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**Manitoba EMS System Review**

**THE GOVERNMENT OF MANITOBA  
Minister of Health**

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Supported by Fitch & Associates**

**CONSULTANT REPORT**

# The Government of Manitoba – Manitoba, Canada

## EMS System Review

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# EXECUTIVE SUMMARY

The Review was commissioned to provide guidance and direction facilitating development of a more integrated, responsive, reliable and sustainable system. Many dedicated individuals are committed to providing and improving Emergency Medical Services (EMS) throughout the province. During the review, the number of regional health authorities (RHA) in the Province was reduced resulting in an amalgamation of some of the existing ambulance services. Currently, 92 rural and Northern stations and 18 stations in Winnipeg are utilized to respond to approximately 156,000 requests for service in the Province during calendar year 2011. Land ambulance expenditures approximate \$105 million with an additional \$23 million allocated to support air ambulance service.

The review process involved developing objective operational and financial data and information gleaned from a wide variety of system stakeholders. Service delivery models were constructed and analyzed to determine operational feasibility and costs associated with achieving defined service standards.

The report is organized along the same lines as the functional components of an EMS system. These include: Dispatch/911; medical accountability/oversight; operational performance; customer accountability; prevention and community engagement; education and program development; organization and leadership (governance) and financial sustainability. Each section of the report identifies best practices, describes the current situation and key findings. Where appropriate, specific improvement recommendations are made.

## Key findings include:

- Call volumes are increasing
- Operational and clinical service levels, as well as the cost to produce ambulance coverage, vary widely
- Medical direction and recognized quality improvement processes require improvement
- Data is not routinely available to support clinical and operational decisions
- There is wide variability of user fees
- EMS as a system is fragmented with minimal provincial coordination.

## High-level implementation recommendations include:

- Continue utilization of two primary dispatch centres with responsibility to assign appropriate units to specific calls, provide optimal coverage on a continuous basis and better coordinate inter-facility requests
- Implement a province-wide Office of the Medical Director with standardized oversight that can be operationalized with local input and support
- Utilize primary care paramedics as the entry level for providers; develop transition training-in-place opportunities to assist current emergency medical responders in meeting this minimum required training level

- Reconfigure land and air ambulance placement to more closely match resources with actual service demand to achieve defined response time standards
- Develop Requests for Proposals to enhance basic air ambulance services
- Implement province-wide electronic patient care records and develop an integrated management information system
- Simplify user fees
- Reorganize the governance structure for EMS by creating an EMS Review Task Force to complete detailed implementation plans, lead the implementation, manage the new initiatives and review organizational options and recommend a long term EMS organization
- Transform the mission focus from a response culture to one of prevention and risk reduction

The additional costs to implement an enhanced system are broadly estimated at \$5.6 million annually (this does not include an estimated cost of \$1.4 million annually for an ongoing EMS organization) with one-time costs of approximately \$2.5 million. These are the costs if you implement all this over 5 years, but recognizing that this will likely take 10 years to do. Key steps to be accomplished each year to effect implementation are provided.

The way forward requires additional planning. As community expectations, staffing and mission focus are aligned stakeholders will need to be further engaged in that process. Implementation will require political tenacity to work with community leaders and EMS personnel alike to successfully implement a more responsive, reliable and sustainable system.

## TERMS OF REFERENCE

On May 18, 2012 the Minister of Health forwarded a letter to EMS service providers and stakeholders announcing that an external review of Emergency Medical Services (EMS) was to be completed. She indicated that the review will be led by Reg Toews with the support of Fitch & Associates who will provide subject matter expertise.

Reg Toews is the former CEO of the former South Eastman Regional Health Authority. Mr. Toews has held numerous leadership positions in the Manitoba healthcare system, most recently as the Acting CEO of Diagnostic Services of Manitoba for 8 months where his primary tasks were to help establish a new Board and to assist with the recruitment of a new CEO. Mr. Toews also recently led the former North Man RHA Administrative review. Dr. Jay Fitch of the internationally renowned EMS consulting firm of Fitch & Associates has been sub-contracted to provide subject matter expertise related to EMS systems. Dr. Fitch was previously instrumental in the development of Manitoba's Medical Transportation Coordination System, and has consulted widely for a number of Canadian EMS systems. Guillermo Fuentes, a Senior Associate with Fitch & Associates, will provide additional support particularly in the area of operating EMS systems. For more than 16 years, he has held senior leadership positions in major EMS organizations throughout Canada.

As stated in the Project Charter accompanying the Minister's letter "the purpose of this Provincial EMS External Review is to create a pre-hospital patient care and inter-facility transport system that offers more integrated, responsive, reliable, and sustainable service". The Project Charter goes on to state that the External Review will provide recommendations to:

- Ensure service levels consistent with national benchmarks;
- Enhance integration of EMS across the province;
- Ensure the EMS system is publicly accountable;
- Ensure the EMS system is financial and operationally sustainable.

The project scope for the review identifies specific areas that are to be included, but the review may expand beyond them.

- EMS system performance standards and benchmarks for rural and urban Manitoba;
- Strengthening Medical First Response as a component of EMS delivery;
- Medical oversight model including options to achieve greater province wide protocol consistency, paramedic portability, day to day medical oversight, and patient safety;
- Staffing models, including consideration of an appropriate and sustainable mix of educational levels for staffing and scope of practice;
- Alignment of EMS stations, including locations and numbers, to achieve system performance benchmarks;
- The type or number of ambulance vehicles within the EMS system;
- EMS education programs available to EMS including educational options to meet the staffing models and for achieving an adequate workforce supply;

- Performance of current and future enhancement options for EMS dispatch systems;
- Examination of inter-facility transport (IFT); should IFT remain integrated with EMS or operate as a separate system, including the potential of alternate service providers in IFT delivery;
- EMS capacity for data collection and analysis;
- Greater integration of Manitoba EMS including land ambulance, first response and air ambulance;
- Policy suggestions to ensure integrated and seamless service across municipal or regional boundaries;
- Options for EMS system to achieve more consistency and uniformity in service delivery;
- A strategy including timelines for implementing the recommended changes and an estimate of costs to achieve the recommendations;
- Suggestions for an optimal governance model and organizational systems.

It should be noted that this is a provincial review and not a review of individual regions. Consequently the recommendations will be of a provincial nature although individual regions may well be referenced.

At the time of the announcement of the review there had just been an announcement regarding changes to the existing RHA regional structure. Eleven regions were reduced to five regions. Nor-Man and Burntwood RHAs were combined to form the Northern RHA; Interlake and North Eastman RHAs were combined to form the Interlake/North Eastman RHA; Central and South Eastman RHAs were combined to form the Southern RHA; Brandon, Assiniboine and Parkland RHAs were combined to form the new Prairie Mountain Health RHA and Churchill RHA was added to the Winnipeg RHA. For the purposes of this review we will generally utilize the former RHA structure in our analyses and recommendations although wherever possible we will also reference the new structures.



# METHODOLOGY

The consultants formally began the review in late May. Service provider and stakeholder contacts were made during the summer months as best as was possible. Consultant Reg Toews initiated individual meetings with the former RHA CEOs prior to the formal beginning of the review.

The methodology selected was intended to ensure broad and focused involvement from front line paramedics. In particular this included visits to EMS services in all the regions, with the exception of Churchill RHA, and meetings with small groups of front line paramedics at each station. During travel time to each station there was ample time for discussion with each regional EMS manager.

## PROCESS

### *Meetings & Discussion*

The lead Manitoba consultant visited approximately 38 stations spread across all the rural regions, with the exception of Churchill. Typically a visit included a tour of the station. A Fitch staff member participated in the visits to the Burntwood and Assiniboine RHA EMS stations.

During these visits meetings were held with approximately 110 paramedics. Typically these discussions included small groups of paramedics that were at the station and usually did not include the EMS manager. A meeting could include anywhere from one paramedic to five or six paramedics at a larger station.

### Service Provider Meetings

- EMS managers/directors – individual meetings were held with most EMS managers.
- Trainers/educators – a small number were interviewed separately.
- Medical Directors – a number were interviewed individually. There was also a group meeting to which all the Medical Directors were invited. Approximately seven were in attendance in person or by teleconference.
- EMS Managers meetings – One or more consultants met twice with this group at their regularly scheduled monthly meeting. The full consultant team was present at the second meeting.
- Manitoba Transportation Coordination Centre (MTCC) – One or more consultants had numerous meetings with the Director and the MTCC staff.

### Stakeholder Meetings

- Fire/Paramedic services – Winnipeg Fire Paramedic Service (WFPS), Brandon Fire & Emergency Services and Thompson Fire & Emergency Services. One or more consultants met three times with the WFPS and once or twice with Brandon and the Thompson services.
- Service Purchase Agreement (SPA) providers – two consultants met with SPA operators in the north e.g. Cross Lake Ambulance, Michelle Memorial EMS, Norway House Cree Nation

Ambulance and Wabowden Ambulance. These SPAs serve either First Nation and/or Metis communities.

- Educational institutes – Red River College School of Health Sciences & Community Services, Criti Care, Inc, Manitoba Emergency Services College
- Air Ambulance services – Lifeflight, STARS, and Basic Air providers – Perimeter Aviation, Keewatin Air and SkyNorth Air, Mississippi Airways, FastAir and Sky Medical.
- Vehicle and Equipment Management Agency
- Medi-Van Stretcher Car Services
- Assembly of Manitoba Chiefs Secretariat (AMC)
- Manitoba Metis Federation (MMF)
- First Nations and Inuit Health Branch (FNIHB)
- Paramedic Association of Manitoba (PAM)
- Unions – Manitoba Government Employees Union, Manitoba Association of Health Care Professionals, United Fire Fighters of Winnipeg, Brandon Professional Fire Fighters/Paramedics Association
- Association of Manitoba Municipalities

#### **Manitoba Health Meetings**

- EMS Branch – numerous formal and informal meetings/discussions were held with the EMS Branch staff, the A/Director of Emergency Medical Services and the Executive Director, Health Emergency Management.
- Manitoba Health senior executives – Deputy Minister, Assistant Deputy Minister of Regional Policies and Programs.

#### ***Review of Related Background Documents***

**Primary Documents** – there are two primary documents that provided background information:

- Provincial Emergency Medical Services Framework; Planning Document – this document reflects the work of the Provincial Emergency Medical Services (EMS) Steering Committee and Project Team that were established in the spring of 2004. This document was to guide the development of the emergency medical services in Manitoba.
- Reports from the Emergency Medical Services Chiefs of Canada (EMSCC) – two major documents released by EMSCC were *Defining the New Road Ahead* and *Community Paramedicine in Canada*.

#### **Secondary Documents**

- In the late 1990's and early 2000 Manitoba Health prepared a number of working documents including an Implementation Strategy for the Provincial EMS Program.
- In 2007 the Paramedic Association of Manitoba released the document *Manitoba's Quiet Crisis: Recommendations for System Improvement*.

### ***Information, Statistics & Data***

- Dozens of documents, reports, and statistical tables were provided by the EMS Branch, MTCC, various service providers and others as part of the meeting process.<sup>1</sup>

### ***Literature Review***

- EMS related reports from across Canada and other countries were researched on the web.

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<sup>1</sup> The lack of consistent and reliable information available centrally was a challenge. Every effort has been made to make the data as accurate and complete as possible so that it can be considered reliable for the limited purpose of this review. The data should be treated with caution when used for any other purpose. The Annual Operation Plan completed by the RHAs and other service operators was a primary source of information.

# INTRODUCTION

## *HISTORICAL*

Prior to 1997, the delivery of Emergency Medical Services (EMS) was the responsibility of municipal governments. The Municipal Act enabled municipalities to establish local ambulance services. In 1997, with the coming into force of the Regional Health Authorities Act, the delivery of health care services, including Emergency Medical Services became the responsibility of the Regional Health Authorities (RHAs). The provisions of the Municipal Act relating to Emergency Medical Services were repealed. With this action the RHAs assumed responsibility for the direct delivery of Emergency Medical Services or through Service Purchase Agreements between RHAs and local service providers. EMS was now to develop into a pre-hospital emergency care service including emergency medical dispatch, emergency medical response and medical care, emergency medical transport and inter-facility medical transport.

Since each RHA was given the responsibility to organize and provide EMS services in its region this meant that 11 EMS systems developed across the province. Each RHA developed their land ambulance services according to the availability of human and financial resources, geographical reality, and the priority given to the EMS program by the RHA. As a result there were significant variations between the regions in how the program was organized and delivered and how it evolved over time. In particular this resulted in various organizational structures, staffing models, response times etc. While the RHAs had been made responsible for all facets of the land ambulance services the air ambulance services developed on a separate track quite apart from the RHAs.

The last 15 years have seen unprecedented development of the provincial Emergency Medical Services. These developments have taken place both at the provincial level and at the regional level. At the provincial level these developments include:

- establishing a provincial fleet vehicle program and purchasing 175 new ambulances;
- the introduction of the Medical Transportation and Coordination Centre to provide coordinated land and air medical dispatch services;
- establishing the Primary Care Paramedic education program at Red River College;
- providing capital funds to construct or substantially upgrade ambulance stations in communities across the province;
- funding for the full patient costs of inter-facility transports;
- providing financial support to Red River College paramedic students for their education should they return service in rural Manitoba;
- providing funding to the regional health authorities to permanently hire additional full-time and part-time paramedics across the province;
- improving emergency air ambulance services with the addition of rotary wing in the southern portion of the province, and introducing a fixed wing air ambulance inter-facility program in southern Manitoba.

Since the RHAs were made responsible for developing the EMS program in their regions this highly decentralized model led to innovation and creative problem solving. The accomplishments at the local level include:

- employing more EFT Primary Care Paramedics;
- creating Intermediate Care Paramedic positions with enhanced skills;
- staffing more ambulance stations with 7/24 Primary Care Paramedics;
- increasing the availability of EMS Medical Director services;
- partnering smaller stations with larger ambulance stations;
- consolidating IFT services at larger stations;
- creating supervisor/enhanced skill positions to treat more complex cases;
- partnering with Red River College to provide PCP training at regional locations;
- utilizing Geo-Posting to provide improved service coverage;
- replacing an ambulance crew after 16 hours if unloading is delayed;
- designating certain ambulances to be used primarily for IFT transports.

## ***PROVINCIAL SERVICE OVERVIEW***

Today the core EMS services are being provided province wide: emergency medical dispatch, emergency medical response and medical care, emergency medical transport and inter-facility medical transport. While challenges remain, and they are the focus of this review, a province wide dispatch system, with some exceptions, is operating effectively; the land ambulance system, while under continuing stress in part due to rapidly increasing call volumes, is generally meeting current need; air ambulance services have been expanded to include emergency rotary wing services in addition to Lifeflight services, Basic Air ambulance services in the north and the establishment of fixed wing air ambulance inter-facility Transport Program (IFT) in the south.

The land ambulance services as of 2012 are delivered either directly by the RHAs or by SPA operators from 92 rural and northern stations plus eighteen stations in Winnipeg. In 2012 the rural and northern land ambulance services operated 143 Fleet units to provide both primary and inter-facility transport services. In Winnipeg in 2012 WFPS operated 32 Fleet units to provide the same service. In 2011 the ambulances in rural and northern Manitoba were staffed by 305 licensed Emergency Medical Responders (EMR), 708 licensed Primary Care Paramedics (PCP) of which approximately 209 are also trained as unlicensed Intermediate Care Paramedics (ICP). The Winnipeg Fire Paramedic Services as of June 2011 employed eight licensed EMRs in Dispatch, 384 licensed Primary Care Paramedics and 91 licensed Advanced Care Paramedics (ACP).

Call volumes have increased dramatically since the transfer of EMS to the regions in the late 1990s. In 2011 the land ambulances responded to approximately 156,000 calls across the province. Of this total approximately 76,000 were rural responses and approximately 80,000 were from Winnipeg. This represents about a 6% increase in call volume in rural and northern Manitoba and approximately a 3% increase in Winnipeg over the previous year. Approximately 43% of the rural calls were IFT transports and approximately 25% of the Winnipeg calls, including stretcher car, were IFT transports.

Air Ambulance services continue to grow as well. Basic Air Ambulance services in the first four months of 2012 completed 1,867 patient transports. In Fiscal Year 2011/12 Lifeflight completed 466 transports. Between April, 2011 and March, 2012 STARS completed 168 transports.

To complete the picture 20 licensed rural Medical First Response agencies responded to just over 1,000 incidents. In 2010 WFPS Fire trucks provided a medical first response in 8,195 incidents and in a further 35,339 incidents both fire and ambulance responded.

EMS revenue and expenditures have grown dramatically in the last 15 years. In 2011 EMS program expenditures, including MTCC and the Manitoba Fleet, amounted to approximately \$105m. This does not include air ambulance or stretcher car expenditures.

EMS is now entering a new phase and is moving away from a highly decentralized system to a system that is more provincial in nature. The Minister's letter announcing the external review identifies the future system as being "a pre-hospital patient care and inter-facility transport system that offers more integrated, responsive, reliable, and sustainable service."

## ***THE OPTIMAL SYSTEM***

An optimal EMS system is best designed from the patient's perspective. There are multiple models for delivering these services throughout the world. Most have several common elements that are noted here as optimal. In short, patients should expect that the system will be engaged in illness and injury prevention, health education, and early symptom recognition, in addition to responding to emergency and non-emergency transportation requests. The EMS system should provide a rapid and appropriate response when a caller dials 911 and routinely provide scripted medical instructions until help arrives. Community volunteers and other first responders should be able to provide medically approved first-aid/self-help measures prior to the ambulance's arrival.

The arrival of a transport capable ambulance should occur within a clinically appropriate time frame (e.g. nine minutes [ $<8:59$ ] on life-threatening emergencies [Echo and Delta type calls] in urban areas, within fifteen minutes ( $<14:59$ ) in rural areas and within 30 minutes ( $<29:59$ ) in remote areas. Suburban, rural and remote response times should be pre-set by government balancing call densities, desired outcomes and funding capacity but measured in the same fractile manner. Response times for other type calls (e.g. non-life threatening assignments inter-facility transports) should be set by medical authorities with capabilities to monitor compliance to standards.

Patients should be transported to a hospital that is best suited to treat their specific condition. The system should be externally and independently monitored with the system's participating agencies and personnel held accountable for their responsibilities, sophisticated systems develop specific metrics for each underlying component. Finally, the system must deliver solid value for the resources invested.

# DISPATCH/911

## ***BEST PRACTICES***

EMS dispatch centres are considered the coordination centres for EMS systems, they take calls with complex call taking algorithms, and they categorize calls, prioritize calls and then assign the appropriate resource. Best practice EMS dispatch centres are designed to accommodate public emergency reporting services (PERS) and phase II wireless (network to network interface of wireless providers) these mandatory connections facilitate wire-line, cellular, voice over internet protocol, automatic crash notification, patient alerting system devices and other public 911 access to the Emergency Medical Services System. Voice, video, telemetry, and other data communications conduits are utilized as necessary to best enhance real-time information management for patient care.

Quality in dispatch centres is established through continuous quality improvement that at the front end is medically directed. These medically directed systems are protocol based emergency call taking; the most commonly used protocol based call taking system is emergency medical dispatch (EMD). Call taking is regulated and performance standards exist for each part of the call taking process, these standards ensure that the communication centre is performing optimally. Technology should support the caller and direct the call from the primary Public Safety Answer Point (PSAP) to the appropriate secondary PSAP for the geographic location of the call.

Data collection facilitates the analysis of key service elements and these data points should be routinely benchmarked and reported. These data elements should become the foundation for the performance measurements that will be the accountability standards by which the service will be considered as adequate, excellent or failing in its service delivery. Technology should support the interface between 911; and the medical dispatch functions and administrative processes. Radio/cellular linkages between dispatch, field units and medical facilities need to provide coverage and facilitate both voice and data communications. Interoperability between allied public safety agencies needs to be present at all levels.

## ***KEY ACCOMPLISHMENTS & CURRENT SITUATION***

There are two principle dispatch centres in the Province. The Medical Transportation Coordination Centre (MTCC) located in Brandon provides EMS medical and inter-facility dispatch for all of rural Manitoba and portions of the north. Winnipeg Fire and Paramedic Services provide dispatch for fire and EMS medical and inter-facility dispatch for Winnipeg. There are a number of Service Purchase Agreement operators, mainly in the north, that continue to provide their own dispatch, and they have been provided with the Dispatch Standards and are being encouraged to meet those standards or devolve their operations to the MTCC.

MTCC became operational in 2006 with a plan to phase in full operations over a five-year period. MTCC has just implemented its fifth or final phase, this year. This phase includes the provision of dispatch

services for Air Ambulance – LifeFlight (in an earlier phase), Basic Air Ambulance, STARS, and Southern Air Ambulance Inter-Facility Transport Program (SAAP). MTCC operates as a division of Regional Health Authorities of Manitoba Inc (RHAM). In turn RHAM has a signed agreement with Manitoba Health outlining this arrangement and the amount of funding to be provided by Manitoba Health to accompany this agreement. In 2011/12 Manitoba Health provided \$4,350,000 funding for the operation of this centre. It employs 53 staff representing 37.2 full time equivalents (including a .3 FTE for a medical director).

The MTCC work volume continues to grow. In 2011 MTCC handled just under 70,000 CAD (computer aided dispatch) incidents for ground EMS resulting in just over 78,000 calls dispatched. This generated approximately 49,000 patient transports.

Given Manitoba's history and geo-political context, it makes sense to have two dispatch centres – one for rural and northern Manitoba and another one for Winnipeg. In 2011/12 the WFPS expenditures for the dispatch centre were \$3.7m. In 2011 WFPS handled approximately 80,000 incidents to which one or more operational units (fire, ambulance or both) were dispatched.

During this year WFPS has assumed responsibility for receiving the stretcher car calls and referring them to Medi-Van Inc. for dispatch. Currently Medi-Van is the only stretcher car operator in Winnipeg, and for that matter the province. In 2011 Medi-Van handled approximately 16,000 IFT calls.

The two major dispatch services enjoy a good day-to-day working relationship. According to the MTCC Director there is frequent contact on a daily basis between the two services. There is however, not a formal structure in place to facilitate communication. Earlier in the history of MTCC there were plans to set up an Interregional EMS Coordination Committee (IFT Committee) to identify EMS issues and potential solutions specific to Inter-facility transports across rural and northern Regional Health Authorities. This committee however was never established. Currently the MTCC Director meets twice a year with all the EMS operations and other EMS related entities to discuss EMS issues and solutions. WFPS is not part of this informal group.

The comments that the reviewers heard both in the field and from EMS directors were overwhelmingly positive about MTCC and the service it provided. The Thompson Fire and Emergency Services, however, were of the view that their providing the dispatch services resulted in a better level service than having MTCC provide the dispatch. The Air Ambulance providers, who have just begun to be dispatched by MTCC, expressed the opinion that having the dispatch centralized under MTCC was a fair arrangement. While LifeFlight and STARS were of the opinion that MTCC should not set up a separate triage centre and take over the triage function they nevertheless felt that the coordination that MTCC provided for the call taking/dispatch was very helpful and should continue.

There are challenges that remain. While MTCC through the CAD collects accurate and extensive information on the dispatch process it does not collect any patient care information. Until approximately 6 years ago there was a basic patient care record program in place but that program became disabled



and was not replaced. This represents a very large gap in available information and seriously hinders any assessment of the quality of the patient care provided. The quality of EMS services has two primary measures. The first is response time and the second is the quality of the care provided by the paramedics. WFPS does operate an effective Electronic Patient Care Record (EPCR) system. This provides them with very valuable information that the rural and northern EMS services do not have. WFPS have indicated that they would be very willing to roll out their EPCR program across the province. If this were to be done it would establish a common EPCR program across the province. Also to use the WFPS Electronic Patient Care Record program would in all likelihood be less costly than to create a new EPCR program and it could be rolled out in a shorter timeframe.

The other major issue that remains is the effective incorporation into MTCC of those EMS services that are currently self-dispatching. These self-dispatching services typically operate in the north under Service Purchase Agreements. According to the most recent available information the following services are self-dispatching: Thompson Fire and Emergency Services, Michele Memorial EMS, Cross Lake Ambulance, Nelson House EMS, Gilliam EMS, Wabowden EMS, and Fisher EMS. Six of these services are located in the former Burntwood RHA, and one in the former Interlake region.

On September 13, 2012 a letter from the EMS Branch of Manitoba Health was sent to those services that are currently self-dispatching informing them that every EMS license holder in Manitoba must: a) operate a dispatch centre in accordance with the standards approved by the Minister of Health, or b) enter into a relationship to have dispatch services provided by another license holder that is acceptable to the Minister of Health. The letter goes on to say that there were no EMS Dispatch Standards in 2006 when the regulations were announced and distributed, however, recently the EMS Branch has received approval by the Minister of Health to publish and implement the EMS Dispatch Standards, a copy of which are attached to the letter.

The letter acknowledges that the license holder will need time to review the new standards and determine the impact on its service. Should the license holder be unable or otherwise elect not to comply with the standards, assistance will be provided to develop a transition plan to have its EMS service enter into a dispatch services agreement with MTCC. The letter requests that the EMS service advise its RHA of their decision/ability to comply with the standards by November 30, 2012 and the RHA will notify the EMS Branch.

This directive clearly addresses the major outstanding issue of self-dispatching SPA's. When this directive is fully implemented all dispatch services will at that point be licensed. In all likelihood the majority, if not all of the self-dispatching services will have difficulty meeting the prescribed standards and consequently will be entering into an Agreement with MTCC.

## 911

There have been no recent changes to the areas covered in Manitoba by 911. While most of the provincial residents have access to 911 there continue to be rural and northern areas that are not covered. The areas not covered are comparatively small in number but for the residents living in those areas it does inconvenience them and leave them without the same level of emergency coverage that is available to other Manitoba residents

If an area is on 911 service and the 911-caller requests ambulance or medical services, the call is automatically forwarded to MTCC for triage/dispatch/coordination of the closest most appropriate EMS resource. For areas that are not on 911; MTCC will work with the RHA and community to utilize the existing local 7-digit number which through a forwarding "fix" is directly answered by MTCC.

It is not within the capacity of MTCC to resolve this issue. The 911 system is operated by MTS and it is only MTS that can resolve this issue. In the meantime MTCC has initiated a reasonable "work around" for this situation so that safety is not seriously compromised.

## COMMUNICATIONS

Best practices and the current processes and technologies utilized in the two primary centres are summarized below in Table 1.

**Table 1: Comparison of Communications Centre Best Practices to Current Practices**

Best Practice	Winnipeg Fire	MTCC
1. Call taking done by specialized personnel	<b>YES</b> Paramedics with field experience hand call taking to ensure optimal patient contact	<b>Yes</b> Call takers specialized; but are not required to have field experience
2. Protocol based call taking	<b>YES</b> Use Medical Priority Dispatch System (MPDS), a standard of care protocol for medical emergency triage and pre-arrival instructions to patients/callers	<b>YES</b> Use Medical Priority Dispatch System (MPDS), a standard of care protocol for medical emergency triage and pre-arrival instructions to patients/callers
3. Quality assurance program with calls reviewed for call taking accuracy	<b>YES</b> but is not accredited as a centre of excellence	<b>YES</b> but is not accredited as a centre of excellence
4. External oversight	<b>YES</b> Independent medical director for dispatch	<b>YES</b> Independent medical director for dispatch
5. Time measurements and reporting	<b>NO</b> No accountability, no performance requirements by oversight body, no apparent reporting and no consequences for poor performance	<b>NO</b> No accountability, no performance requirements by oversight body, no apparent reporting and no consequences for poor performance
6. Computer aided dispatch (CAD) with mapping	<b>YES</b> Strong geospatial capabilities; up-to-date mapping; latest version of CAD system	<b>YES</b> Strong geospatial capabilities; up-to-date mapping; latest version of CAD system

ambulance only when transport to hospital is likely required, however a slightly quicker response by fire would not provide additional anticipated benefit to the patient. Secondly, sending fire only if there is a high likelihood that there is no patient or transport may not be required. Or, thirdly, a dual response (fire and ambulance) for high acuity calls where a quick response is imperative and likelihood of transport is high.

From 2007 to 2010, the number of incidents that were mitigated by fire without dispatch of an ambulance has roughly doubled to 8,195. This mitigation of calls serves to 'level' the call volume experienced by ambulance resources. Also, of the incidents to which units were dispatched from 2007 to 2010, ambulances are now sent to 5.6% fewer incidents, and fire is sent to 2.9% more incidents. As part of the agreement between the WRHA and WFPS, the WFPS expenditures in a recent year included \$7.1m in recognition of the value of the first responder support (these expenditures are shared according to the 50/25/25 funding formula).

### ***What Needs to be Accomplished***

The WFPS service model is significantly different from the rural model both in the funding available for this service and in the utilization of paid Firefighters to provide the staffing. In all likelihood it will be difficult to establish a province wide MFR service within the current MFR policies. This rural service model is dependent on the willingness of the municipality to fund the service and for Firefighters and other residents of the community to provide the volunteer staffing. As long as this is the case MFR agencies will be established only in those areas where municipalities and Fire Departments are willing to take on this responsibility. This again makes it impossible to reliably establish an MFR service in the areas of greatest need and where a non-transporting service provides the most benefit.

### ***Specific Recommendations***

11. Review the current purpose and policies of the MFR program.
12. Develop a program that is more equitable between Winnipeg and rural and northern Manitoba.
13. Review (and change) the current funding requirements for the municipalities.
14. Develop a provincial program plan that identifies where MFR stations should be developed in the future.

## ***LAND AMBULANCE***

### ***Organization of Service Delivery***

An image from the field of art and culture comes to mind when attempting to describe the current EMS operations across the province. That is the image of a patchwork quilt – or possibly a coat of many colours. A typical patchwork quilt is composed of various colours of solids and prints, pieces with many shapes and sizes, different kinds of fabrics and finally all the individual pieces are stitched together and surrounded by a border, frequently of one colour.

The above image represents another picture of how Emergency Medical Services currently operate across the province. In this section we will look at five different models/variations of current EMS operational systems. In doing this we will identify four specific regional models and a fifth model/variation which is really a hybrid of the other four. While there are similarities between these different models it is the differences that represent a future challenge.

### ***Current EMS Operation Models***

In describing these first four models the former RHA structure will be used since that structure demonstrates the differences most clearly.

#### **Assiniboine RHA**

This regional model relies primarily on on-call staff to provide 24 hours per day/7 days per week coverage. This is unique to the Assiniboine RHA. The program also employs full time and part time paramedics in sites where EFT positions are justified. The region is heavily dependent on EMRs to maintain their ambulance operations.

The region does not have any stations that are staffed with primary care paramedic EFTs 7/24. The EFT paramedics are typically assigned to the day shift while on-call EMRs generally provide the service during evening and night hours. Stations if they do have EFT staff typically do so only for only a limited number of hours a day M-F and on the weekends stations are staffed by casual on-call staff. The smaller stations may frequently have their ambulance service provided from an adjacent larger station. In the case of the IFT program the transports are provided out of six larger stations.

Out of the 25 stations in this region there are a significant number of stations that provide less than 100 primary transports or inter-facility transports annually. In the case of the IFT program there are ten stations that have fewer than 50 transports a year and 16 stations that have under a hundred transports. In the case of primary transports, there are two stations that have under 50 transports per year and nine that have under a hundred transports annually.

While this region is highly dependent on on-call EMRs to maintain its service at the same time it has among the highest number of ICPs of all the regions. This may in a limited way compensate for the large number of EMRs used in delivering the service.

Due to the large number of stations the region does not track Geo-Posts.

### **South Eastman RHA**

This model relies on EFT Primary Care Paramedics to provide 24 hours per day/7 days per week coverage. Each station, with the exception of Falcon Lake, has at least one unit EFT staffed 24 hours/7 days per week. Steinbach operates 3 units two of which are EFT staffed 7/24 and a third unit is staffed by on-call paramedics; Ste. Anne, St. Pierre and Vita each operate two units of which one is EFT staffed 24 hours/7 days per week and the second unit is operated with on-call paramedics. In the case of the fifth station at Falcon Lake it has one unit which is EFT staffed for 12 hours/ 7 days a week and with on-call paramedics for the remaining 12 hours/day.

If a unit cannot be staffed the region has the ability to move staff and/or units from an alternate site to provide EMS coverage within the affected area. In addition the availability of EFT staffed primary units in the five communities allows for the staffing of additional units with overtime or mandated staff. Geo-Posting allows the region to provide coverage for a station when its resources are drawn down below a predetermined level.

In this model the ambulances are staffed with PCP's. The region employs a limited number of ICPs typically in supervisory and/or enhanced treatment positions.

With the exception of the stations at Falcon Lake and Vita the other stations have over 700 primary calls annually. The annual primary call volumes at these three stations are St Pierre with approximately 750 calls, Ste Anne approximately 1,000 calls and Steinbach over 2200 primary calls. Vita completes annually just over 300 primary calls and Falcon Lake just under 200 primary calls. The situation in regard to inter-facility calls is very similar. Two stations are above 300 inter-facility calls annually, one over 500 calls and the other one over 900 calls. Falcon Lake does not complete inter-facility transfers.

### **Burntwood RHA**

The EMS program in this region is provided primarily by Service Purchase Agreement operators. The two sites that the RHA operates are Lynn Lake and Leaf Rapids. The annual combined call volume between these two stations is just over 200 primary calls and less than a 100 IFTs. Each station has one ambulance staffed with on-call casual staffing 24 hours per day 7 days a week.

The RHA has signed SPAs with seven service providers located in six communities (Cross Lake has 2 SPAs). These communities are Thompson, Wabowden, Cross Lake, Norway House, Nelson House and Gillam. With the exception of Thompson these SPA operators provide services primarily in First Nation/Metis communities.

The Thompson Fire and Emergency Services provides 7/24 EMS services to the city of Thompson. This is a crossed trained Fire/Paramedic service with all the staff trained both as Firefighters and Paramedics and working regular shifts on both fire trucks and ambulances. The service has 24 cross trained staff.

This station is fairly busy with approximately 2,000 primary calls and 3,000 IFTs annually (most of the IFT transports are to and from the airport). The service continues to dispatch its own calls.

The other six SPAs, as mentioned, serve primarily First Nation and Metis communities. With the exception of one station each of the communities has either a nursing station or a hospital. If the SPA operator has sufficient resources the response time can be quite satisfactory since the geographic area to be covered is quite small.

Typically the ambulances are staffed with on-call staff trained at the EMR level although the one service has PCPs on staff. There are no ICPs employed in these communities. The annual call volumes can range from very low – less than a 100 primary calls and less than a hundred IFTs – to fairly substantial - in excess of 1,500 primary calls and in excess of 1,000 IFTs.

The Norway House service is dispatched by MTCC. All the others are self-dispatched. There are no MFR stations in the region and the services do not track geo-posts. While the Burntwood RHA covers a very large geographic area typically each operator serves a specific community with few transports occurring outside that community.

In our conversations with representatives from AMC and MMF the lack of EMS services in remote and isolated communities was emphasized. If an ambulance transport is available it takes a long time. Generally in these communities there is no ambulance transport available and other inappropriate vehicles need to be used. It was also identified that in these remote communities a medical first response service would be very beneficial.

### Winnipeg

Winnipeg Fire Paramedic Service serves all of Winnipeg under an SPA with the WRHA. It is the sole EMS service provider in Winnipeg.

WFPS is structured with two operating divisions. The fire division operates the non-transporting Medical First Response service. Whenever a pumper or another fire unit attends to an MFR call a cross trained fire/paramedic is on board. This division does not provide transportation. According to the 2010 WFPS EMS System Performance Summary at that time there were 198 Firefighter/ Primary Care Paramedics. According to the same report, 698 Firefighters attend to medical calls together with a licensed FF/PCP to provide assistance with patient care.

The second division operates the EMS medical care and transport services. These paramedics are not cross trained and do not attend fires. In this past year the WFPS responded to approximately 80,000 calls. All of the paramedics are at least licensed as PCPs. We are told that the plan is to have an ACP on every unit. In June 2011 there were approximately 91 ACPs.

WFPS operates its own dispatch service. This centre dispatches all MFR and ambulance service calls. This year the centre began to receive the dispatch calls for all stretcher car transports. These calls are then

referred to Medi-Van which arranges the dispatch. In 2011 Medi-Van transported approximately 16,000 patients. In prior years Medi-Van has transported as many as 20,000 patients. WFPS is responsible for the medically critical IFT transports. In 2010 that involved approximately 8000 transports.

WFPS is also an approved educational site for the education and training of Advanced Care Paramedics. It has been enrolling 14 PCPs annually to upgrade them to ACPs. In the last enrolment WFPS accepted seven PCPs from the rural RHAs.

The WRHA has worked out a funding formula with WFPS. While this formula has not been perfectly achieved it states that 50% of the annual revenue is to come from user fees and the remaining 50% is to be divided equally between the WRHA and the City of Winnipeg.

### Other Regions - A Hybrid Model

In the other regions the EMS operations generally fall somewhere in between the extremes of the two rural models and increasingly look more like the South Eastman EMS than the Assiniboine EMS.

None of the RHAs in this model employ as large a number of EMRs as does Assiniboine. With the exception of Norman and Burntwood the ratio of EMRs to PCPs in the other RHAs is low. On the other hand Assiniboine employs among the largest number of ICPs. Nor do any other services rely primarily on on-call staff to provide 24 hours per day/7 days per week coverage. Only a few of these services have any ambulances EFT staffed 7/24 as does South Eastman. Three of the RHAs in this model utilize Geo-Posting as does South Eastman. Burntwood is the only RHA that primarily delivers service through Service Purchase Agreements. The other RHAs have full responsibility for direct service delivery although a few may continue to have one or two SPAs. In addition to the City of Thompson, there are two additional services in Brandon and Winnipeg that employ cross trained fire/paramedics.

Assiniboine has a much higher number of stations and units than the other RHAs. This is not because the RHA prefers it this way but rather because so far they have not received support to restructure. Assiniboine has many more low call volume stations than do other RHAs. This is partly a result of the large number of stations. Increasingly in the other regions more EFT paramedics are employed to provide coverage supported by on call paramedics.

The WFPS provides a quality service to the residents of Winnipeg. While this fire/paramedic service model will continue in the future it will not become the preferred model for other areas. There is no other EMS service that has the kind of financial, hospital, medical and MFR resources immediately available that WFPS does. Nor will the cross trained fire/paramedic services in Brandon and Thompson become the model in other areas. Both of these services have a very long history and do a good job of meeting the needs of their respective communities. It is unlikely that Burntwood will any time soon take over the operation of the current First Nation and Metis SPAs. Consequently for the foreseeable future Manitoba EMS will continue to utilize three models in delivering its services - the cross trained fire/paramedic model in Winnipeg, Brandon and Thompson, the SPA model in the Burntwood RHA and in the rest of the province a "rural" model where the EMS services will be delivered directly by the RHAs.

This multiplicity of operational models is a reality and needs to be taken into account in completing this review. At the same time it needs to be understood that this is a provincial review of EMS and that no model is excluded from the review process.

What struck the reviewers in their station visits and in their discussion with the paramedics was how creative the different RHAs have been in adapting the EMS service in their area to local realities and available resources. This capacity to adapt is clearly a strength of a decentralized system such as we have in Manitoba. Examples of this are: consolidate IFT transports at larger stations, designate a portion of all the regional ambulances for IFT transport, serve smaller volume stations from larger sites, create a partnership arrangement between a larger station and a smaller station, Geo-Post to provide coverage, provide EMR training locally, create supervisor cars with increased expertise dispatched separately, provide sleeping quarters to maintain crews on site, replace a crew if unloading delays will cause the crew to work for more than 16 hours, and many other examples.

### ***What Needs to be Accomplished***

One of the challenges facing EMS is how to tie together the total EMS system when in the foreseeable future there will be two, or possibly three, models of service delivery. It will be a major task for the provincial EMS entity being proposed to work towards integration and effective coordination.

An immediate task for the new RHAs is to incorporate the different EMS systems that existed in the former regions but which are now part of a larger RHA. For some RHAs this will be a particular challenge since they now have both fire/paramedic services and just paramedic services that need to be structured and coordinated within the same region.

As proposed later in this report the land ambulances are to be operated on a day to day basis by the four rural/northern RHAs (the WRHA does not directly operate EMS services). It is proposed that the RHAs operate under a performance contract with a new provincial EMS entity. All other service operators will have similar performance contracts. This should help create a more seamless and integrated provincial EMS service.

An important objective for any new provincial entity as well as the individual RHAs will be to move from a service model that still utilizes many casual on call EMRs to a service model where increasingly the ambulances are staffed with EFT PCPs. To complete this shift, or even to make major headway, will take considerable time.

### ***Specific Recommendations***

15. In rural and northern Manitoba the EMS program should continue to develop a "paramedics only" model and increasingly employ EFT licensed PCPs as entry level. This model will continue to train/employ ICPs and over time possibly some ACPs. EMRs should be phased out as resources allow.
16. Continue the cross trained fire/paramedic system in Winnipeg, Brandon and Thompson.



17. Have the new RHAs proceed with the amalgamation and organization of the different EMS services that were transferred to them as part of the regional restructuring. This should be done in consultation with Manitoba Health or the proposed Implementation Task Force when it is established.
18. Authorize each rural and northern RHA to establish the EMS leadership structure for the region (the WRHA will need to have an EMS lead).

## **PRIMARY RESPONSE & DEPLOYMENT OF SERVICES**

### **Key Accomplishments and Current Situation**

At the present time there are 92 EMS stations in rural and northern Manitoba and the WFPS has its ambulances located in 18 Fire/EMS substations. Currently, there are 175 provincial Fleet units. In addition the different EMS sites operate approximately another 25 ambulances that are not part of the Fleet. Many of the regionally owned units are 15 years old or more and are of questionable reliability. The costs for these extra units are the responsibility of the RHA. Additionally there are another 45 units listed as spares with no assigned crews. Twenty three of these "spare" units are owned by First Nations, National Defense, or are special purpose WFPS units that would not be available as a backup to replace out of service vehicles. These spares are not assigned to any region. The RHAs also own and operate some non-transporting vehicles, such as SUVs for EMS supervisor use. These units are not part of the provincial fleet. In regard to the number of paramedic positions as of June 2011 there were 305 EMR positions, 1,092 PCP positions and 96 ACP positions (this includes full time, part time and casual positions). (See Table 2. Current Resources for more details).

While it was not part of the review mandate we heard many comments on the need for new or additional equipment e.g. power stretchers. We also heard many complaints about the maintenance of the ambulances. Frequently the ambulances were out of service too long while awaiting maintenance which made it more difficult to meet all the transport needs.

**Table 2: Current Resources**

RHAs	Stations	Fleet units	MFR Locations	EMRs	PCPs	ICPs (in PCP)	ACPs
Burntwood	9	9	0	40	50	0	
Nor-Man	6	10	0	23	28	9	
Assiniboine	25	31	3	117	83	41	
Brandon	3	5	0	16	74	NA	
Parklands	11	19	0	39	66	10	
Central	14	21	5	18	123	59	1
South East	5	11	3	0	57	8	
North East	8	13	3	27	60	18	
Interlake	11	23	6	17	167	64	4
Winnipeg	1	32	NA	8	384	NA	91
<b>Total</b>	<b>93</b>	<b>175</b>	<b>20</b>	<b>305</b>	<b>1092</b>	<b>209</b>	<b>96</b>

RHAs	Stations	Fleet Units	MFR locations	EMRs	PCPs	ICPs (in PCP)	ACPs
EFT equivalent				51	857.6		92.7
casual				245	211		3

**Notes to Table 2:**

**Fleet Units** – does not include a small number of locally owned vehicles.

**Paramedic numbers** – numbers effective June, 2011 as reported by EMS operators through operational plans or separately for ICPs. The PCPs are inclusive of ICPs. Only the rural ICPs are included. Brandon Fire & Emergency Services has some ALS paramedics which may be equivalent to ICP and in Winnipeg after the first year of ACP training they receive the designation of ICP. The ACPs outside of Winnipeg typically have their primary employment with WFPS.

**Fire stations in Winnipeg** - in the above number Winnipeg is treated as one station even though the ambulances work out of 18 substations.

### ***What Needs to be Accomplished***

According to the Terms of Reference, the reviewers were to examine the alignment and number of EMS stations and the type or number of ambulance vehicles within the EMS system. In order to provide a meaningful answer to the above questions the expected response time must be clearly indicated.

The reviewers utilized a unit hour model in reviewing this area. This model examines the question of future resources required on the basis of demand and more specifically unit hours. This work was supplemented with some internal analysis done by MTCC and the EMS Branch.

### ***Unit Hour Model***

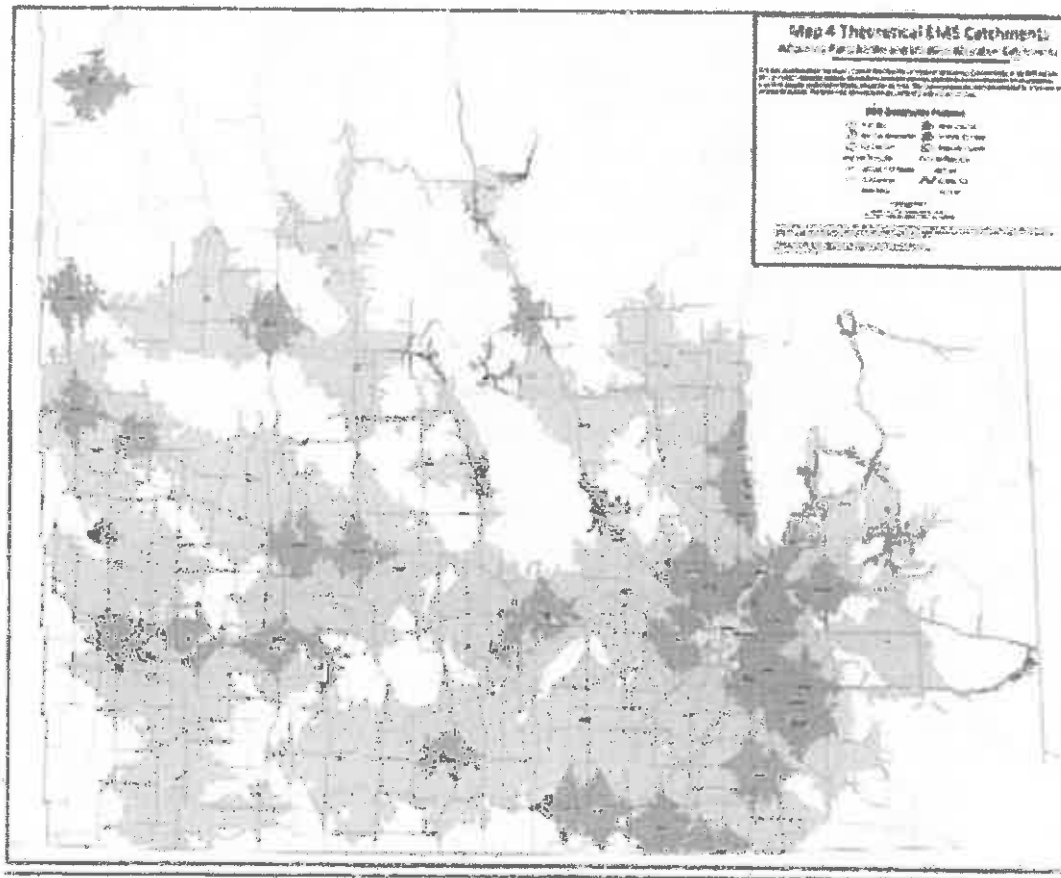
This model is intended for theoretical value only. It is to give the Manitoba Government an order of cost magnitude and it is not intended to reflect actual station locations. A further process will need to be completed to determine the location of the stations. The location names identified in this report were strictly a computerized output to allow for a count of required resources.

As part of the overall review Fitch & Associates was asked to develop a conceptual system model in which all Manitobans would have a predictable, responsible and reasonably cost ambulance service. In order to opine on this we used a demand analysis for the whole province and then applied cost to the demand analysis as a unit hour cost. The unit hour cost is calculated using existing budgets and dividing the budgets by the total amount of ambulance hours required to properly cover all of Manitoba. Demand was calculated using proprietary modeling which builds a risk model based on historical call demand and overlaying that onto a given geography. The model builds from highest risk area (commonly referred to as Urban zones) and builds out toward less risk areas (referred to as rural and remote). Using this "apples to apples" comparison this modeling allows decision makers to understand where call behavior has similar risk and requires a like response. Once that is done the methodology then adds the corresponding call volume back into the system to assess the total required ambulances needed to cover off all the risk and activity. The model ends by calculating how many hours are required when and where (theoretically) and allows for a unit hour (total budget divided by total ambulance

hours on the road) calculation. The methodology yields an approximate system cost for measurable performance. This entire model is predicated on the dispatch centres ability to have unfettered resource management; the existing municipal boundaries disappear in favor of vehicle movement that optimizes risk coverage.

The following map represents the optimal resource locations throughout the Province.

Figure 1: Recommended EMS Resource Locations



Resources are located in urban, rural and remote areas.

**Urban**

Brandon	Dauphin	Flin Flon	Norway House	Portage	Selkirk	Steinbach	The Pas	Winnipeg
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## Rural

Altona	Ashern	Beausejour	Birds Hill	Birdtail/Stoux	Blumenort	Brandon	Brokenhead FN
Dauphin	Ebb and Flow	Emerson	Fairford	Falcon Lake	Flin Flon	Gimli	Grand Beach
Grand Rapids	Headingly	Hwy 9 Corridor	Ile des Chenes	Lac du Bonnet	Lake Manitoba FN	Lake St Martin	Libau
Long Plain	Lorette	Manigotagan	Matlock	Minnedosa	Moose Lake	Morden	Neepawa
Norway House	Oakbank	Pine Falls/Fort Alexander	Portage	Roblin	Russell	Sandy Bay	Sandy Hook
Shilo	Sioux Valley	St Laurent	St Malo	Ste Anne	Steinbach	Stonewall	Stony Mountain
Swan Lake FN	Swan River	The Pas	Virden	Waywayseecappo	West Hawk Lake	Winkler	Winnipeg
Winnipeg Beach							

## Remote

Remote 30 Minute Location Allocation Catchments
Name
Beaconsfield
Belmont
Bloom
Chater
Deloraine
Dominion City
Elma
Eriksdale
Fraserwood
Gilbert Plains
Giroux
Great Falls
Harcus
Hollow Water (Wanipigow P.O.)
La Barriere
Meadow Lea
Meadow Portage
Miniota
Neepawa
Oak Lake Beach
Peguis 1L
Pomeroy
Sandy Lake
Silverton
St. Martin Junction
Ste. Rose du Lac
Swan Lake
Sylvan

The locations above are established by minimizing risk using generally accepted response time for Urban (8:59), rural (14:59) and remote response (30 minute) times.

Resource required for Manitoba without Winnipeg					
Hour	Urban	Rural	Remote	Total	10% overlap correction
Hours Total	248.47	1,461.49	672	2,381.96	2,143.77
Ambulances	10	61	28	99	89

Therefore, 89 ambulances per hour per day are required (about ten additional ambulances will be required for areas that the data does not account for), inter-facility volume is accounted for in the demand analysis

Using similar modeling Winnipeg can be analyzed

Hour	Winnipeg volume	Winnipeg volume corrected for time on task	Urban coverage	Urban total	Sub Urban Total	Total
Hours Total	197.05	246.32	144.00	390.32	72.31	462.62
Ambulances	8	10	6	16	3	19

Due to the volume of interfacilities, Winnipeg dedicates ambulance to interfacility transports, Fitch did not specifically analyse the interfacility requirement and used the numbers that Winnipeg uses.

interfacility on peak	24
Interfacility on peak	36
total	60

Completing the analysis, Fitch used the current operating budget and applied it to both the existing resource hours and the future resource hours.

### Cost

Hour	Manitoba	Winnipeg with interfacility units	Total	Rural/Northern Manitoba cost	Winnipeg Cost	Cost
Hours Total	2,143.77	522.62	2,666.39	\$64.37	\$227.11	\$95.69
Ambulances	89	19	109			
total operating budget 2011 excluding administrative cost				\$50,314,844.14	42,587,625.00	\$92,902,469.14
Daily Budget				\$137,848.89	\$116,678.42	\$254,527.31
hourly				\$5,743.70	\$4,861.60	\$10,605.30
Current situation in Rural/Northern Manitoba (2,592 unit hours, average 108 ambulances a day)				\$53.18		
Current situation in Winnipeg (528 unit hours)					\$220.98	

The general rule of thumb for 12 hour shifts is it requires 2.5 FTE (paramedics) for every ambulance hour.

### Paramedic and EMS station Requirements

Rural Manitoba needs  $89 \times 2.5 \times 4 = 890$  (4 shifts represent offsetting shifts for one day on and one day off shifts, 2.5 per shift represent two paramedics with replacement factor). Winnipeg needs  $19 \times 2.5 \times 4 = 190$  (some additional paramedics would be required for inter-facilities)

In an effort to determine what care enhancement opportunities exist, the reviewers utilized data provided from both the MTCC and WFPS to profile the existing service demand against industry recognized performance standards.

We described areas as urban, rural or remote areas utilizing a widely accepted methodology. For those areas North of the 52 Parallel not otherwise noted as urban or rural, the status quo was assumed as the cost to achieve response times to impact outcomes in areas with little demand would be cost prohibitive.

In summary, according to this model the following number of ambulances will be required: south of 52 a total of 89 ambulances (or 99 ambulances for some peak days of coverage) are required to meet the demand, in the north 19 ambulances (not including IFT units) are required, which remains the same as now, and in Winnipeg 19 ambulances are required to meet the demand 7/24. The total ambulances required for the province in order to meet the identified demand is between 127 and a 137 ambulances plus 38 to 48 ambulances to cover for downtime. The deployment of these resources would provide a response time of 8:59 minutes in identified urban areas, 14:59 minutes in identified suburban areas, 30 minutes in areas identified as remote south of 52 and a response time of 30 minutes north of 53 and except for three urban areas north of 53 a response time of 30 minutes for 90% of the time for 90% of the population. These response times apply 90% of the time to 90% of the population. This model identified a need for 74 ambulance stations outside of Winnipeg.

In the supplementary work done by MTCC and the EMS Branch the question of the number of stations required was explored. Using a combination of computer modeling and judgment coming from experience it was projected that 74 stations should be sufficient to achieve the approved response time in rural and northern Manitoba. This represented a reduction of 18 stations over the current 92 stations. According to this supplementary work of these 18 stations 11 are in the former Assiniboine RHA and the remaining 7 stations are scattered across the former regions of Central, Interlake and North Eastman. The Assiniboine RHA over the years has reviewed the matter of the number of stations required in their region very carefully. The preliminary modeling done by the Assiniboine RHA and the EMS Branch suggests that Assiniboine RHA could maintain their current response time of 30 minutes 90% of the time for 90% of the population if the savings were reinvested in providing more staffed "in house" hours of service in the remaining stations.

In the reviewers discussion with paramedics in western Manitoba the comment was frequently heard that Assiniboine RHA should have fewer stations. Typically the reason given for this view was that the region has too many low volume stations.

In any consideration of fewer stations it is important to acknowledge that fewer stations do not necessarily mean fewer ambulances. Furthermore, it is not the stations themselves that represent the major cost but rather the primary cost is the ambulance itself staffed with two paramedics. The question can legitimately be raised why proceed with closing stations if there is no or little cost saving?

There are two primary reasons for closing or consolidating stations. First, in the long term the current model of staffing stations with on call EMRs is not sustainable. EMRs have regular jobs and it is only with their employer's permission that they are able to take a call. As the time spent on a transport becomes longer and longer it is becoming increasingly difficult for on-call EMRs to get the time off from their regular employment. A motivating reason for on-call EMRs to take on this responsibility is their commitment to their community. We frequently heard that this historic commitment to serving the community in this manner was definitely waning. This is similar to the diminishing interest in volunteerism. What this means is that most, if not all, EMS service will be need to be staffed by salaried paramedics.

Second, while response time is important equally important is the quality of care provided. Quality care can be best provided by trained, competent paramedics who are at least at the PCP level. Low volume stations will not be able to attract or retain primary care paramedics. As a consequence, there will need to be a consolidation of stations with the smaller stations absorbed into larger units. This will make it easier to recruit and retain primary care paramedics and ensure quality care.

Over time it has become less helpful to think in terms of stations. Station is becoming too narrow a concept in looking at the future. A station is typically defined as an EMS garage with EMS staff on site or on-call. New models are developing that are not dependent on a local garage e.g. Geo-posting, partnerships between smaller and larger stations, larger stations serving an area that was previously served by a number of small stations etc. What is important is not the garage but rather the response time. Ambulances that are staffed with on-site EFT paramedics have a significantly shorter chute time than ambulances staffed with on call paramedics. This allows an ambulance to travel a greater distance and still have the same or better response time.

We want to add one further word on the kind of vehicles. As mentioned already it is ambulances that are used for transport whether that is for a primary transport or an IFT. While ambulances can carry two patients they seldom do. In the future consideration should be given to adding more multi-patient vehicles particularly for the transport of stable IFT patients. The WFPS should also review whether it is feasible to use smaller vehicles when responding to an MFR call rather than the large pumper trucks that are currently used. It would appear that this should reduce the cost of the call.

### ***Staffing Models***

There is a broad consensus that the entry level to EMS services should be the Primary Care Paramedic level. The main reasons for this have already been identified but providing a high quality level of care is the primary reason. EMRs do not have sufficient training to ensure this. In rural Manitoba PCPs are increasingly being supplemented with Intermediate Care Paramedics. ICPs have a larger transfer of function than PCPs and so are able to provide care for more complex cases. The rural ICP program should be continued indefinitely. At such a point where sufficient ACPs are being trained ICPs in many cases may be replaced by ACPs. Even today the rural RHAs have a desire for the selective use of ACPs but there are essentially none available. With very few exceptions it is only the WFPS that currently employs ACPs. The objective of WFPS is to have an ACP on each ambulance.

In time EMRs need to be replaced by PCPs. Currently the system continues to be very dependent on EMRs in order to provide a 7/24 service. Of all the RHAs Assiniboine remains the most dependent on EMRs. If the EMRs were eliminated today in Assiniboine the service would collapse. As a consequence the replacement of EMRs must be very carefully phased in over a number of years.

### ***Costs***

There is significant additional cost to converting casual and on-call staff, mainly EMRs, with EFT PCPs and moving to PCPs as the entry level. As mentioned above in the unit hour model an additional \$16m over 5 years would be required for rural Manitoba to move to a funding target of \$85 per unit hour. This would make it similar to Nova Scotia which according to the information available has the lowest per unit hour cost in Canada. This would represent an increase of just over \$30 per unit hour.

The EMS Branch approached this matter of additional funding from another perspective and came up with a similar result. In order to move to 80 percent EFT PCPs 430 new PCP positions would be required to replace the current service provided by casual and on-call EMRs. According to the formulas used this would require \$15.7m in additional funding. The average additional cost to convert 1 position from casual to EFT is \$36,000. Adding these additional 430 EFT positions would result in a total of 888 EFT positions in the province.

### ***Specific Recommendations***

19. Transition to full time paramedics with Primary Care Paramedic being the entry level required province-wide.
20. Standardize and continue indefinitely the rural ICP program under the leadership of the OMD.
21. Establish a province-wide response time standard of not more than 30 minutes for 90% of the population 90% of the time.
22. Establish new response time targets for urban and rural areas (exclusive of remote locations) of 8:59 minutes and 14:59 minutes respectively.
23. Approve, in principle, the closure or consolidation of low volume stations into higher volume stations.



24. Begin the process of developing a provincial plan to create larger more effective and efficient stations by consolidating or closing smaller stations.
25. Establish a rural and northern funding target of \$85 per unit hour and phase in the increase in funding of \$16m over a multi-year period.

## **AIR AMBULANCE**

### ***Key Accomplishments and Current Situation***

Medevacs have been occurring in the province on an informal basis for decades. Since the very early days of aviation in Manitoba, pilots helped transport sick and injured patients to receive medical care. Since those early days a variety of structured air ambulance services have been established: Lifeflight Air Ambulance, Basic Air Ambulance Services, STARS and SAAP. A description of each of these services follows.

#### **Lifeflight**

In December, 1985 Lifeflight made its first flight with a Cessna Citation. Lifeflight's mission is to provide the highest possible quality of health care to critically ill or injured patients in rural Manitoba and to safely transport these patients to sites capable of meeting their health care needs. The care provided on board is similar to what would be provided in a Winnipeg Tertiary centre during all phases of transport.

This care is provided by a group of critical care physicians, emergency physicians and obstetricians that provide 24 hour coverage. They are supported by flight nurses with advanced critical care training and extensive training in the triage of all calls. Lifeflight provides the primary means of air transport for all seriously ill or injured Manitobans from areas outside the 80 mile radius of Winnipeg in rural and northern Manitoba to urban referral centres in Winnipeg. Lifeflight operates out of the Government Air Services Hangar in Winnipeg. Government Air Services provides the aircraft and the flight crew while the EMS Branch is responsible for providing the medical staff and the Flight Nurses. Manitoba Health reimburses Government Air Services for its costs and directly funds the cost of the professional staff. In 2011/12 Manitoba Health provided \$5.6m for operational costs and \$2.1m for amortization/interest costs. The Lifeflight program is overseen by the EMS Branch. FNIHB is billed for Lifeflight services to First Nation members.

In November, 2010, MTCC began coordinating Lifeflight transport requests from referral facilities across the province. During the 2011/2012 fiscal year there were 745 requests for a Lifeflight transport of which 466 resulted in a patient being transferred from the pickup location.

#### **Basic Air Ambulance**

In 2006, regulations were passed for air ambulance operations to be licensed by the Province of Manitoba. Since that time, numerous companies have been licensed to provide air ambulance services to Manitobans, including: Perimeter Aviation, Keewatin Air, SkyNorth Air, Mississippi Airways, FastAir