by London (Ontario) CACC, using DPCI, require the use of lights and sirens whereas 42% of calls dispatched by Niagara EMS, using MPDS, require the comparable warning systems. The most recent information from Niagara Ambulance Communication Service indicates that, in the past year, 57% of all calls required the use of warning systems. Niagara ACS, Ambulance Victoria, and the UK utilize MPDS.

Although a direct one-to-one comparison between other jurisdictions and the GTA cannot be made, it is reasonable, based on the information presented in this report, to expect that a reduction of 10% in high priority calls could be achieved by utilizing a dispatch prioritization tool other than Ontario's Dispatch Priority Card Index. In fact, to demonstrate the efficiencies that could be gained if we applied a similar ratio of high priority calls in the GTA as compared to the jurisdictions mentioned above, we could have used a 20% to 25% reduction factor; however, we decided a conservative 10% factor should be applied. It is possible that the cost avoidance indicated in **Table 4** could be twice the values shown.

We estimate that a 10% reduction in high priority calls reduces the pressure on EMS to have sufficient resources available to respond at a moment's notice. EMS deployment plans within the GTA indicate that a Priority 3 call may be delayed up to 30 minutes. If 10% of Priority 4 calls for assistance were prioritized in the same way as they are in other jurisdictions, and were coded as 'urgent' (Priority 3) rather than 'life threatening', this would translate into decreased pressure on the overall pre-hospital medical care system.

For the purpose of our calculations, and once again taking a conservative approach, we have assumed that Priority 3 calls can have up to a 20 minute elapsed time before response is required. This time period would reduce the pressure on ambulance resources to respond immediately, and the pressure to add resources to meet the immediate response requirements of Priority 4 calls. The \$1.3 million financial avoidance of this efficiency, throughout the GTA, is shown in **Table 4**.

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Table 4 – Cost Avoidance with a 10% Reduction in High Priority Calls

	1	2	3	4	5	6	7
	Priority 4 First Notified Calls	Percentage of P4 Calls Relative to All P1 - P4	P4 Calls Relative to All P1 - P4 @ 70%	Reduction in P4 Calls (Column 1 - Column 3)	Savings in Committed Ambulance time (Hours) at 20 Minutes per Call	Cost Avoidance at \$158 per Ambulance Unit Hour	Cost Avoidance Result
2008						\$158	\$1,306,218
Halton	20,055	77%	18,323	1,733	578	\$91,245	
Simcoe	31,032	78%	27,881	3,151	1050	\$165,953	
Durham	43,067	84%	35,883	7,184	2395	\$378,373	
York	45,606	82%	39,040	6,566	2189	\$345,825	
Peel	54,219	79%	48,052	6,168	2056	\$324,822	

The Effects of a Reduction in Multi-vehicle EMS Responses in the GTA

There is also a high incidence of multi-vehicle EMS responses in some areas of the GTA. Multiple EMS resource response occurs when a call, as determined by a CACC call taker using the DPCI or DPCI II, is prioritized as life threatening and an Advanced Care Paramedic as well as Primary Care Paramedic crew is sent to the incident. Or, it is determined that two or more EMS resources are required at an incident. A reduction in the number of calls prioritized as life threatening would result in a reduction of multi-vehicle responses. In addition, more accurate and timely data would enable the EMS Directors to more correctly allocate EMS resources to incidents only when required.

We have applied a 10% reduction to the number of multi-vehicle responses, in 2008, for each region. The exception was in Simcoe County as Simcoe does not currently staff Advanced Care Paramedic vehicles. However, a reduction in the number of calls prioritized as life threatening is still expected to result in a reduction of multi-vehicle responses in the County, and more accurate and timely data would enable Simcoe County's EMS management to more correctly allocate EMS resources to incidents only when required. Therefore we have applied a 5% cost avoidance gain to Simcoe County which is a conservative, but defensible, estimate.

The result – using a nominal rate of \$158.00 per hour (all inclusive costs) for the deployment of EMS resources – is a potential avoidance of almost \$500,000 in costs annually for the GTA Group. The financial impact of this efficiency is shown in **Table 5**.

Executive Summary

Table 5 – Cost Avoidance with a 10% Reduction in Multiple EMS Resource Responses

	1	2	3	4	5
	Estimated Number of Multi-Vehicle Responses	Reduction in Multi-Vehicle Responses (10%)	Estimated 1 hour Committed Time per Call	Cost Avoidance at \$158 per Ambulance Unit Hour	Cost Avoidance Result
2008				\$158	\$493,323
Halton	3,944	394	394	\$62,315	
Simcoe ¹	4,916	246	246	\$38,836	
Durham	2,431	243	243	\$38,410	
York	11,631	1163	1163	\$183,770	
Peel	10,759	1076	1076	\$169,992	
¹ Simcoe calculated at 5% - please see narrative explaining Table 5					

The Effects of a Reduction in Tiered Response Incidents in the GTA

Tiered response is a practice where fire services (in most cases) are sent to high priority emergency calls along with EMS resources. Tiered response was promoted in Ontario more than 20 years ago to reduce local municipality pressure on Emergency Health Services Branch to implement additional ambulance resources and to advocate locally shared responsibility for emergency medical response. There is little scientific evidence that tiered response has any impact on patient outcome in purely illness or injury situations.

The exception is in cases of cardiac arrest where time to effective treatment is critical and fire services may be able to arrive at the victim before EMS. However, fire services and tiered response, in situations of cardiac arrest; entrapment; hazardous situations; or unusual EMS response delays are vital components of an overall emergency services provision. Nevertheless, a reduction in the number of calls that are prioritized as life threatening by the CACCs and, particularly, more judicious use of tiered response based on medical realities, could realistically reduce tiered response by more than 50%.

We have chosen a more restrained measurement of 20% to calculate over \$1,500,000 a year in cost avoidance throughout the GTA.

Table 6 reflects that efficiency.

Executive Summary

Table 6 – Cost Avoidance with a 20% Reduction in Tiered Response

	1	2	3	4	5	6	7
	Tiered Responses	Reduction in Tiered Response (20% Reduction)	Cost Avoidance at \$100/hour Tiered Response	Cost Avoidance at \$200/hour Tiered Response	Cost Avoidance at \$300/hour Tiered Response	Cost Avoidance at \$400/hour Tiered Response	Cost Avoidance Result at \$100/hour Tiered Response
2008			\$100	\$200	\$300	\$400	\$1,505,800
Halton	7,176	1435	\$143,520	\$287,040	\$430,560	\$574,080	
Simcoe	11,170	2234	\$223,400	\$446,800	\$670,200	\$893,600	
Durham	10,500	2100	\$210,000	\$420,000	\$630,000	\$840,000	
York	19,371	3874	\$387,420	\$774,840	\$1,162,260	\$1,549,680	
Peel	27,073	5415	\$541,460	\$1,082,920	\$1,624,380	\$2,165,840	

Conclusion

The efficiencies suggested above represent total cost avoidances of \$3.3 million throughout the GTA but are possible only with a change in call taking and prioritization tools, and a more reasoned approach to providing pre-hospital medical services in the regions and county. Our conclusion is that achieving these efficiencies and productivity will only be possible if the regions and county become responsible for the provision of dispatch services within the GTA.

In summation, there is substantial evidence within the report that the GTA emergency medical services and the regions and county will achieve significant operational benefits by assuming responsibility for the governance and operation of dispatch and communications systems. In addition, the municipalities will be able to implement all the best practices documented within the report while avoiding millions of dollars in costs that will be spent if the current system of Ministry of Health operated CACCs continues.