

Portage County

Wisconsin

Emergency Medical Services

Master Plan Update



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Executive Summary

Portage County engaged Emergency Services Consulting International (ESCI) to provide an update to the 2006 EMS Master Plan that ESCI previously completed. This document serves as the update and begins with a review of basic organizational components. Before beginning, however, the project teams felt it necessary to define the scope of this project here to benefit both operational and general public readers.

An EMS Master Plan is a project that is intended to provide policymakers with information so future decisions can be made based on available data. It is not the intent of this project to benefit one agency over another or to provide direction on how to best operate the existing emergency medical services system. There is no doubt that the current system is operating at a high level in the more populated areas, but there are always areas where efficiencies could be realized. The report begins with a general overview of the current system including organizational design, management components and a review of internal critical issues and future challenges.

Portage County is a diverse county in central Wisconsin that contains a relatively large urban area comprised of the City of Stevens Point, Village of Plover, Village of Park Ridge, Village of Whiting, Town of Plover, and Town of Hull as well as a number of suburban villages and a significant amount of rural property. The total land area of Portage County is estimated at 823 square miles. The City of Stevens Point, the county seat, consists of 17.2 square miles and contains a resident population of 26,748, or 38 percent of the county's total population. However, during normal daytime hours, the population of Stevens Point increases by 10,151 due to commuting.

Since 2006, the population within Portage County has risen only slightly at an overall rate of 2.92 percent and an annual average rate of 0.36 percent to a 2014 estimated total population of 70,482.

The Portage County EMS delivery system receives services from multiple agencies including Stevens Point Fire Department (SPFD), Amherst Fire District (AFD) and a number of first responder agencies (EMS Groups) using paid-on-call (POC) responders.

SPFD provides services from two fixed facilities, both within the city limits of Stevens Point. During certain days and hours, the ambulance usually deployed at SPFD Station 2 is redeployed to Plover Fire Department (PFD) to the south for 40 hours per week. In addition, the service area of this unit does not change as it is still required to respond to incidents in the SPFD Station 2 service area.

Since the 2006 EMS Master Plan, a transport ambulance has been placed within Amherst Fire Department (AFD). This unit, although almost always staffed with EMT-Paramedic personnel, functions at the EMT-Intermediate level due to licensing, per the contract with Portage County. The transport agencies within Portage County are supplemented by the EMS Groups from many of the surrounding communities, credentialed at multiple levels including first responder, Emergency Medical Responder (EMR), and Emergency Medical Technician (EMT). The Town of Grant, in the southwest corner of Portage County, receives services from United Ambulance (formerly Higgins Ambulance) rather than receiving transport ambulance services from the Portage County EMS system. They do, however, receive



first response services from local EMS groups that are partially funded through Portage County. The Town of Grant is comprised of 71.2 square miles and a population of 1,841.

Within Portage County EMS, there are a number of organizational structures that exist, beginning with county personnel and a number of boards and committees. In essence, the current structure and policy flow begins with the Technical Team, which guides policy and makes recommendations to the EMS Oversight Board, who then makes recommendations to the Public Safety Committee, which then recommends to the County Board of Supervisors. The decision chain appears to be somewhat redundant and recommendations for improvement will be provided in the future service delivery section of this document. In addition, there are other committees that are also engaged by the providers based on specific situations, such as the budget committee. Further, both SPFD and PFD have established Police and Fire Commissions that dictate policy for those organizations.

The next section of the report provides a review of organizational mission and vision statements as well as strategic planning accomplishments since the 2006 study was completed. In addition, current critical issues and future challenges were identified through stakeholder input and include:

Critical Issues

1. Community Paramedic concept, new roles in EMS, tactical EMS
2. Development of an internal training center for EMS
3. Education of political leaders, gaining support, and potential changes in local political structure

Future Challenges

1. Potential changes in future funding mechanisms
2. Increasing demand for service and community expectations
3. Deployment of additional EMS resources

This section of the report also reviewed internal and external communications processes as well as information technology systems. A number of recommendations were generated focused primarily on enhanced technology to promote efficient dispatching of emergency resources and a streamlined records management system that would improve consistency across the entire healthcare system.

The next section of the report reviewed physical resources including facilities and vehicles that are used as part of the overall EMS system. No changes in facilities have occurred since the 2006 study but an updated vehicle replacement plan was recommended and provided. It is imperative that all system vehicles be maintained appropriately and replaced in a manner consistent with published standards.

The report continues with a review of staffing and personnel management components including administrative and support staff and operational staff. Since the 2006 study, Portage County has added an EMS Coordinator (on a contract basis) and an EMS Specialist (part-time) to support the overall EMS system. Based on the workload of these positions, it is recommended in the report that these two



positions be combined to form a full-time position and one additional clerical staff be implemented to support the growing system.

Service demand and delivery was the focus of the third report section and begins with a review of overall service demand by provider. In addition, service demand was evaluated by unit as well as temporally; by month, day, and hour. As expected, service demand increases during the early morning hours before peaking during the mid-afternoon and then declines into the evening; following typical human activity patterns. Geographically, service demand is most heavily concentrated in the City of Stevens Point and extends into the Plover area.

From a response performance perspective, the service providers are performing very well to be covering an area as large as Portage County. Total response performance over the last three years has ranged from 14:00 to 16:00 for the Amherst unit and from 13:26 to 13:27 for Stevens Point/Plover units. This total response time does not take into consideration the many EMS groups (first responders) throughout the county that arrive on scene first and begin care. During 2014, EMS group average response performances ranged from 6:08 to 10:25 with an overall average of 7:08. This should highlight the critical nature of the EMS Groups throughout Portage County. Those six minutes where care is being administered by first responders could make the difference in a positive patient outcome. The county should continue to work with the EMS Groups to support training and overall system integrity as well as working with a regional recruitment and retention program to ensure that these valuable resources are available well into the future.

With the updated baseline current conditions complete, the report continues with the development of future service demand projections and begins with a review of historical population growth. From here, population is projected through 2030 and a per capita usage rate is applied to project future service demand. From these projections, ESCI developed an average population projection model that indicates a total population in 2030 at 73,443 and a potential service demand of 4,445 as compared to 4,291 during 2014. Although this projection indicates that service demand will change only slightly over the next 15 years, local policymakers should continually update service demand figures so as to be prepared for future workload.

In order to be prepared for future service demand, the report concludes with a section dedicated to future delivery system models that ESCI believes will place the county in a position to adequately service the residents. This section begins with a review of those strategies presented in the 2006 report and identifies what has or has not been implemented. In the end, it is recognized (as was the case with the 2006 report) that a transport ambulance is needed in the Plover area. This is in addition to the resources already deployed within Stevens Point and Amherst. This additional transport unit, combined with continued support of the EMS groups across the county, will provide additional coverage capability to the highest service demand areas.

Also, as contained with the 2006 report, ESCI recommends that a joint powers agreement be entered into among the various entities that allow for a more streamlined approach to governance and system



operations. Additional information is provided regarding system funding and cost allocation across the participating entities.

Regarding short and mid-term recommendations, ESCI provided a total of 11 grouped into three primary categories as identified below.

Group 1 Recommendations

Group 1 recommendations are those contained within the body of this report that can be implemented relatively easily with little or no fiscal impact. These recommendations are intended to provide for greater efficiency and consistency across the system.

- The Portage County EMS system of governance should be streamlined and policy power given to the EMS Oversight Board with the Technical Team providing field level recommendations.
- Each provider should implement a system of incentives to ensure that personnel are responding as quickly as possible to reduce overall turnout time.
- The county should continue to work with the EMS Groups to support training, equipment, and recruitment and retention efforts.
- The county should implement a tiered approach to response performance objectives to allow for more detailed analysis of overall system performance.

Group 2 Recommendations

Group 2 recommendations are those contained within the body of this report that should be implemented as soon as possible given available funding. These recommendations may have substantial fiscal impact or create new positions within the organizational structure of the system.

- All EMS system vehicles should be equipped with MDT and AVL capabilities to increase response efficiency and consistency.
- Portage County should adopt and fully fund a capital vehicle replacement plan.
- The part-time EMS Coordinator and EMS Specialist positions should be merged into a single full-time position.
- Additional part-time clerical staff should be implemented within the Office of Emergency Management.
- One additional transport ambulance should be deployed to PFD to increase system effectiveness and overall performance.

Group 3 Recommendations

Group 3 recommendations are those contained within the body of this report that will require substantial fiscal resources and may involve external agencies.

- A single technological system should be implemented and used by all system providers to improve system efficiency and allow for continued quality assurance.
- Future planning should begin now for renovation of those facilities that, in the future, may house full-time 24-hour personnel.



As already mentioned, the Portage County EMS System is currently operating at a level that meets the expectations of the community. Still, there is always room for improvement in the way that a system can provide its service whether operationally or fiscally. In today's economic environment, emergency services personnel must be able to work closely with appointed and elected officials to ensure that the system of providing services is sustainable for a long period, in doing so, many organizations, like Portage County, need to embrace an attitude of change and cooperation for the greater good of the community.

Simultaneously, the provider agencies should embrace the transformation of the primary organizational mission from fire suppression to medical services and work as a truly integrated part of the overall healthcare system. If the reason for doing something today is, "...because we've always done it that way...", then the way of doing business must change to fit today's societal and economic conditions. The provider agencies should strive to cling to the rich history and tradition of their respective organizations while still being able to adapt and progress with the current environment.

ESCI began collecting information for this project in January 2015, and the analysis necessary for the development of this document has taken nearly four months to complete. It is our sincere hope that the information contained within this report is found to be useful in identifying ways in which the system can work more cohesively in an attitude of cooperation so that the services delivered to the citizens of Portage County can continue to be provided at a high level.



Introduction

Portage County engaged Emergency Services Consulting International (ESCI) to provide an update to the 2006 EMS Master Plan that ESCI previously completed. This document serves as the update and begins with a review of basic organizational components. Before beginning, however, the project teams felt it necessary to define the scope of this project here to benefit both operational and general public readers.

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The study participants provided a number of background documents and additional data for review throughout this process. These documents provided ESCI with the necessary background to partially determine how far the system has come since the last study. Some of those documents included were:

- Portage County EMS 2012 Strategic Plan
- Portage County 2012 Annual EMS Report
- Portage County Master Strategic Plan – August 2013
- Portage County 2013 Annual EMS Report
- Minutes of EMS Summit May 2014

Organization Overview

The 2006 EMS Master Plan included agency evaluations for each provider in Portage County, included the first responder agencies. Since the completion of that original study, Portage County EMS leaders have implemented a number of changes and system enhancements. This portion of the report will focus on the changes to service area, including populations and demographics, current service delivery infrastructure, and organizational design.

In the original 2006 EMS Master Plan, ESCI provided a review of all service providers within Portage County including each of the first responder agencies. For this update report, the study focuses on changes that have been made within the system rather than a detailed review of each agency.

SERVICE AREA POPULATION AND DEMOGRAPHICS

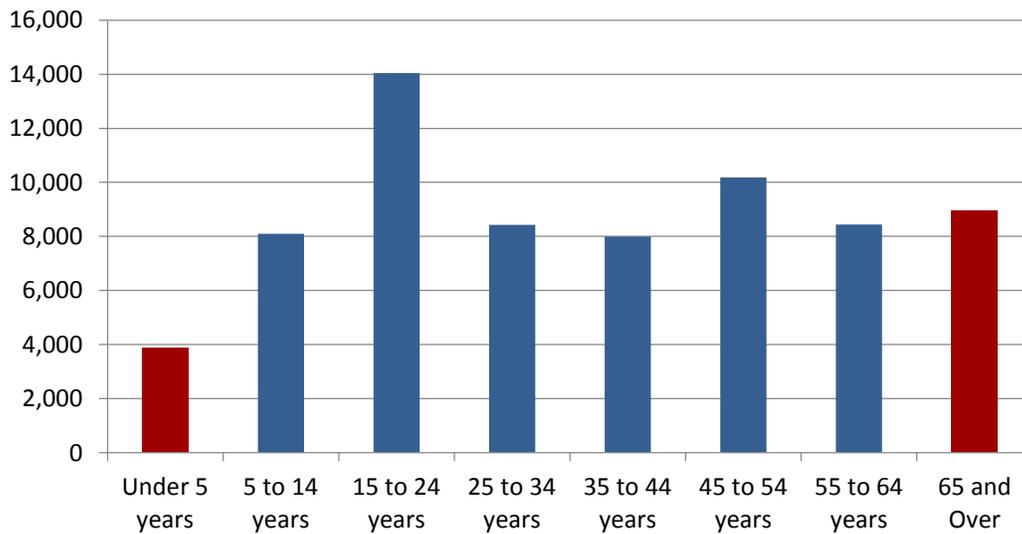
Portage County is a diverse county in central Wisconsin that contains a relatively large urban area comprised of the City of Stevens Point, Village of Plover, Village of Park Ridge, Village of Whiting, Town of Plover, and Town of Hull as well as a number of suburban villages and a significant amount of rural property. The total land area of Portage County is estimated at 823 square miles. The City of Stevens Point, the county seat, consists of 17.2 square miles and contains a resident population of 26,748, or 38



percent of the county's total population. However, during normal daytime hours, the population of Stevens Point increases by 10,151 due to commuting.¹

Since 2006, the population within Portage County has risen only slightly at an overall rate of 2.92 percent and an annual average rate of 0.36 percent to a 2014 estimated total population of 70,482. From a population distribution perspective, those in certain age groups tend to use emergency services at a high frequency than others; under the age of five and over the age of 65. The following figure represents how the population within Portage County is distributing across the various age groups.

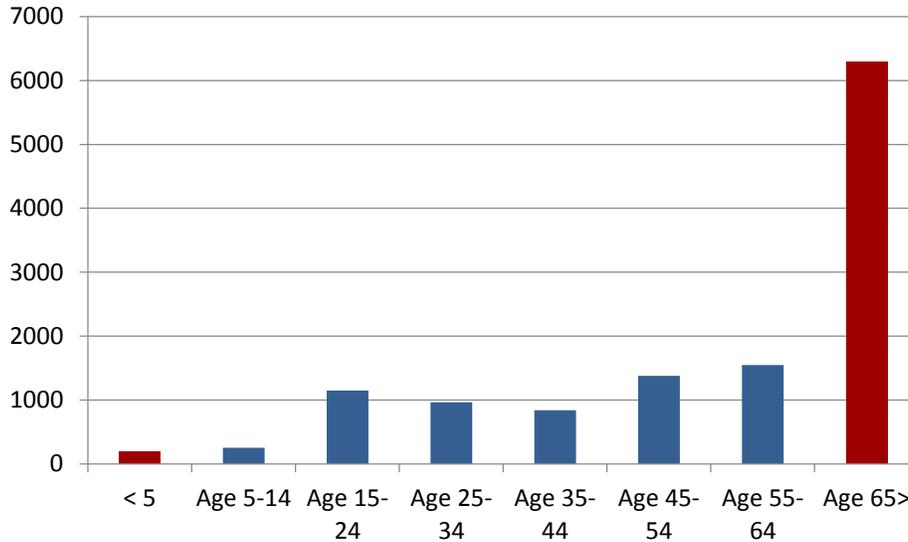
Figure 1: Age Group Distribution



Based on this distribution, 5.56 percent of the population is below the age of five while 12.79 percent is age 65 and over for a total of 18.35 percent of the total population falling into the higher risk category. This is in comparison to national figures of 19.87 percent. The spike in the 15 to 24 years range is assumed to be due to the student population at UW- Stevens Point. Based on historical incident data from 2012 through 2014, Portage County's EMS system sees a somewhat different incident volume by age as illustrated in the following figure.

¹ <http://www.city-data.com/city/Stevens-Point-Wisconsin.html>.





Although the over 65 age group represents a majority of incident volume, the under-five age group is very low in comparison to all other groups.

CURRENT SERVICE DELIVERY INFRASTRUCTURE

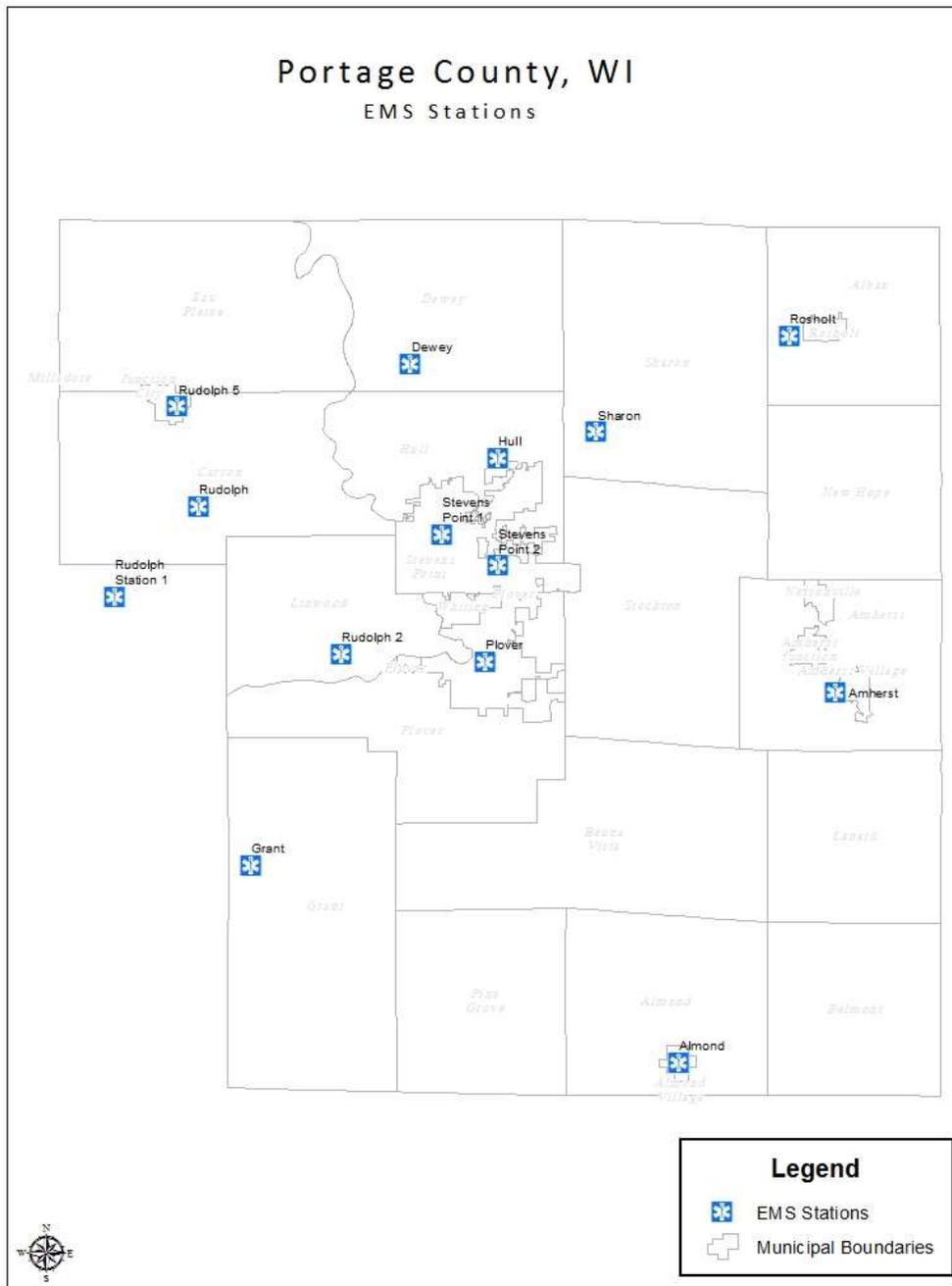
The Portage County EMS delivery system receives services from multiple agencies including Stevens Point Fire Department (SPFD), Amherst Fire District (AFD) and a number of first responder agencies (EMS Groups) using paid-on-call (POC) responders.

SPFD provides services from two fixed facilities, both within the city limits of Stevens Point. During certain days and hours, the ambulance usually deployed at SPFD Station 2 is redeployed to Plover Fire Department (PFD) to the south for 40 hours per week. In addition, the service area of this unit does not change as it is still required to respond to incidents in the SPFD Station 2 service area.

Since the 2006 EMS Master Plan, a transport ambulance has been placed within Amherst Fire Department (AFD). This unit, although almost always staffed with EMT-Paramedic personnel, only functions at the EMT-Intermediate level due to licensing, per the contract with Portage County. The transport agencies within Portage County are supplemented by the EMS Groups from many of the surrounding communities, credentialed at multiple levels including first responder, Emergency Medical Responder (EMR), and Emergency Medical Technician (EMT). The deployment of transport resources, as well as first responder agencies, is illustrated in the following figure.



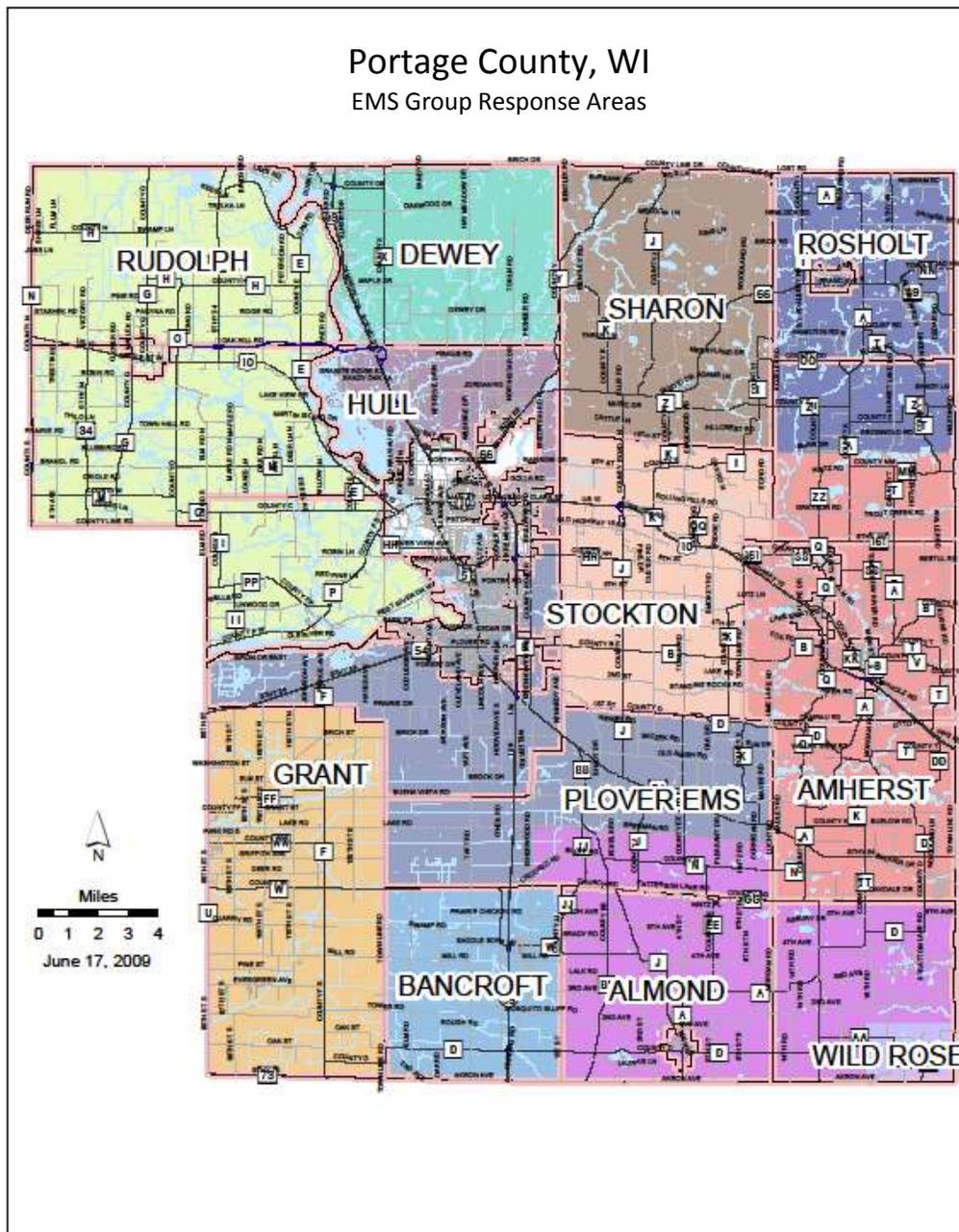
Figure 2: EMS System Resource Deployment



Although the preceding map illustrates primary EMS Group locations, not all resources will respond from the indicated 'stations'. Some responders, particularly in the rural areas, respond from home, work, or wherever they may be within the area. No EMS group requires response from a station. The following figure illustrates the response areas of the various EMS Groups that provide first response services throughout Portage County.



Figure 3: EMS Group Response Areas



The Town of Grant, in the southwest corner of Portage County, receives services from United Ambulance (formerly Higgins Ambulance) rather than receiving transport ambulance services from the Portage County EMS system. They do, however, receive first response services from local EMS groups that are partially funded through Portage County. The Town of Grant is comprised of 71.2 square miles and a population of 1,841.²

² American Community Survey. 2013 Population Estimate.



ORGANIZATIONAL DESIGN

Emergency services providers, dependent upon size, typically follow a fairly narrow, top-down organizational structure. This type of structure ensures chain of command is clear and each member knows to whom they should report. In most organizational theory models, span of control for any supervisor should be limited to between four and six individuals. This model evolved from historical military command structures and is intended for high-stress environments. Many emergency services organizations have adopted this model for reducing span of control with significant success.

Within Portage County EMS, there are a number of organizational structures that exist, beginning with county personnel and a number of boards and committees. The Public Safety Committee consists of five members of the Portage County Board of Supervisors. The EMS Oversight Board consists of representatives from the county, the city of Stevens Point, the villages and townships within Portage County (elected officials), and one medical systems representative. The Technical Team serves as an advisory part of the EMS Oversight Board and consists of subject matter experts that advise the members of the EMS Oversight Board and make recommendations on deployment, equipment, and practices.

In essence, the current structure and policy flow begins with the Technical Team, which guides policy and makes recommendations to the EMS Oversight Board, who then makes recommendations to the Public Safety Committee, which then recommends to the County Board of Supervisors. The decision chain appears to be somewhat redundant and recommendations for improvement will be provided in the future service delivery section of this document. In addition, there are other committees that are also engaged by the providers based on specific situations, such as the budget committee. Further, both SPFD and PFD have established Police and Fire Commissions that dictate policy for those organizations.

Based on recommendations from the 2006 EMS Master Plan, Portage County also created several positions to oversee the day-to-day operations of the overall system. Although these positions are still within the Department of Emergency Management, a part-time dedicated EMS Coordinator (contracted) and a part-time EMS Specialist have been implemented. As of the writing of this report, the only full-time position within structure was the Emergency Management Director but that position is only tasked with five percent of overall duties toward EMS.

As was the case during the 2006 EMS Master Plan, the Portage County EMS Association remains in place and serves as the liaison between the multiple first responder agencies and the county through the EMS office.

Recommendation:

- The Portage County EMS system of organizational design should be streamlined and policy power given to the EMS Oversight Board with the Technical Team providing field level recommendations.



Management Components

As with most emergency service agencies, Portage County faces challenges to organizational processes and management. In addition to the operational challenges of emergency response, the management of the business of an emergency services provider presents unique issues involving the administration of financial resources, the setting of goals and objectives, internal and external communications, information management, and security. This section of the report examines the system's efforts in this area and preparation for the future health of the organization.

MISSION, VISION, AND STRATEGIC PLANNING

While the mission of an emergency services agency can be viewed as the primary duties and responsibilities of the organization, formally stating that mission in a detailed mission statement is important so that members know exactly what their purpose is during their daily activities. The vision of the system is a way for members and provider agencies to know the direction of the organization, as well as what they hope to accomplish in the future. These two elements, as well as future goals and objectives, are commonly determined through a customer centered strategic planning process that involves a wide cross-section of departmental members as well as policy makers and the general public.

Portage County completed a strategic planning process that was adopted by the EMS Oversight Board in 2012 and published as the Portage County EMS 2012 Strategic Plan. Within that document, the planning group adopted the following mission statement:

Portage County Emergency Medical Services is a unified system dedicated to continuously improving our efforts to delivery health care services to our community with compassionate, quality care in a timely and fiscally responsible manner.

Although it is recognized that other entities within Portage County may have also adopted mission statements, the focus for this project is on the accomplishments of the Portage County EMS system since completion of the 2006 Master Plan. As part of the overall strategic planning process, the committee also adopted a comprehensive vision statement that states:

The Portage County EMS will be a unified, regional, performance based, value driven system that provides a financially sustainable, high quality, customer driven service fueled by state of the art equipment and a highly skilled workforce characterized by innovation, prevention, education, collaboration, and leadership.



INTERNAL ASSESSMENT OF CRITICAL ISSUES AND FUTURE CHALLENGES

Commonly referred to as a SWOT analysis, organizations identify the strengths, weaknesses, opportunities, and threats that the organization is or may face in the future. The strategic planning committee, through the SWOT analysis, identified a number of strengths and weaknesses that were used to create goals and objectives for future improvement.

Through this process, the group also identified the critical issues facing the organization as well as future challenges. Within the strategic planning document, these were identified as opportunities and threats respectively. The three primary critical issues are identified below and will be used later in the future service delivery component of this report.

4. Community Paramedic concept, new roles in EMS, tactical EMS
5. Development of an internal training center for EMS
6. Education of political leaders, gaining support, and potential changes in local political structure

Similarly, the future challenges were identified and the top three are identified here.

4. Potential changes in future funding mechanisms
5. Increasing demand for service and community expectations
6. Deployment of additional EMS resources

As an update to the 2006 Master Plan, these issues/opportunities and challenges will be used to create a new set of potential future delivery system models that will assist system leaders in meeting the changing environment within Portage County.

INTERNAL AND EXTERNAL COMMUNICATIONS PROCESSES

Quality communication is an achievable goal for any organization, but one that always seems to be most elusive, however, it is extremely important. To their credit, Portage County has established communication processes within the EMS system that provide opportunities for providers to be heard and involved, as well as processes whereby the public can stay informed about organizational news.

Since the 2006 EMS Master Plan, the county has worked with the implemented EMS oversight and coordination positions to provide training and grant funding to first responder agencies across the county. In addition, through the implementation of the Technical Team and the Quality Circle (QA/QM practices) information can be easily communicated between field providers, oversight, and medical control personnel.

INFORMATION TECHNOLOGY SYSTEMS

Modern emergency services agencies are becoming ever more dependent upon technology to assist them in meeting their responsibilities and service demand. These technologies begin with the telephone communications system within the jurisdiction. Emergency (and some non-emergency) calls for service are typically routed through a community 9-1-1 system to a centralized Public Safety Answering Point



(PSAP). This PSAP then either dispatches the appropriate resources or transfers the caller to a more appropriate center. Information from the caller is usually automatically received by the PSAP through Automated Number Information/Automated Location Information (ANI/ALI) into the emergency phone system. This information is then transferred into a Computer Aided Dispatch (CAD) system, which serves as a database and assistive dispatch technology.

CAD systems take on many forms and can be relatively simple or extremely complex computer networks that include mobile data terminals in response apparatus and many other assistive devices. CAD systems are intended to provide organizations with a formal record of an incident that will include timestamps associated with each incident. Once a response is completed, organizations can use one of any number of Records Management Systems (RMS) to record incident specific information.

The information technology systems in place within Portage County are widely varied in advancement and functionality. The CAD system used by the consolidated communications center is a geo-based system that uses GeoLynx GIS for mapping applications. This program allows the geo-location of emergency incidents based on caller data. Using this type of system should allow dispatchers to notify the closest appropriate unit to respond to the incident by using automated vehicle locators (AVL), but the ambulance in AFD is the only EMS unit equipped with such a unit, within the EMS system. Other agencies that are dispatched within the communications center, such as Portage County Sheriff and Stevens Point Police, have already migrated to the AVL system.

One of the major issues associated with the lack of AVLs and mobile data terminals (MDT) within the system is the inefficiency of dispatch of the appropriate units and the inconsistency of data recording. For instance, if all EMS units within the system were equipped with AVL and MDT capabilities, the 'closest' appropriate unit could be dispatched rather than relying on static response zones. In addition, the capability of units to 'check en route' to a scene independent of radio communication would allow for more accurate response performance tracking and analysis.

Although consolidation of dispatch functions has been implemented since the 2006 EMS Master Plan, existing information technology (IT) resources are not equipped or staffed to work on necessary technological upgrades within the system. This lack of resources prohibits the system from advancing through the use of an upgraded CAD or the ability to place MDT with AVL capability in all vehicles operating within the system.

RMS programs, like CAD systems, can take on many forms and several standard programs are available commercially. Unlike CAD systems, these RMS programs are intended to record incident specifics rather than dispatch specifics. For example, an incident may be dispatched as a fall and recorded so in CAD as such but, in reality, the incident was a cardiac arrest. This difference would be recorded in the department's RMS. In addition, the RMS is used to track incident staffing as well as a number of other elements that should be submitted to state or federal agencies for larger scale data analysis.

Aside from CAD and existing RMS programs, there is little in the way of interconnectivity with the various EMS groups or hospital data. It has been established and agreed upon by multiple stakeholders



that the EMS groups serve as the first line of response in many cases, particularly in the rural areas of Portage County. These responders provide initial assessment and treatment for potentially life-threatening conditions yet there is no way to currently incorporate the data and information collected by these agencies into a single patient care report. Likewise, once the patient is transported to the hospital and care is transferred to emergency department staff, there is no technology in place to capture field data and incorporate that into the hospital record.

This lack of connectivity between existing systems creates an even greater lack of continuity of care and quality assurance. A single system that could be used by all providers within the overall system would allow for true continuity of care as well as provide valuable quality assurance tools to ensure that the system is operating at maximum efficiency and effectiveness.

Recommendations:

- All EMS system vehicles should be equipped with MDT and AVL capabilities to increase response efficiency and consistency.
- A single technological system should be implemented and used by all system providers to improve system efficiency and allow for continued quality assurance.

Physical Resources

Three basic resources are required to successfully carry out the mission of an emergency services organization: 1) trained personnel, 2) emergency medical equipment, and 3) facilities to house the response resources. No matter how competent or numerous the responders may be, if appropriate capital equipment is not available for their use, it is impossible for a fire or EMS agency to deliver services effectively.

In the 2006 EMS Master Plan report, ESCI reviewed the facilities that house Portage County EMS response resources. At the time of that writing, those facilities included only the Stevens Point Fire Department and the Higgins Ambulance Service.

Today, deployment of EMS resources has changed to include the Village of Plover and the Amherst Fire Department. United Emergency Medical Response currently provides transport services to the Town of Grant within Portage County. To update the 2006 Master Plan, ESCI visited the facilities operated by the current EMS service providers (not including United), as discussed below.

FACILITIES

Emergency services facilities play an integral role in the delivery of emergency services for a number of reasons. A station's location will dictate, to a large degree, response times to emergencies. A poorly located station can mean the difference between confining a fire to a single room and losing the structure. Fire stations also need to be designed to adequately house equipment and apparatus, as well as meet the needs of the organization, its workers, and/or its members. It is important to research need based on call volume, response time, types of emergencies, and projected growth prior to making a station placement commitment.

ESCI toured each of the stations operated by the Portage County EMS serviced providers, resulting in the observations listed in the following tables.

Stevens Point Fire Department

SPFD operates ambulances from two fire stations, along with an RRU at Station 1. Both facilities have undergone upgrades since the original EMS Master Plan was completed in 2006, including an extensive renovation and expansion of Station 2 in 2008. ESCI's review of the Stevens Point stations follows.





Stevens Point Station 1 is the city’s main fire station, consisting of three, double-depth fire apparatus bays, all of a drive-through configuration, plus two auxiliary bays for the RRU and chief’s vehicles.

Since ESCI’s site visit in 2006, the station underwent a renovation, completed in 2014. There are updated residential and locker facilities and a meeting room is present along with a good sized kitchen and day room area. The station is in very good condition and has been well maintained, however, space for apparatus, storage, and future expansion is maximized.

Survey Components	Observations
Structure	
Construction type	Masonry, steel frame, flat roofing system with basement
Date	1965 with renovation in 2014
Seismic protection/energy audits	When updated
Auxiliary power	An emergency generator is present and is configured to start automatically
Condition	Very good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	The station is appropriately configured for mixed gender use, but with a single bunk room. It is ADA accessible, and is adequately designed for its intended use. Storage is maximized.
Future viability for shared service considerations	There is limited room for future expansion, if needed
Accommodations	
Exercise/workout	A good sized exercise area is in the basement
Kitchen/dormitory	A large kitchen and day room is present and a single, shared space dormitory area
Lockers/showers	New lockers are in the dorm hallway and new showers are present
Training/meetings	A meeting room is well appointed and accommodates approximately 25 students
Protection Systems	
Sprinkler system	The station is not protected by a fire sprinkler system
Smoke detection	Smoke and heat detection is in place
Security	All doors have combination locks
Apparatus exhaust system	On all apparatus



Stevens Point Station 2 is the city’s second fire station. It has two, double-depth fire apparatus bays, of a drive-through configuration and houses an engine, a ladder truck and an ambulance.

In 2008, the station was extensively remodeled and expanded, including the addition of extended apparatus bay space, mechanical and exercise room, and living area upgrades.

Survey Components	Observations
Structure	
Construction type	Masonry block construction, built on grade concrete slab with a steel frame, pitched, roofing system
Date Constructed	1984 with extensive addition and renovation in 2008
Seismic protection/energy audits	When remodeled in 2008
Auxiliary power	An emergency generator is present and is configured to start automatically
Condition	Excellent
Special considerations (ADA, mixed gender appropriate, storage, etc.)	The station is appropriately configured for mixed gender use and is ADA accessible. It is adequately designed for its intended use, however storage is maximized.
Future viability for shared service considerations	There is limited room for future expansion, as currently configured
Accommodations	
Exercise/workout	An exercise area was added in 2008
Kitchen/dormitory	A kitchen and day room is present, along with six, single occupancy bedrooms and two bath/shower rooms.
Lockers/showers	New lockers and showers are in place
Training/meetings	Training and meetings are held in the day room area
Protection Systems	
Sprinkler system	The station is not protected by a fire sprinkler system
Smoke detection	Smoke detection is in place in residential area only
Security	All doors have combination locks
Apparatus exhaust system	On all apparatus

Plover Fire Department

The Plover Fire Department operates from two fire stations which, along with fire apparatus, includes an EMS First Responder Unit, trained to the EMT level.



The Plover Fire Station occupies a portion of a large building which includes the Village of Plover administrative offices and the Plover Police Department. The station has six, double-depth, apparatus bays of a drive-through configuration. In addition there is one, single bay that houses the fire chief’s vehicle.

This station houses an EMS first response unit, along with the Plover Fire Department’s fire apparatus. It is in very good condition overall.

Survey Components	Observations
Structure	
Construction type	Concrete block wall construction with a flat roof. Built on a concrete slab
Date Constructed	1978
Seismic protection/energy audits	Only when originally designed
Auxiliary power	An emergency generator is present and is configured to start automatically
Condition	Very good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	The station is appropriately configured for mixed gender use and is ADA accessible. It is adequately for its current use and staffing methodology.
Future viability for shared service considerations	The primary shortcoming is the lack of 24 hour crew quarters but there is room for future expansion within the current structure
Accommodations	
Exercise/workout	A well-equipped exercise room is in place
Kitchen/dormitory	There is a small kitchen in the office area. There are no 24 hour sleeping accommodations
Lockers/showers	There are large, dual gender locker and shower rooms in the building
Training/meetings	A conference room seats 10 and a larger training can accommodate 40 students
Protection Systems	
Sprinkler system	The station is not protected by a fire sprinkler system
Smoke detection	Smoke detection is not in place
Security	All doors have combination locks
Apparatus exhaust system	On all apparatus





The PFD Station 2 occupies a portion of a large building which includes the Village Hall as well as public works vehicles. The station has three, double-depth, apparatus bays used with stacked parking.

Originally constructed in 1998 as the Whiting Fire Department, the station houses only fire apparatus and is in very good condition.

Survey Components	Observations
Structure	
Construction type	Concrete block wall construction with a slightly pitched steel roof. Built on a concrete slab
Date Constructed	1998
Seismic protection/energy audits	Only when originally designed
Auxiliary power	No auxiliary power present
Condition	Very good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	The station is appropriately configured for mixed gender use and is ADA accessible. It is adequate for its current use and staffing methodology.
Future viability for shared service considerations	A large lot would allow for future expansion if necessary and the existing meeting room could be converted to bunkrooms if on-duty personnel were assigned
Accommodations	
Exercise/workout	No workout/exercise facility
Kitchen/dormitory	There is a small kitchenette in the current meeting room. There are no 24 hour sleeping accommodations
Lockers/showers	There are no locker rooms but separate gender single shower facilities are provided
Training/meetings	An existing small meeting room is rarely used for department training or meetings
Protection Systems	
Sprinkler system	The station is not protected by a fire sprinkler system
Smoke detection	Smoke detection is not in place
Security	All doors have combination locks
Apparatus exhaust system	No exhaust removal system in place

Amherst Fire District

The Amherst Fire District is the only fire agency other than Stevens Point that is currently operating an ambulance. The Amherst Station is reviewed below.



The Amherst Fire District operates from a single fire station that houses fire apparatus, along with one Portage County EMS ambulance. Stationing of the ambulance at this location has occurred since the previous Master Plan report in 2006.

The facility is in excellent condition, originally constructed in 1995. The addition of a second floor training and meeting area was completed in 2005. There are four, double-depth, back-in type, apparatus bays.

Survey Components	Observations
Structure	
Construction type	Masonry block construction with a flat roof, built on-grade concrete slab
Date Constructed	1995. A training and meeting room was added in a previously unused second floor space in 2005
Seismic protection/energy audits	When originally designed
Auxiliary power	An emergency generator is present and is configured to start automatically
Condition	Excellent
Special considerations (ADA, mixed gender appropriate, storage, etc.)	The station is appropriately configured for mixed gender use but is not fully ADA accessible. It is adequately designed for its current use, however the crew quarters and storage spaces are very limited.
Future viability for shared service considerations	There is some room for future expansion, as currently configured, but it is limited
Accommodations	
Exercise/workout	A good sized, well equipped exercise area is present
Kitchen/dormitory	A very small kitchen and day room is present, with two small, one bed, sleeping rooms immediately adjacent. Crew quarters are only adequate to house a two person crew.
Lockers/showers	Two single bathrooms each have a shower
Training/meetings	A good sized training and meeting room is located on the second floor
Protection Systems	
Sprinkler system	The station is not protected by a fire sprinkler system
Smoke detection	Smoke detection is in place in residential area only
Security	All doors have combination locks
Apparatus exhaust system	On all apparatus



Recommendation:

- Future planning should begin now for renovation of those facilities that, in the future, may house full-time 24-hour personnel.

VEHICLES

Response vehicles are one of the most important resources of the emergency response system, second only to personnel. If emergency responders cannot arrive at an incident quickly and safely due to unreliable transportation, or if the equipment does not function properly, the delivery of emergency services can be compromised. A summary of the Portage County’s EMS response vehicle fleet is provided in the following figure.

Figure 4: Portage County EMS Vehicles

Vehicle Name	Radio ID	Chassis Style/Type	Year	Manufacturer	Mileage 3/1/2015	Location
51M1	A555	International Medium Duty	2010	Horton	76,365	SFPD Station 1
51M2	A093	International Medium Duty	2007	Horton	161,585	SFPD Station 2
51M3	A554	Ford Super Duty Van	2006	Medtec	95,898	SFPD Station 1
51M4	A092	International Medium Duty	2007	Horton	116,920	SFPD Station 2
51M5 ³	A518	International Medium Duty	2000	Horton	103,328	SFPD Station 1
58A1	A822	International Medium Duty	2003	Medtec	137,800	Amherst FD
RRU	A267	Chevrolet Tahoe	2013	Chevrolet	18,625	SFPD Station 1

Portage County’s EMS apparatus range in age from 5 to 15 years, with an average age of 8.4 years. The primary units are newer and in good condition while the older vehicles are placed either in reserve status or in locations that see less activity, as is appropriate.

Although the preceding figure illustrates county-owned vehicles, there are a number of other vehicles throughout the county that contribute to the overall success of the system. These additional vehicles are owned and maintained by the various EMS groups and are summarized in the following figure.

³ Scheduled for replacement in September, 2015



Figure 5: Non-County Owned EMS Response Vehicles

Department	Chassis Style/Type	Year	Manufacturer
Almond	Ford Ambulance	Unknown	MedTec
Bancroft	GMC Ambulance	2001	Horton
Plover	Toyota Highlander SUV	2014	Toyota
	International Rescue	1997	3D
Rudolph	International Rescue	1995	3D
	Chevrolet Rescue	2006	3D

In addition to those vehicles noted in the preceding figures, each agency within Portage County maintains a fleet of additional apparatus that could be used for EMS response if necessary.

VEHICLE REPLACEMENT PLANNING

EMS vehicles are typically unique pieces of equipment, very customized to operate efficiently in a narrowly defined mission of crew transportation and patient treatment and conveyance to a medical facility. For this reason, vehicles are expensive and offer little flexibility in use and reassignment, so agencies typically strive to achieve the longest life span possible for these vehicles.

Unfortunately, no mechanical piece of equipment can be expected to last forever. As a vehicle ages, repairs tend to become more frequent, parts more difficult to obtain, and downtime for repair increases.

Because of their cost and predictable life span, it is important to plan in advance for replacement of EMS vehicles. To do so, agencies often turn to the long-accepted practice of establishing a life cycle for the units that results in a replacement date anticipated well in advance. Forward thinking organizations then set aside incremental funds during the life of the vehicle so replacement dollars are ready when needed.

Portage County has recognized the importance of planning ahead for replacement of its vehicles. In September of 2015, vehicle number A518, one of the ambulances stationed at Stevens Point Station 1, is scheduled to be replaced. For other vehicles, a replacement schedule is in place and, of key importance, funding is planned and dedicated to meet the replacement need.

Vehicles are not the only recurring expense faced by an EMS system. The equipment carried on ambulances is also expensive, but its service life can generally be predicted accurately. Items include defibrillator, stretchers, monitors and a host of other small equipment. Portage County has, again, taken a forward looking approach by including these equipment replacement needs in its capital replacement planning.

Although a plan is in place, funding is sometimes not available to strictly follow the schedule of replacement. Money was set aside in FY2013 (\$220,000) to replace an ambulance (A518) but it was determined that the replacement could be put off for another year. An additional \$220,000 was set aside in FY2015's budget and an ambulance was recently ordered to replace A518 to be delivered in late 2015. However, the cost of that unit was approximately \$235,000 so funds will have to be removed from



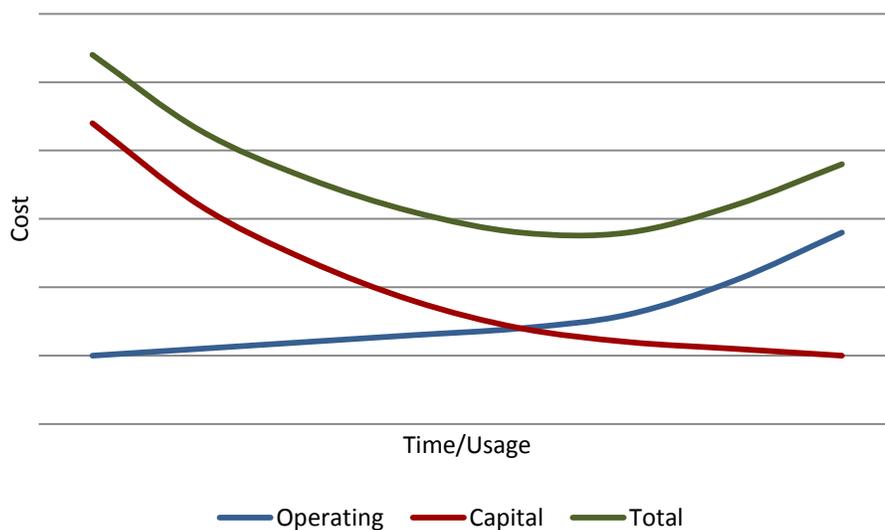
the Ambulance Service Fund to cover the deficit. The Ambulance Service Fund, as of December 31, 2014, has a balance of \$195,092.

As a matter of policy, Portage County has determined that ambulances should have a lifespan of 10 years and, based on the replacement plan, a new ambulance was to be ordered every three years. An annual \$75,000 allocation was to be made to the Ambulance Service Fund for these replacements but the system is now out of cycle.

NFPA 1901: Standard for Automotive Fire Apparatus is a nationally recognized industry standard for the design, maintenance, and operation of fire suppression apparatus. The issue of replacement cycles for various types of apparatus has been discussed in the committee that develops the standard for many years. In developing its latest edition, the committee calls for a life cycle of 12 years in front-line service and five years in reserve status for engines, and 15 years in front-line service and five years in reserve status for ladder trucks. Unfortunately, no such standard exists for the replacement of ambulances and other medical equipment. These schedules are usually locally developed and commonly use either mileage or age to determine what and when to replace. The reality is that it may be best to establish a life cycle that would be used in the development of replacement funding for various types of apparatus, while applying a different method for actually determining the replacement date in real life in an effort to achieve greater cost efficiency where possible.

A conceptual model that may be used when a replacement cycle is considered is the *Economic Theory of Vehicle Replacement*. The theory states that, *as a vehicle ages, the cost of capital diminishes and its operating cost increases*. The combination of these two costs produces a total cost curve. The model suggests the optimal time to replace any vehicle is when the operating cost begins to exceed the capital costs. This optimal time may not be a fixed point but rather a range over time. The flat spot at the bottom of the total curve in the following figure represents the replacement window.

Figure 6: Economic Theory of Vehicle Replacement

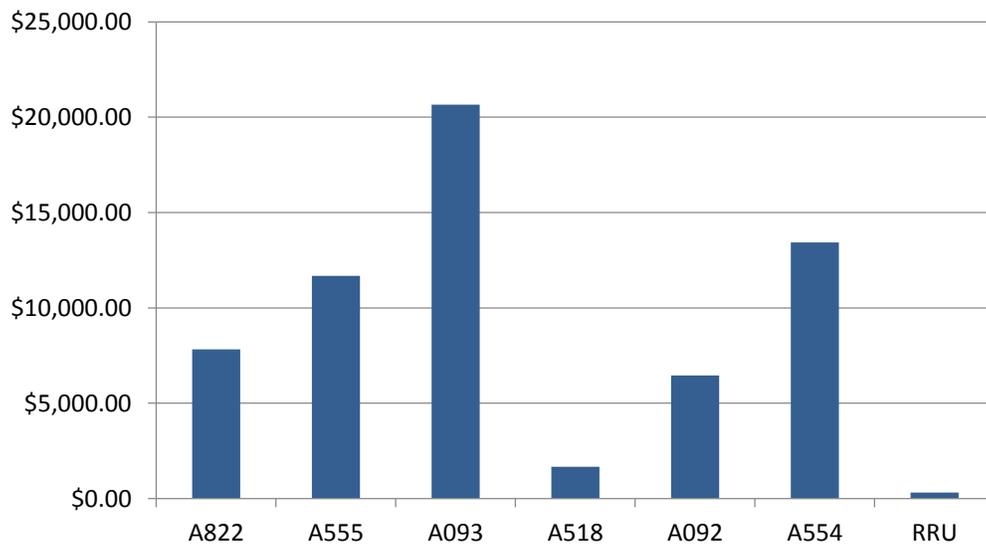


Shortening the replacement cycle to this window allows for a vehicle to be replaced at optimal savings to the department. If the department does not routinely replace equipment in a timely manner, the overall reduction in replacement spending can result in a quick increase of maintenance and repair expenditures. Officials who assume that deferring replacement purchases is a good tactic for balancing the budget need to understand that two events may occur:

1. Costs are transferred from the capital budget to the operating budget
2. Such deferral may increase overall fleet costs

As shown in the following figure, age alone does not necessarily determine serviceability. Data provided by Portage County on maintenance costs suggest that some of the newer vehicles have some of the higher maintenance costs over the last 20 months.

Figure 7: 20-Month Maintenance Cost by Unit



Regardless of its net effect on current vehicle costs, the deferral of replacement purchases unquestionably increases future replacement spending needs. When considering replacement of capital equipment, organizations must bear in mind the typical vehicle usage, climate factors that may shorten life expectancy and overall maintenance issues that tend to increase as vehicles age. The following figure should serve as an example capital replacement plan for current vehicles.



Figure 8: Recommended Capital Replacement Plan based on Vehicle Age

Unit	Radio	Year	Replacement Cost	Annual Fund Contributions	Current Cash Requirements	Current Age	Life Expectancy	Replacement Year
Medic 5	A518	2000	\$250,000	\$16,667		13	15	2015
A 1	A822	2003	\$250,000	\$16,667	\$200,000	10	15	2018
Medic 3	A554	2006	\$250,000	\$16,667	\$150,000	7	15	2021
Medic 2	A093	2007	\$250,000	\$16,667	\$133,333	6	15	2022
Medic 4	A092	2007	\$250,000	\$16,667	\$133,333	6	15	2022
RRU	A267	2013	\$50,000	\$5,000	\$10,000	0	10	2023
Medic 1	A555	2010	\$250,000	\$16,667	\$83,333	3	15	2025
Totals				\$105,000	\$710,000			

Based on this recommended vehicle replacement plan, the next vehicle that should be replaced is A822 during FY2018. This would maintain the three-year cycle that was originally established. However, to maintain sufficient funds to cover the cost of replacement, the annual allocation to vehicle replacement should be \$105,000. Assuming the current balance of the Ambulance Service Fund, there remains a deficit of \$514,908 to fully fund the plan.

Recommendation:

- Portage County should adopt and fully fund a capital vehicle replacement plan.

Staffing and Personnel Management

In career and combination emergency services organizations, personnel represent the single greatest expenditure within a department’s budget. Portage County is no different. Without proper levels of personnel, apparatus and stations will sit idle and may not be readily available for emergency response. This section is intended to provide the reader with a review of the system’s personnel management practices as compared to industry standards and to examine the department’s ability to provide sufficient staffing resources for the risks that exist throughout the community.

Administrative and Support Staff

The primary responsibility of a department’s administration and support staff is to ensure that the organization’s operational entities have the abilities and means to fulfill their mission at an emergency incident. Efficient and effective administration and support are critical to the department’s success. Without adequate oversight, planning, documentation, and training the operational capabilities of the department may suffer and ultimately fail operational testing. Administration and support require appropriate resources to function effectively.

Administration and support positions are contained within several areas of the overall system including, Portage County, SPFD, and AFD. The following figure summarizes these positions.



Figure 9: Summary of Administrative and Support Positions

	Portage County	SPFD	AFD
EM Director	1 Full-Time (5%)		
EMS Coordinator	1 Part-Time		
EMS Specialist	1 Part-Time		
Assistant Chief – EMS		1 Full-Time	1 Part-Time*

*Full-time but assigned to part-time administrative duties.

As illustrated above, there are five positions dedicated to overseeing and supporting the Portage County EMS system. Two of these positions, within the Portage County Office of Emergency Management, are part-time, as is the part-time AFD assistant chief of EMS. The only full-time position dedicated to administration and support of the system lies within SPFD as the assistant chief of EMS. The full-time Emergency Management Director is only allocated five percent of his time for EMS responsibilities. No positions have been allocated or dedicated specifically for the coordination of training and/or logistical services for the system.

As mentioned previously, the Emergency Management Director only (theoretically) dedicates five percent of his time to EMS. The remaining roles and responsibilities for supporting the EMS system rest with the part-time EMS Coordinator and part-time EMS Specialist.

The EMS Coordinator is a position created to provide support and oversight for system based on recommendations from the 2006 Master Plan. The position is filled by a contract employee and has administrative duties that include:

- Measure system performance
- Review pre-hospital care reports for quality assurance purposes
- Oversee process improvement for multi-casualty and multi-agency incidents
- Assist providers in management of licensing and recertification requirements
- Assist the medical director in updating and maintaining EMS medical protocols
- Make recommendations for changes to the Ambulance Service Agreements
- Develop and implement a plan for monitoring patient satisfaction
- Develop and implement a consumer education program
- Support county-wide first responder program as needed
- Develop and implement provider performance benchmarks

As is evident from the list of roles and responsibilities above, the EMS Coordinator serves as the primary individual responsible for performance measurement and quality assurance; two critical elements of a

successful EMS system. However, there are no budgetary responsibilities or operational roles defined in the position description. Those duties are assigned to the EMS Specialist.

The EMS Specialist position was created to provide direct support to the EMS system providers. The essential functions of this position include:

- Administer annual EMS First Responder grants
- Monitor annual EMS budget
- Facilitate EMS public information and education programs
- Ensure mutual aid agreement compliance within Portage County
- Review ambulance billing rates and recommend changes as appropriate
- Compile and present the Annual EMS Oversight Board report
- Administrate contracts for billing service, collection agencies, EMS patient satisfaction surveys, EMS Coordinator and ambulance providers
- Facilitate recruitment and retention, and support for EMS groups
- Coordinate meetings, preparing agenda, and recording meeting minutes and notes for the EMS Technical Team, EMS Oversight Board and others as necessary
- Process EMS purchase requests for supplies and materials
- Assist with field response if necessary

Although not operational, the EMS Specialist acts more as a system director; managing budgets, processing requests, and monitoring contracts, but is only scheduled at 20 hours per week.

The two administrative positions noted above report directly to the Emergency Management Director but, as part-time personnel, cannot be in the office at all times. This can create inefficiency in the way that some requests or issues are processed. Given the roles and responsibilities of both of the administrative positions and the limited amount of time the Emergency Management Director has to dedicate to EMS, ESCI would suggest that a single full-time position be created and the roles and responsibilities of the two current positions be merged into one. In addition, a part-time clerical position should be created to assist the overall operations of the Office of Emergency Management, including EMS oversight and support.

Recommendations:

- The part-time EMS Coordinator and EMS Specialist positions should be merged into a single full-time position.
- Additional part-time clerical staff should be implemented within the Office of Emergency Management.



Operations Staff

In addition to administrative and support staff, it takes an adequate and well trained staff of emergency responders to put the appropriate emergency apparatus and equipment to its best use in mitigating incidents. Insufficient staffing at an operational scene decreases the effectiveness of the response and increases the risk of injury to all individuals involved.

Since the completion of the 2006 EMS Master Plan, Portage County has discontinued county operation of the Rapid Response Unit (RRU) and, instead, that unit was placed within SPFD for continued operations. However, even though that unit is used extensively, particularly in the rural areas, its operations are not funded by Portage County.

SPFD Station 1 (Headquarters) is staffed daily with six to eight line personnel and administrative staff. Two personnel are assigned to Medic 1 as the primary EMS response unit. SPFD Station 2 is staffed with four persons per shift, two of which are assigned to Medic 2. Additional incidents that occur simultaneously require personnel assigned to other apparatus to respond Medic 3, Medic 4, and/or Medic 5 depending on system status. In addition, the RRU is staffed when necessary to respond to assist other system resources.

AFD maintains a roster of 27 personnel (four full-time and 23 part-time), most credentialed at the EMT-Paramedic level to staff one ambulance 24 hours per day. In most cases, the ambulance is staffed with two EMT-Paramedic personnel, however the service is licensed at the EMT-Intermediate level.

PFD maintains an on-duty staff to operate the EMR unit housed in their station. Personnel trained at the EMT level or higher sign up for 12-hour shifts and are scheduled 24 hours a day, 365 days a year to respond from the station, from home, or from wherever they may be when an incident occurs.



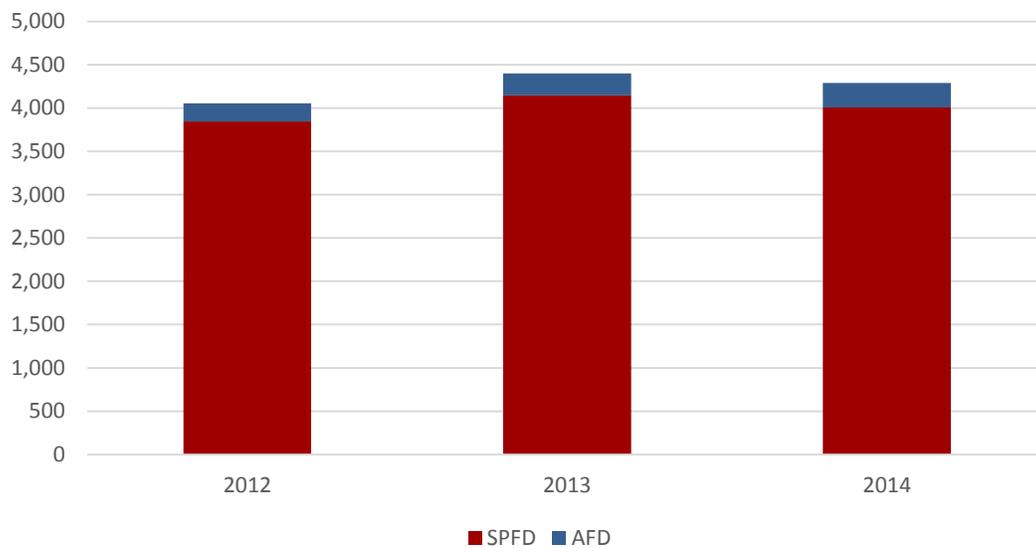
Service Delivery

The previous sections of this report provide the reader with general information about how the system is organized and managed from a non-operational perspective. It is, however, the primary responsibility of an emergency services provider to deliver operational services to the community served. This section of the report evaluates the system's operational service delivery and performance regarding service demand, distribution of resources, and overall response performance.

DEMAND

Service demand can be defined in a number of ways, depending on the types of services provided by the organization. For the purposes of this report, service demand is defined as any and all incidents where emergency resources are utilized to resolve the situation. These may include non-emergency incidents where resources are simply provided in a support role as well, but the primary goal is to show how busy the department is over a given period of time. The following figure represents an aggregate of all workload over the past three years.

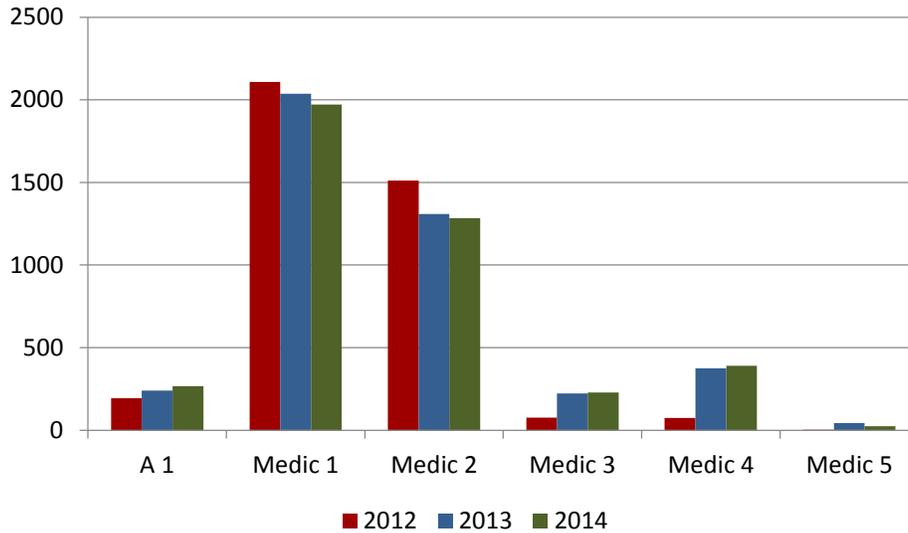
Figure 10: Service Demand by Transport Agency



As illustrated in the preceding figure, SPFD's service demand is much higher than AFD's, as would be expected for the populations served.

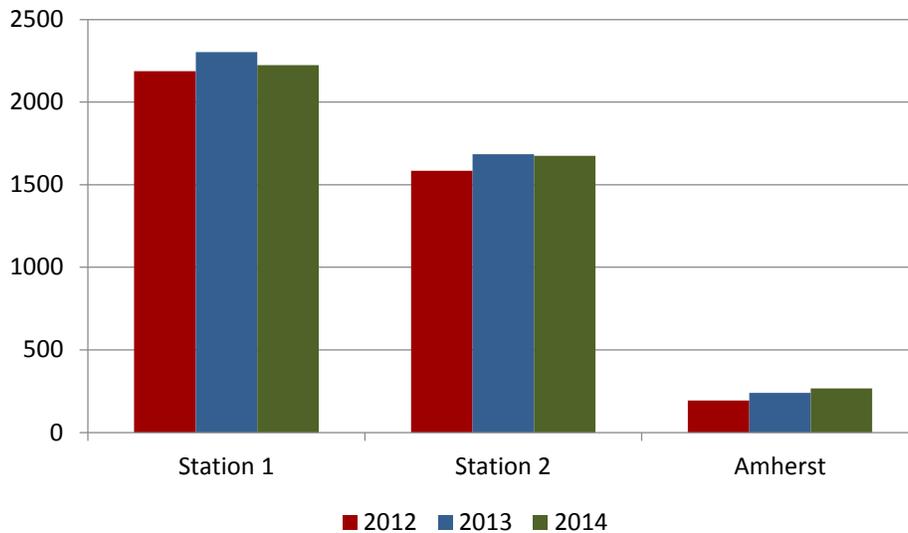
Although aggregate data is useful to illustrate overall workload for an agency, it is also beneficial to understand the workload of individual units and/or stations. The following figure illustrates how the total workload is distributed across system transport resources, including non-emergency and hospital transfers.

Figure 11: Workload by Unit



Since Medic 1, Medic 3, and Medic 5 are positioned at SPFD Station 1 and Medic 2 and Medic 4 are positioned at SPFD Station 2, workload by station can also be determined as illustrated in the following figure.

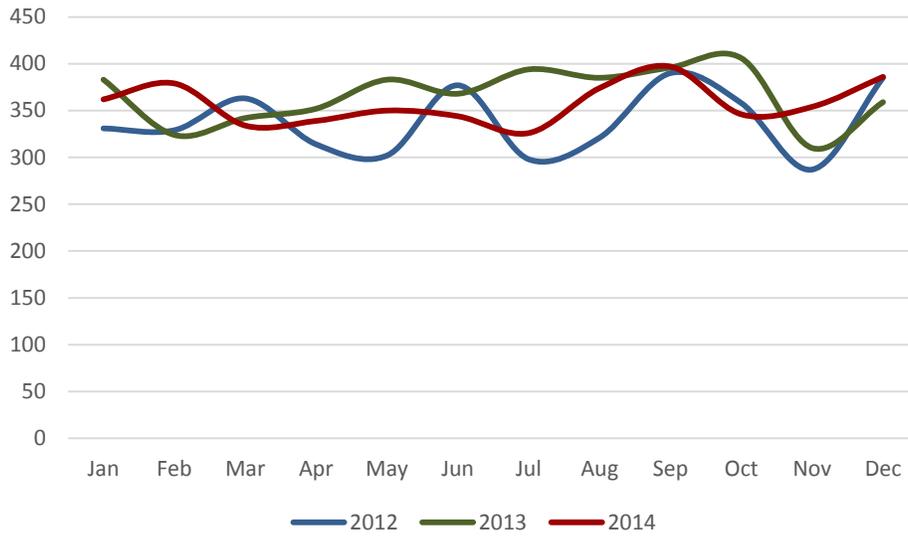
Figure 12: Workload by Station



The next analysis reviews service demand temporally to determine if any trends exist where demand may be higher or lower during specific periods of time; allowing policymakers to deploy resources more appropriately matched to risk and need. This analysis begins with service demand by month.

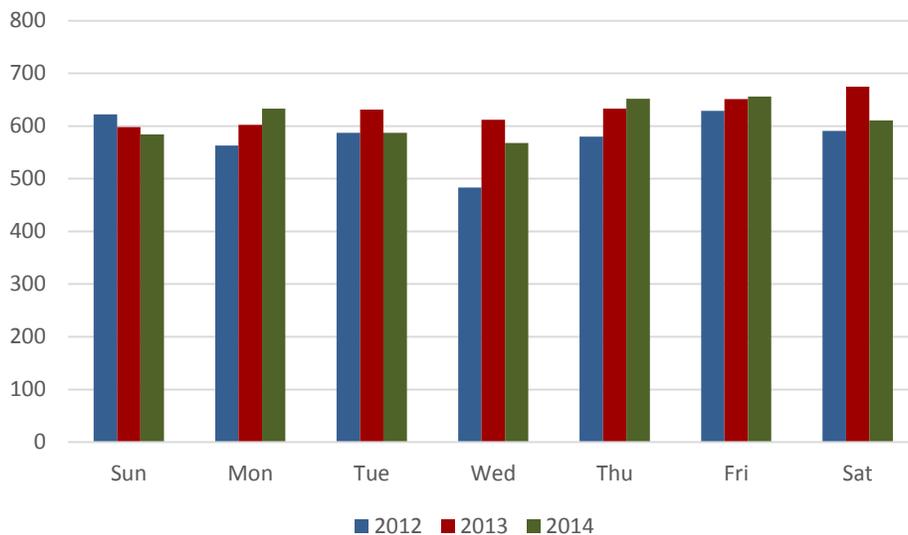


Figure 13: Service Demand by Month



Service demand, when viewed by month, is widely varied and displays no specific trend throughout the year as illustrated in the previous figure. The next analysis reviews service demand by day of week.

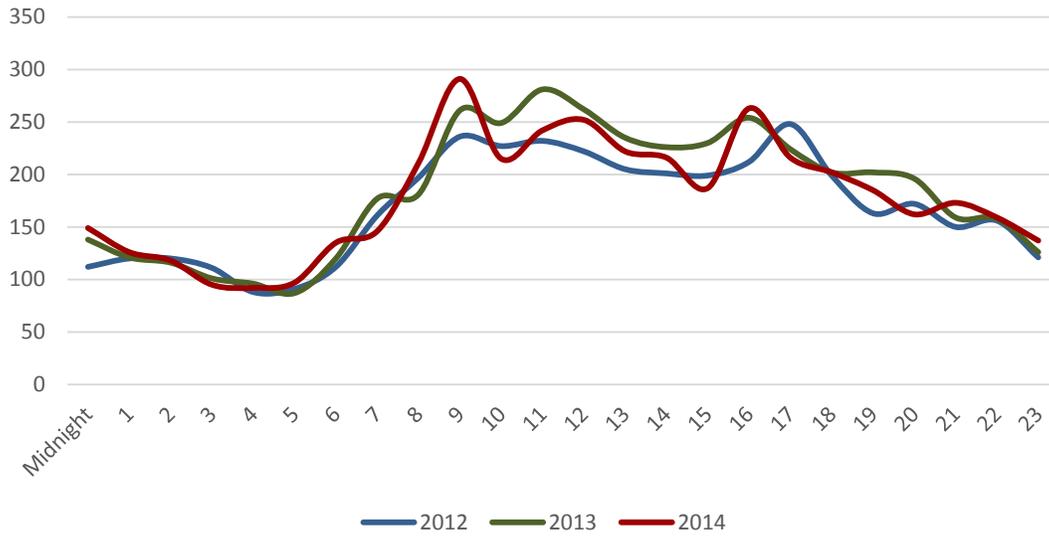
Figure 14: Service Demand by Day of Week



Like the previous figure, service demand by day of week is also widely varied and does not indicate that, historically, any one day is generally busier than the others from year to year. The final temporal analysis is that of time of day.



Figure 15: Total System Service Demand by Hour of Day (2012-2014)

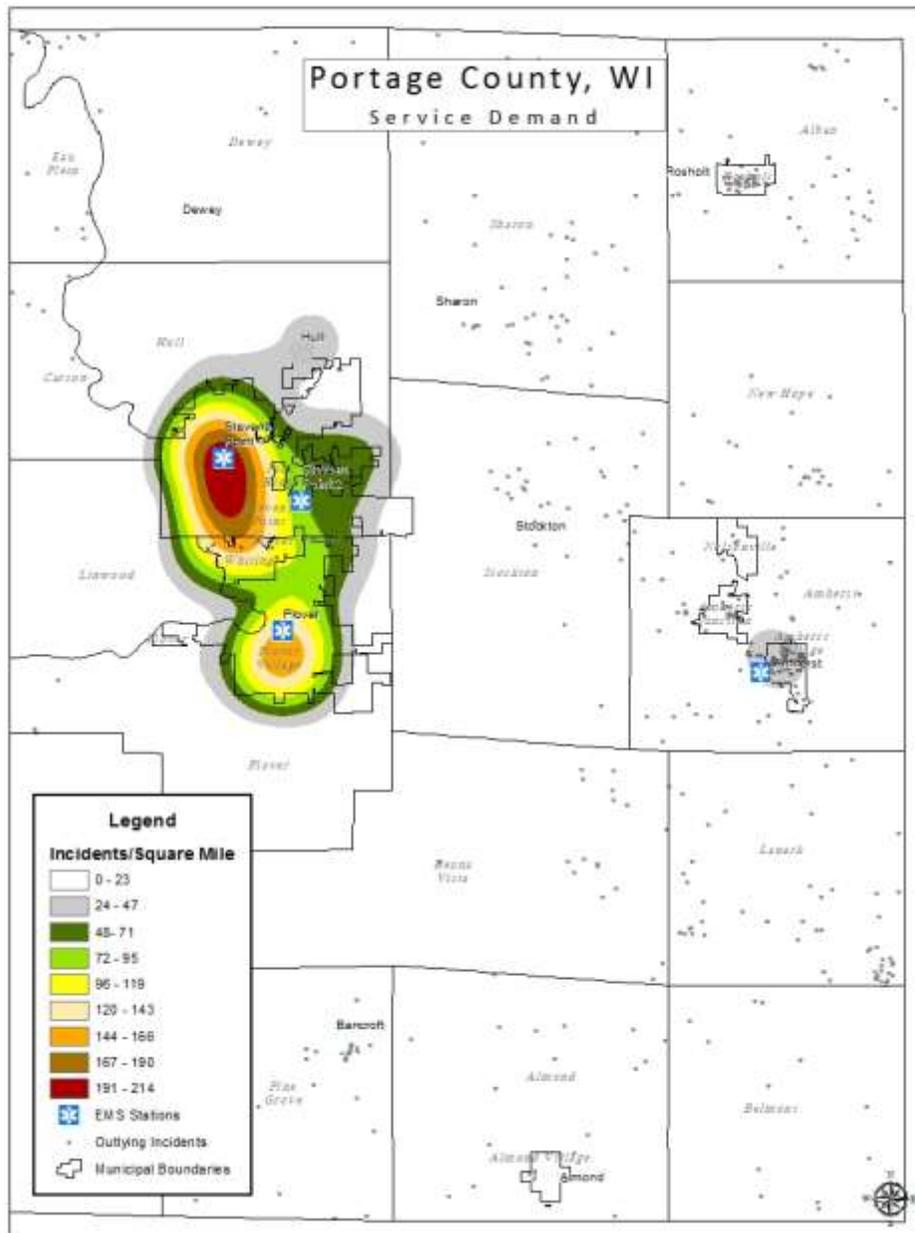


This analysis indicates that service demand begins to increase between the hours of 5:00 a.m. and 7:00 a.m., peaking during the mid-afternoon hours, then declining into the evening before repeating the pattern the following day. This is common for emergency medical providers where risk and demand is directly related to human activity.

The final analysis of service demand is geographic in nature. This analysis allows policymakers to see where service demand has historically occurred so that the appropriate resources can be allocated to those areas in order to serve a greater percentage of demand within the shortest amount of time. The following figure illustrates total service demand density and is read much like weather radar with higher intensity colors representing higher areas of service demand density. As expected service demand is most concentrated in the urban areas of Stevens Point and Plover to the south.



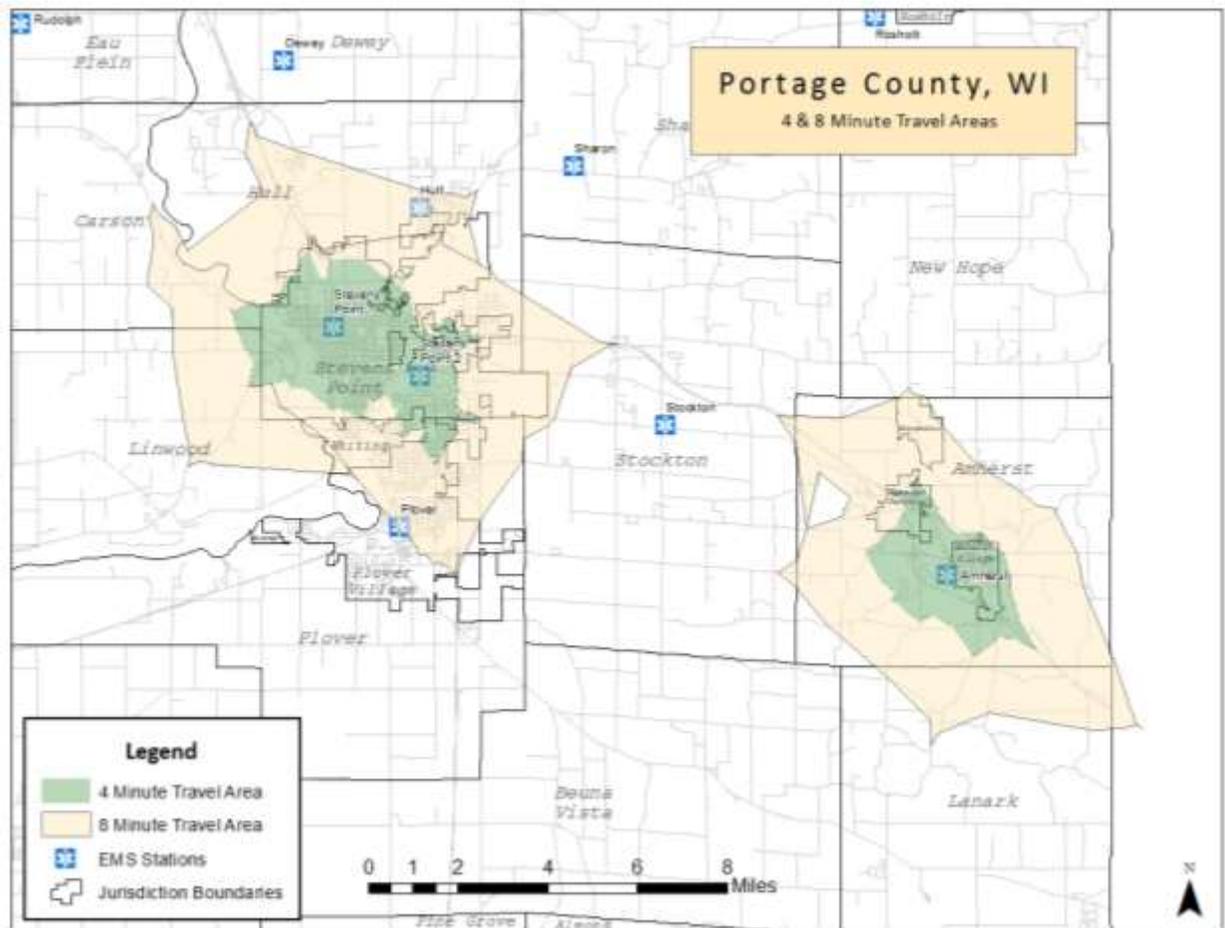
Figure 16: Geographic Service Demand – All Incidents (2012-2014)



DISTRIBUTION

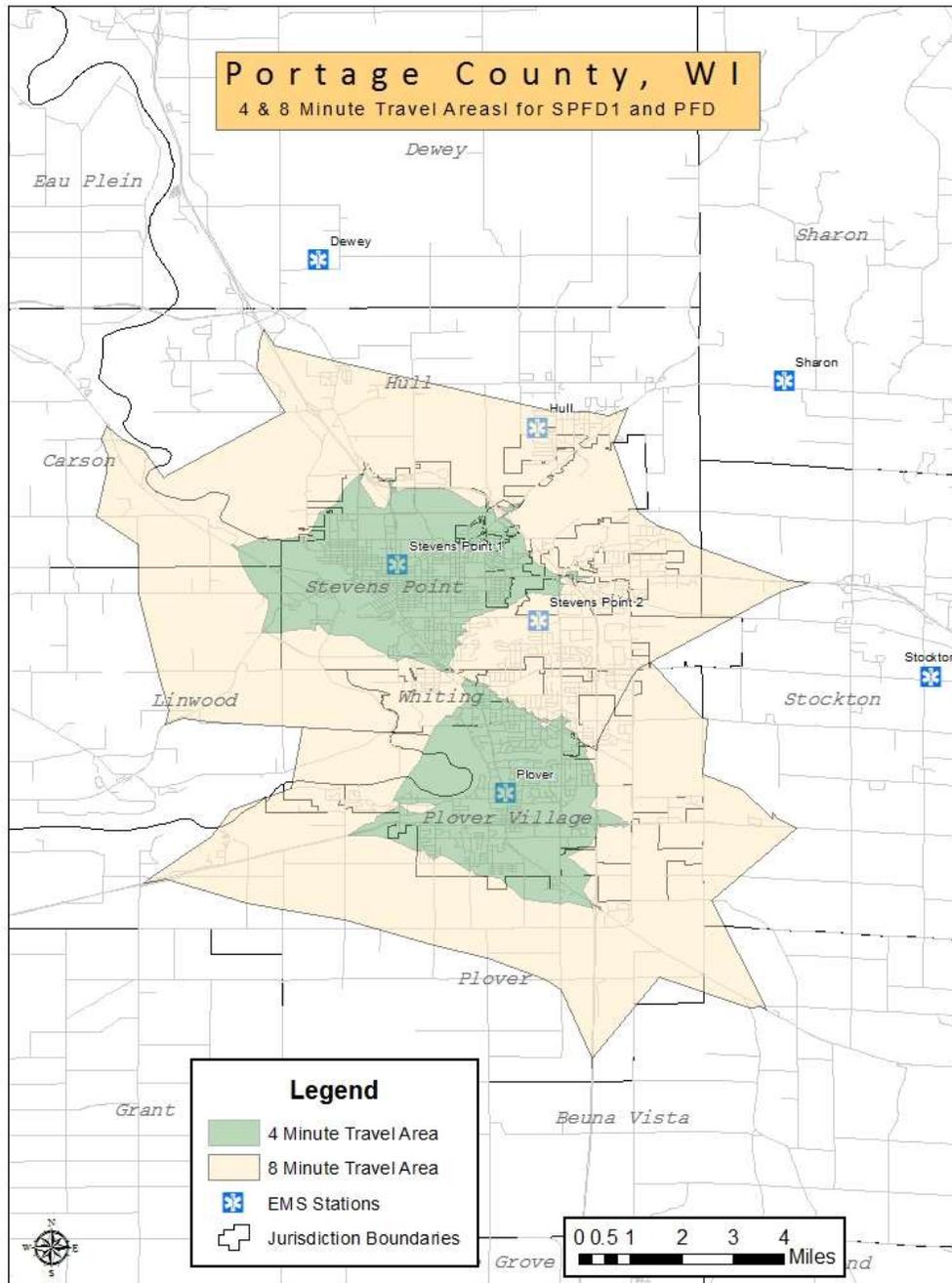
Distribution analysis is an evaluation of how well physical resources (facilities) are deployed across a specific geographic area. For medical incidents, there is little in the way of guidance on how well resources should be distributed because these incidents are primarily driven by human activity. The National Fire Protection Association (NFPA) recommends that fire departments serving urban areas with career personnel be able to respond to 90 percent of emergency incidents within five minutes of total response time (one minute for turnout and four minutes for travel). The following figure illustrates how well the system distribution of resources can reach historic service demand from existing locations.

Figure 17: Four and Eight Minute Travel Capability



Based on the four and eight minute models, a majority of the service demand occurring within Stevens Point can be reached within these parameters. However, the pockets of service demand in Plover are outside this model. Since Medic 2 is often redeployed to PFD, the following figure illustrates how that redeployment improves travel capability to the Plover area incidents.

Figure 18: Four and Eight Minute Travel Capability – Medic 2 Redeployed



AFD is providing service to the extreme eastern side of the county, but service demand is limited in that area, as previously illustrated.

RESPONSE PERFORMANCE

When discussing emergency services organizations, one of the primary issues of question is response performance. Response performance analysis evaluates how quickly an organization responds to an



incident and is more commonly known as response time. The response time continuum, the time between when the caller dials 9-1-1 and when assistance arrives, is comprised of several components:

- Processing Time – The amount of time between when a dispatcher answers the 9-1-1 call and resources are dispatched.
- Turnout Time – The amount of time between when units are notified of the incident and when they are en route.
- Travel Time – The amount of time the responding unit actually spends on the road to the incident.
- Response Time – A combination of turnout time and travel time and generally accepted as the most measurable element.

Other performance measurements are also valuable but not utilized in this analysis of staffing and deployment, such as:

- Patient Contact Time – The actual time personnel arrived at the patient and began treatment.
- Scene Time – The total amount of time resources have spent on the emergency scene prior to transport or clearing the incident.
- Transport Time – The total amount of travel time spent transporting the patient to a definitive care facility.
- Hospital Time – The total amount of time the transporting unit spent at the receiving facility before returning to service.
- Total Commit Time – The total amount of time between dispatch and clearing the incident.

A consolidated communications center serves as the Public Safety Answering Point (PSAP) for all emergency calls within Portage County. Requests for medical resources receive emergency medical dispatch (EMD) instructions if necessary and the appropriate units dispatched. Before entering this discussion, however, it is important to provide a brief discussion about how the statistical information is presented, particularly in regard to average versus percentile measures.

The “average” measure is a commonly used descriptive statistic also called the mean of a data set. It is a measure to describe the central tendency, or the center of a data set. The average is the sum of all the points of data in a set divided by the total number of data points. In this measurement, each data point is counted and the value of each data point has an impact on the overall performance. Averages should be viewed with a certain amount of caution because the average measure can be skewed if an unusual data point, known as an outlier, is present within the data set. Depending on the sample size of the data set, this skewing can be either very large or very small.

As an example, assume that a particular station with a response time objective of six minutes or less had five calls on a particular day. If four of the calls had a response time of eight minutes while the other call was across the street and only a few seconds away, the average would indicate the station was achieving its performance goal. However, four of the five calls, or 80 percent, were beyond the stated response time performance objective.

The reason for computing the average is its common use and ease of understanding. The most important reason for not using averages for performance standards is that it does not accurately reflect the performance for the entire data set.

With the average measure, it is recognized that some data points are below the average and some are above the average. The same is true for a median measure which simply arranges the data set in order and finds the value in which 50 percent of the data points are below the median and the other half are above the median value.

When dealing with percentiles, the actual value of the individual data does not have the same impact as it did in the average. The reason for this is that the percentile is nothing more than the ranking of the data set. The 90th percentile means that 10 percent of the data is greater than the value stated and all other data is at or below this level.

Higher percentile measurements are normally used for performance objectives and performance measurement because they show that the large majority of the data set has achieved a particular level of performance. This can then be compared to the desired performance objective to determine the degree of success in achieving the goal.

For this analysis, ESCI was most interested in the ability to respond with the appropriate resources to the highest percentage of incidents. For this reason, ESCI analyzed records management system (RMS) and computer aided dispatch (CAD) data and generated average and 90th percentile response performance for emergency incidents only.

NFPA 1710 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments includes a performance objective of 240 seconds or less travel time for the arrival of the first arriving engine company in urban areas serviced by career fire departments.⁴ *NFPA 1710* does not differentiate between the various population densities and assumes that all areas served by career or mostly career fire departments will adhere to a single performance objective. The following figures illustrate the overall call processing performance measured at the average and 90th percentile.

Figure 19: Historical Call Processing Performance

	Average	90th Percentile
2012	0:00:28	0:01:00
2013	0:00:28	0:01:00
2014	0:00:48	0:01:36

⁴*NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.* (National Fire Protection Association 2010.)



Based on the analysis, the communications center is doing an excellent job at receiving and processing calls for dispatch. The recorded call processing time has increased over the last three years so communications supervisors should continue to monitor this element of the overall response performance continuum.

Turnout time is the first element of the response performance continuum that operational units can actually control; since they are responsible for receiving the information, making their way to the apparatus and affecting an appropriate response. Turnout time, however, can be impacted by human error or technological limitations. For example, the ambulance located at AFD has a MDT in the unit that allows personnel to ‘check en route’ to an incident by pushing a button on the terminal. SPFD units must use radio traffic and wait on the telecommunicator to physically enter that data into CAD. This can create time delays and inconsistencies within system recordkeeping. The following figure summarizes the system’s turnout time performance over the last three years for emergency responses only.

Figure 20: Historical Turnout Time Performance – AFD

	Average	90th Percentile
2012	0:00:51	0:02:00
2013	0:00:57	0:02:00
2014	0:01:00	0:02:00

Figure 21: Historical Turnout Time Performance – SPFD

	Average	90th Percentile
2012	0:01:04	0:02:00
2013	0:01:03	0:02:00
2014	0:01:09	0:02:00

NFPA 1710 provides a recommendation that fire department resources be en route to medical incidents within 1:00. There are, however, no published national standards for EMS turnout performance other than with the NFPA. The final component of response performance analysis is that of total response performance as illustrated in the following figure.

Figure 22: Historical Actual Response Time Performance – AFD

	Average	90th Percentile
2012	0:07:49	0:14:00
2013	0:08:16	0:15:00
2014	0:08:48	0:16:00



Figure 23: Historical Total Response Time Performance – SPFD

	Average	90th Percentile
2012	0:07:20	0:13:26
2013	0:07:23	0:13:00
2014	0:07:40	0:13:27

NFPA recommends that resources be on the scene of an emergency incident within 5:00 of total response for medical incidents. Although the system’s performance is above that established by NFPA, it should be understood that the recommended standard is extremely aggressive and is intended to apply primarily to urban areas. In fact, none of the departments ESCI has been engaged with have been able to achieve this objective. Rather, departments should work to establish response performance objectives that match their risk, provide an expected level of service as dictated by their community, and are in-line with available fiscal resources. This applies to all elements of the response time continuum from call processing through total response performance. As already discussed, implementation of MDT’s in all system resources would allow for a more consistent record of turnout time and overall response performance.

In addition, these times do not reflect when EMS groups arrive on emergency scenes and begin assessment and treatment. In most cases, these resources arrive prior to the ambulance. Over the last five years, the EMS Groups have arrived on scene in an average of 7:10 as illustrated in the following figure.

Figure 24: EMS Groups Average Response Performance

	2010	2011	2012	2013	2014
Almond	0:08:59	0:09:33	0:09:07	0:08:04	0:10:25
Amherst	0:07:20	0:08:04	0:07:33	0:06:02	0:07:39
Bancroft	0:07:29	0:07:27	0:06:40	0:11:12	0:07:55
Dewey	0:09:36	0:10:55	0:13:19	0:12:35	0:10:16
Grant	0:09:46	0:08:06	0:08:21	0:08:46	0:08:35
Hull	0:09:25	0:08:24	0:07:29	0:07:55	0:08:03
Plover	0:06:36	0:06:51	0:06:44	0:06:05	0:06:08
Rosholt	0:06:08	0:05:17	0:05:44	0:05:31	0:05:56
Rudolph EMS	0:08:30	0:09:11	0:09:03	0:08:52	0:09:35
Sharon	0:00:43	0:06:40	0:03:11	0:09:17	0:09:21
Stockton	0:06:46	0:08:05	0:06:47	0:07:43	0:08:06
Grand Average	0:07:09	0:07:28	0:07:12	0:06:52	0:07:08

In a vast majority of cases, the ambulance coming from SPFD Stations 1 or 2, PFD, or AFD, arrives after the EMS Groups. On average, the time between when the first responders arrive and when the



ambulance arrives calculates to 6:04 with a high of 12:44 and a low of 2:01. As expected, those areas that are further away from the urban parts of the county see a longer wait time for transport ambulances.

This should highlight the critical nature of the EMS Groups throughout Portage County. Those six minutes where care is being administered by first responders could make the difference in a positive patient outcome. The county should continue to work with the EMS Groups to support training and overall system integrity as well as working with a regional recruitment and retention program to ensure that these valuable resources are available well into the future.

Recommendation:

- Each provider should implement a system of incentives to ensure that personnel are responding as quickly as possible to reduce overall turnout time.
- The county should continue to work with the EMS Groups to support training, equipment, and recruitment and retention efforts.



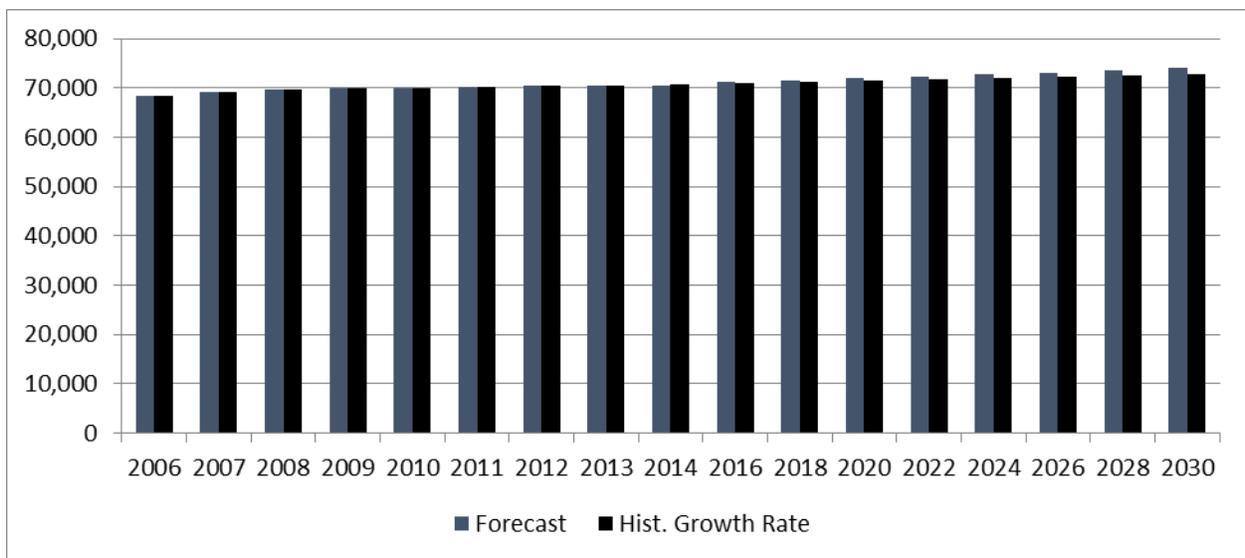
Future System Demand Projections

In preparing for the development of future service delivery options, it is first necessary to evaluate the population history of the response area and to attempt to predict how populations will change over the next two decades. These changes in populations will directly impact the service demand of the organizations and could stress resources if not properly deployed.

POPULATION HISTORY AND GROWTH PROJECTIONS

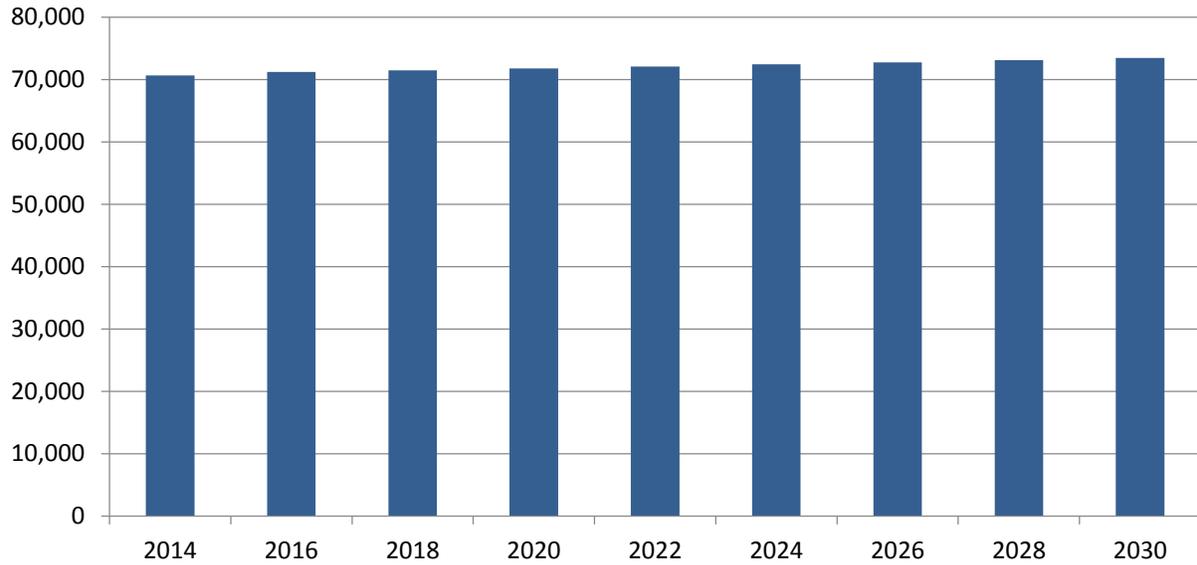
Based on historical population growth, which is limited, ESCI combined three different sources of data to determine the most appropriate rate of growth from which to generate future service demand projections. The first is based on a mathematical forecast model; the second is based on information contained with the Portage County Comprehensive Plan (which is limited to a single 2020 population projection); and the third is based on the historical annual growth rate. The population projection data from the Portage County Comprehensive plan was significantly different that the other two models, thereby the two most reliable population projection models are provided in the following figure.

Figure 25: Population Growth Projections



From these projections, ESCI developed an average population projection model that indicates a total population in 2030 at 73,443 as shown in the following figure.

Figure 26: Population Growth Projection - Average Model



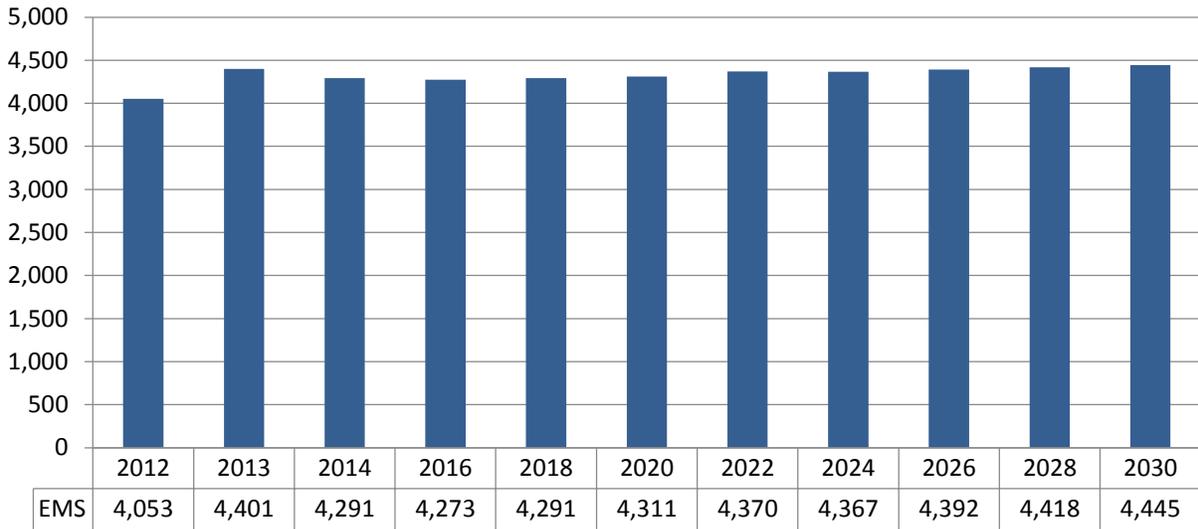
SERVICE DEMAND PROJECTIONS

In evaluating the deployment of facilities, resources, and staffing, it is imperative that consideration be given to potential changes in workload that could directly affect such deployment. Any changes in service demand can require changes and adjustments in the deployment of staff and resources in order to maintain acceptable levels of performance.

For purposes of this study, ESCI utilized population projections obtained through the previously presented methods and multiplied the average model by a forecast incident rate derived from a three-year history of incident per capita rates to identify workload potential through the year 2030. The results of the analysis are shown in the following figure.



Figure 27: Service Demand Projections



Based on the projection, service demand across the area will continue to rise slightly over the next 15 years based on a per capita usage rate average of 0.06.



Future Delivery System Models

The preceding sections of this report provide a general overview of the current system and highlight some of the changes that have occurred since the 2006 EMS Master Plan. This section is provided to further highlight improvements and enhancements that have occurred as well as to provide policy makers with options for future service delivery changes. Each of the scenarios discussed in the previous study assume a 10-minute travel model, however, Portage County has adopted a 15-minute travel time response performance objective since that study was completed.

PREVIOUS RECOMMENDATIONS

Deployment Strategy 1: Moving Medic 2 to PFD and Additional Ambulance to the East

The 2006 EMS Master Plan provided an option that moved Medic 2 from SPFD Station 2 to PFD to provide additional coverage to the south side of the urban area as well as adding a third staffed ambulance to the east side of the urban area.

Since the 2006 EMS Master Plan, Portage County has implemented a program where SPFD Medic 2 is routinely relocated to PFD a minimum of 40 hours per week and an additional ambulance was deployed to AFD.

Result – Partially Implemented. Medic 2 is routinely redeployed to PFD, but the usefulness of the days and hours it is assigned is diluted due to other duties and responses back into Stevens Point, rather than an eastern location as was recommended. The county has placed a transport ambulance in Amherst. This unit is often ‘moved up’ to provide supplemental coverage to Stevens Point when all SPFD units are busy on other incidents. Routinely, SPFD provides more than the two ambulances that are currently staffed. Other on-duty personnel staff a third, fourth, and, sometimes, even a fifth ambulance for concurrent incidents.

Deployment Strategy 2: Additional Ambulances at AFD and Junction City

This strategy, in addition to those recommendations from Deployment Strategy 1, provides additional coverage to the eastern side of the county as well as to the extreme northwest.

Result – Partially Implemented. Rather than a deployment model that provides a unit in a more desirable location, the county has placed the transport unit in Amherst, far too out of the way to provide significant coverage into the urban areas. Although the unit is ‘moved up’ to provide supplemental coverage, the service demand in the Amherst area is below what would normally be required to maintain a full-time ambulance.

Deployment Strategy 3: Additional Ambulance at County Road N and County Road A

This strategy achieves the 90 percent coverage that was determined as the appropriate target for the 10-minute travel model in the previous study. This model would provide, in addition to those noted previously, additional coverage to the areas south of Amherst. However, as with Strategy 2, the service demand in this area is limited and the benefit of this unit compared to cost is questionable.



Result – Not Implemented

Deployment Strategy 4: Additional Ambulances in Rosholt and Bancroft.

Deployment Strategy 4 provides, in addition to the deployment of additional resources previously noted, two more ambulances in the rural areas of northeast and southern Portage County. This strategy is estimated to provide 97 percent coverage of historic service demand, well above the target of 90 percent.

Result – Not Implemented

Deployment Strategy 5, 6, and 7: Extended Travel Models

In light of the fiscal impact of the preceding deployment strategies, ESCI also provided an alternative service delivery model that extended the travel model to 15 minutes rather than 10 in the foregoing strategies. While these strategies reduce the number of additional ambulances that would be placed within the system, it does not consider the variety of population density or the differences in service demand density and applies a single response performance objective to the entire system.

Result – Not Implemented. Although these strategies could be used in the more rural and outlying areas of the county, policymakers should consider a tiered response performance objective based on population/service demand density. This would allow the system to achieve a higher rate of success in those areas with a higher service demand while providing a slightly longer response to the fringe areas of the county.

Future Organizational Strategy A – Enhanced Status Quo

This organizational strategy proposes to enhance service delivery by redeploying units and changing the way that some units are staffed, i.e. using civilian personnel rather than cross-trained firefighter/paramedics. Although this strategy has its merits, SPFD is strong in history and tradition and prides itself as a model EMS system within the state. Changing the methodology by which units are staffed will be extremely difficult but, in this time of economic uncertainty, alternatives continue to be explored.

Result – Not Implemented.

Future Organizational Strategy B – County Operated EMS Delivery Organization

The intent of this strategy is a continued reliance on first responder organizations and enhanced funding and support of these agencies. In addition, this strategy proposes that Portage County would create and manage its own EMS delivery system rather than funding and operating the system through a series of contract providers.

Result – Partially Implemented. Since the 2006 EMS Master Plan, Portage County has discontinued the use of part-time personnel to staff the RRU. Part-time staff are still used for special events coverage across the county. Current administrative personnel, the contracted EMS Coordinator and the EMS Specialist, work with the system providers to ensure that services are being delivered at the desired levels and the funding, training, and support are provided where necessary. By implementing the

ambulance in Amherst, combined with the resources already in place in SPFD, the system has lost some of the advantages of a single service provider as this strategy details.

Future Organizational Strategy C – Public/Private Partnership

This strategy would involve the county negotiating a contract with a private provider to deliver services in all or part of Portage County. While the strengths of this strategy are clear, so are the weaknesses in that a majority of incidents occur within the City of Stevens Point and the Village of Plover. A private provider may not be interested in providing services outside these areas due to limited call volume and the need to meet county-defined service level objectives.

Result – Not Implemented.

Future Organizational Strategy D: Request for Proposal

As detailed in the previous study, there are more potential negatives for this strategy than positives, primarily due to limited market competition. However, what was not offered in the previous report was that SPFD could be included in the request for proposal as a single provider of service to the entire county. This should be evaluated at a more in-depth level and consider allowing SPFD to submit a proposal to provide services throughout the county as the single contract provider.

Result – Not Implemented.

Staffing Strategies

Personnel are admittedly the most expensive part of any emergency services system that employs full-time and/or part-time personnel. Thus, various strategies were presented in the 2006 EMS Master Plan that detailed the differences in personnel types (credential levels) and what may or may not be necessary in routine response. During discussions for this update, the question was once again posed whether or not a Paramedic was required for every incident. Based on national data, the answer is no. However, the Wisconsin Administrative Code DHS 110.50 states that,

“(d) Paramedic ambulance.

1. For an ambulance service provider licensed before January 1, 2000, the ambulance shall be staffed with two EMT-paramedics.
2. Except as provided in subd. 3., for an ambulance service provider licensed after January 1, 2000, the ambulance shall be staffed with at least one EMT-paramedic and one EMT at any level. If a patient requires patient care at the paramedic level, the paramedic shall remain with the patient at all times during care and transport of the patient.



3. For an ambulance service provider licensed at the paramedic level in the same primary service area in which paramedic service was or is provided by two EMT-paramedics, the ambulance shall be staffed with two EMT-paramedics.

4. A provider that uses a two paramedic system, in which paramedics respond separately from different locations, shall dispatch both EMT-paramedics immediately and simultaneously for all emergency response requests. A single paramedic performing in this staffing configuration may perform all the skills allowed in the scope of practice of the EMT-paramedic prior to the arrival of a second paramedic, as long as the arrival of the second paramedic is expected within a reasonable and prudent time based on the patient's condition. If only one EMT-paramedic responds, care shall be provided within the next lower level scope of practice, and transport of the patient requires one EMT-paramedic and one additional EMT at any level. If 2 EMT-paramedics respond, after the patient has been assessed and stabilized, one EMT-paramedic may be released by patient care protocol or verbal order from a medical control physician. An ambulance service provider that responds with EMT-paramedics from two different locations, or that releases one EMT paramedic after assessment, shall identify in its operational plan what time frame is considered to be a timely response based on its resources and primary service area logistics.”⁵

In essence, since SPFD was licensed prior to January 1, 2000, they are required to have two EMT-Paramedics on each transport unit whereas, if AFD upgrades to EMT-Paramedic, they will not. As system modifications occur and the system expands, the need for additional EMT-Paramedics can be reduced. Programs such as community paramedicine, for example, rely on a single staff member to provide clinical, non-emergency services in an effort to increase community health presence and interaction. A discussion of community paramedicine is included in the appendix of this document.

RECOMMENDED LONG-TERM STRATEGY

The preceding sections of this report serve to give the reader a comprehensive understanding of the current state of the Portage County EMS System. The overall intent of the project, however, is to also provide policymakers with information relative to the future of the organization as compared with the current conditions. This section will address major findings, identify priorities for implementation of recommendation, suggest necessary policy actions, provide estimated budgetary impacts, and identify any service delivery impacts of recommendations.

Deployment of Resources

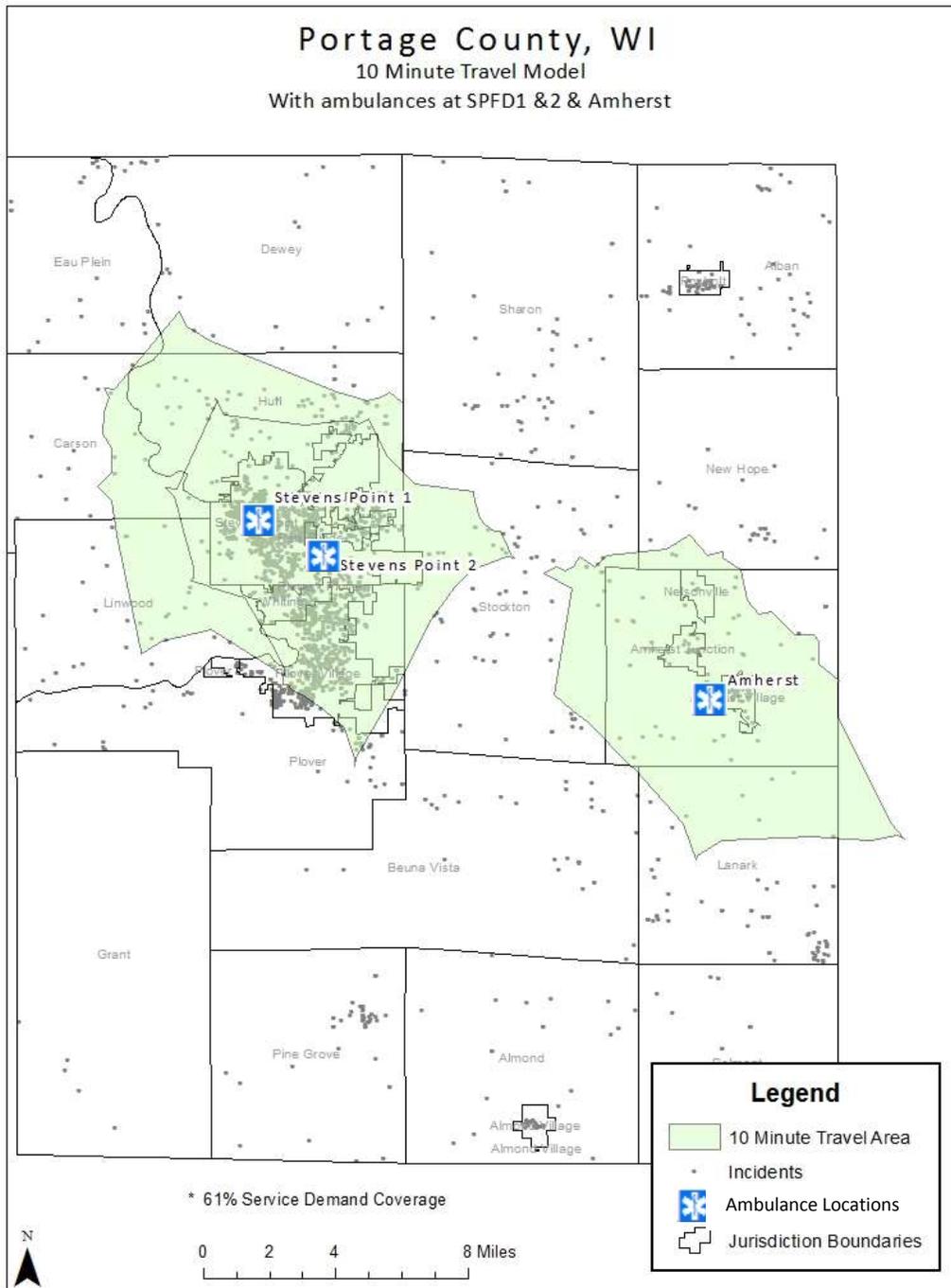
Based on the evaluation of previous strategies and alternatives, as well as fiscal limitations and existing service level demand, ESCI believes that minor modifications to the existing system will improve the overall delivery of services. As presented in the service delivery element of this update report, it is apparent that a large portion of service demand is occurring within and around the Village of Plover.

⁵ DHS 110.50(1)(d)4.



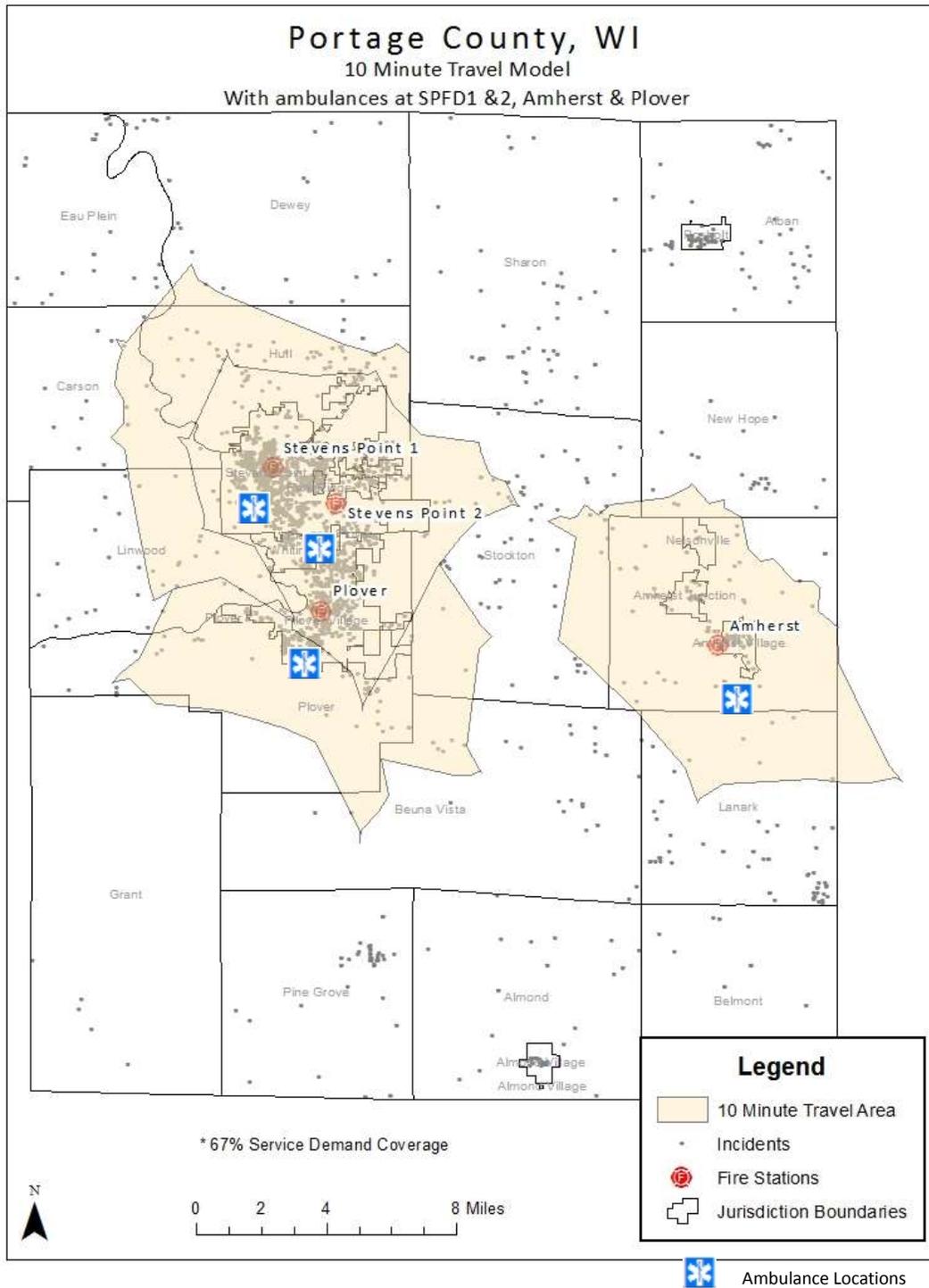
Based on a 10 minute travel model as was recommended in the 2006 EMS Master Plan, and the current static deployment of resources, only 61 percent of historic service demand (previous workload) can be reached as illustrated in the following figure.

Figure 28: 10-Minute Travel Model



An additional transport ambulance in Plover would increase the coverage at the 10 minute model to only 67 percent based on the deployment modeled in the following figure.

Figure 29: 10-Minute Travel with Four Ambulances

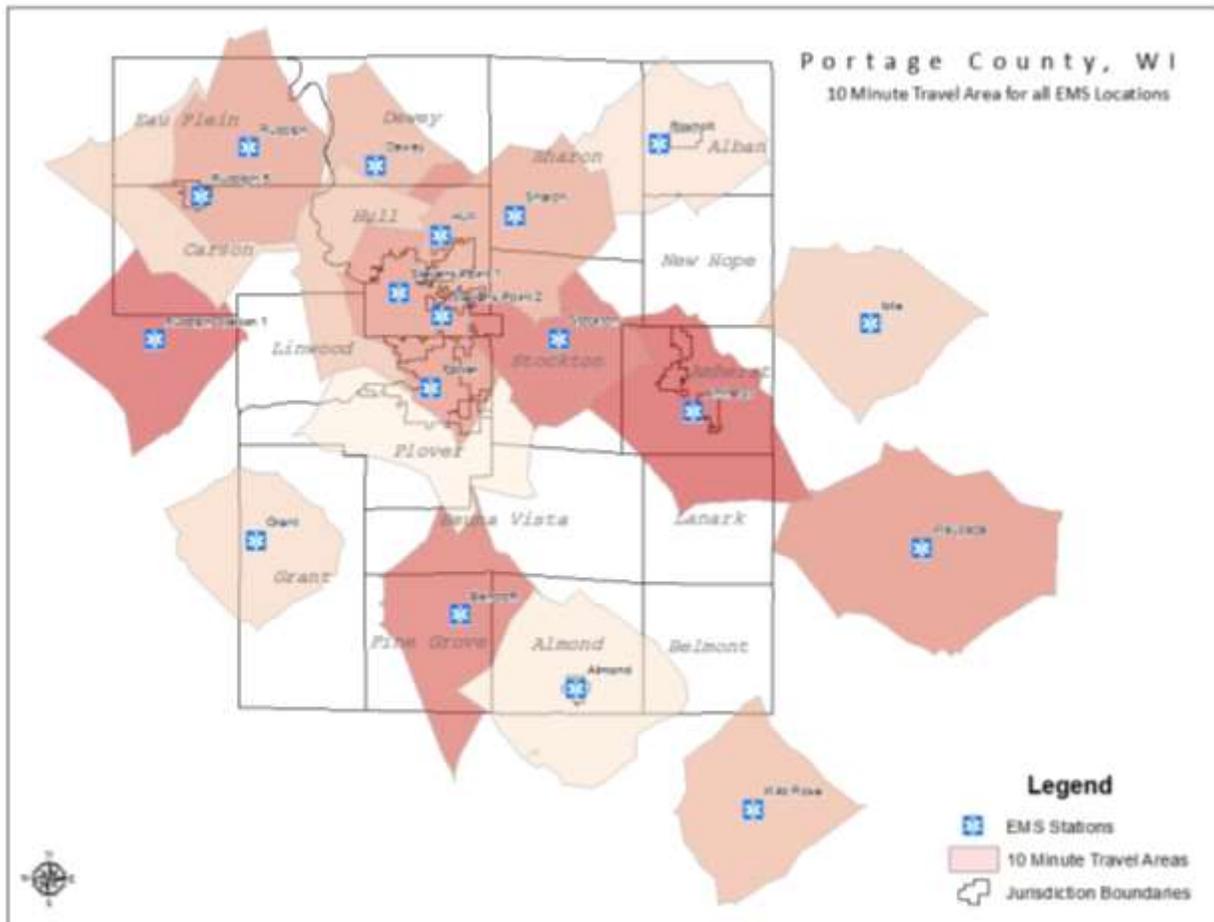


As indicated in the previous study, additional ambulances at Junction City, Rosholt, Bancroft, and Almond modeled at the 15 minute travel capability would increase coverage to 89 percent. However,



the service demand occurring in these areas, while extended travel would be required, is low and the expense of staffing and equipping these units would be cost prohibitive. In addition, the EMS Groups provide a valuable service to the entire county and allow longer response times of transport ambulances while providing potentially life-saving initial care. The following figure indicates each EMS Groups travel capability based on fixed locations.

Figure 30: EMS Group Travel Capability



Although the preceding figure shows travel capability from fixed locations, many of the EMS Groups do not necessarily respond from those facilities. Rather, they are responding from home, work, or wherever they may be when an incident is dispatched. Based on the travel model, 74 percent of historic service demand (previous incidents) can be reached within 10 minutes of travel from the fixed facilities.

Currently, Portage County adheres to a 15-minute response performance objective system-wide. However, as already noted, the urban areas of the county receive services much quicker than those in the suburban and rural areas. Because such a high number of total incidents occur within the urban areas, the total response performance, especially into the rural areas, is somewhat skewed. The system should consider implementing a tiered response performance objective based on differences in

population density and availability of resources. The recommended performance objectives are detailed below.

1. First responders should arrive on scene within 10 minutes of total response time when measured at the 90th percentile.
2. Transport ambulances should arrive on scene to urban area incidents within eight minutes of total response time when measured at the 90th percentile.
3. Transport ambulances should arrive on scene to suburban area incidents within 10 minutes of total response time when measured at the 90th percentile.
4. Transport ambulances should arrive on scene to rural area incidents within 15 minutes of total response time when measured at the 90th percentile.

This tiered approach to response performance objectives will allow for a more validated analysis of overall response performance and will provide policymakers with information relative to future deployment of resources based on public expectations and ability/willingness to pay for increased levels of service.

Recommendation:

- The county should implement a tiered approach to response performance objectives to allow for more detailed analysis of overall system performance.
- One additional transport ambulance should be deployed to PFD to increase system effectiveness and overall performance.

Governance

The current system of governance of the EMS system within Portage County is one of contracting with a number of levels of oversight. During the 2006 EMS Master Plan, Portage County (with part-time personnel staffing the RRU) and SPFD were the service providers. Today, those providers are SPFD and AFD. Although the number of providers has not changed, the number of contracts has doubled (from one to two), not including Higgins/United, which will be discussed later.

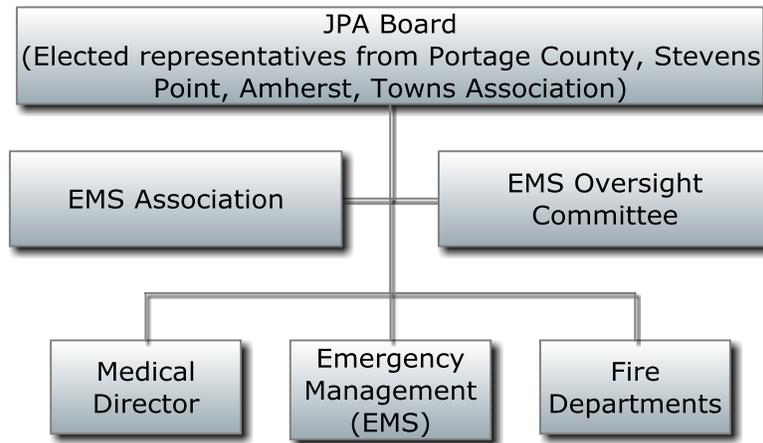
Portage County has implemented two positions within the Department of Emergency Management since the 2006 EMS Master Plan; EMS Coordinator and EMS Specialist, to provide support to the overall EMS system in coordination with SPFD and AFD personnel. However, the providers (SPFD and AFD) operate independently.

Although the EMS Oversight Board provides general direction and reporting for the system, general operations are left to the contract providers. The multiple committees slow the process of expansion and advancement.

As the 2006 EMS Master Plan suggested, a Joint Powers Agreement should be implemented that provides representation from each of the service providers within Portage County. Given the changes in

the system since 2006, the following figure illustrates an example organizational structure of this type of governance model.

Figure 31: Example JPA Governance Model



With the model above, however, there will also need to be day-to-day operational support and administration of the system. Although SPFD and AFD both have command staff in place to oversee daily operations, administrative and support staff should be implemented full-time within Portage County to serve as the liaison between the field providers and the JPA board as well as to provide contract coordination, training coordination, payment processing, logistical support, etc.

The Town of Grant, in southwest Portage County, does not currently receive transport ambulance services from the Portage County EMS system. Rather, they receive services from United Emergency Medical Response in Wisconsin Rapids with additional support from local first responders (EMRs) funded through Portage County. As a point of contention, United has chosen not to function as an integral part of the Portage County system, that would require them to meet system standards, and attend routine meetings as a full participant in the system.

Funding

The current method of funding the EMS system is through the application of an EMS levy and user fees. This is a perhaps the most effective way to fund a county-wide system with multiple providers. The difficulty comes in distribution of those revenues to the actual service providers.

Portage County currently levies a county-wide EMS tax to support the existing system. The FY2015 budgeted levy was \$1,194,313. In addition, the county expects to collect approximately \$1,583,230 in user fees for a total revenue of \$2,922,543 (including \$145,000 in 'other' revenue). Allocation of these funds can sometimes be a contentious among the actual service providers.

Applying a funding mechanism based solely on where incidents occur can often be miscalculated due to responses by agencies outside their home response areas. Currently, SPFD is budgeted to receive

\$1,910,416 in FY2015 and AFD is budgeted to receive \$307,306, representing approximately 86.1 percent and 13.9 percent of total contracted agency services allocations respectively. Population is also difficult to base allocations on since municipal populations do not accurately indicate populations served. Again, agencies are responding outside their home territory into the townships.

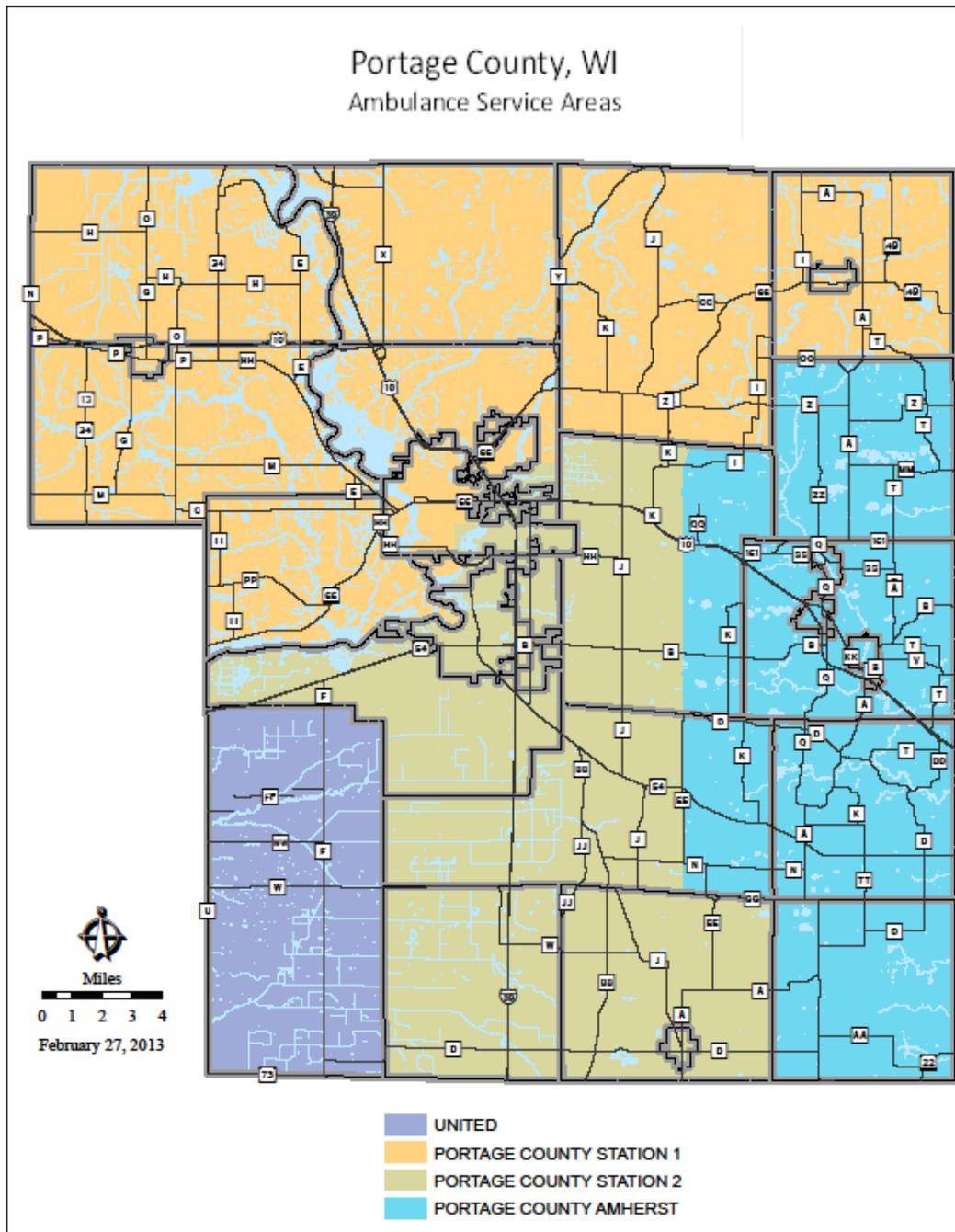
Allocation of costs, and available funds, can be accomplished in a number of ways including land area, total valuation, population, service demand, parcel counts, etc. Many of these methods apply primarily to the fire service since property is being protected. However, the delivery of emergency medical services is driven totally by human activity, therefore, alternative methods must be used.

Service demand is one of the best indicators as to what percentage of service is being provided by each agency. Even this cost allocation method should be viewed cautiously since different agencies may track incidents differently.

The difficulty in using land area as a variable to determine funding is that the current system is "countywide." In other words, although each provider has an assigned primary response area, system resources can be used anywhere within Portage County. For example, if all SPFD units are busy, the ambulance deployed to AFD can be used to respond to incidents within Stevens Point, Plover or any other area. Likewise, if AFD's ambulance is busy, SPFD may respond to Amherst for a simultaneous incident. However, if the system chooses to use geographic area as a variable to assist in determining cost allocation, the basic primary service area of each provider could be used. Based on the following figure, SPFD comprises approximately 74.9 percent of the service area and AFD comprises approximately 25.1 percent. The area served by United is not considered in this equation.



Figure 32: Existing Ambulance Service Areas



Although most jurisdictions that provide EMS through a number of providers use incident volume as the most reliable indicator for cost allocation, some implement a multiple variable calculation to better allocate costs. ESCI used incident volume, transport volume, population, and geography to generate a multi-variable cost allocation formula that is based on a weighted system that can be easily manipulated based on local consensus. The following figure illustrates, as an example, how costs can be allocated based on this formula.



Figure 33: Multiple Variable Cost Allocation

Jurisdiction	Area	Incidents	Transports	Population	Multiple Variable #1	Multiple Variable #2	Multiple Variable #3
SPFD	74.9%	94.1%	94.5%	90.1%	88.4%	89.8%	87.4%
AFD	25.1%	5.9%	5.5%	9.9%	11.6%	10.2%	12.6%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The multiple variables noted above are based on example weighting of the various elements are illustrated in the following figure. These weights should be agreed upon by system providers prior to implementation of a multi-variable cost allocation model.

Figure 34: Multiple Variable Weighting Example

Multiple Variable Weights	
Multiple Variable #1	
Area	25%
Incidents	25%
Transports	25%
Population	25%
	100%
Multiple Variable #2	
Area	20%
Incidents	30%
Transports	35%
Population	15%
	100%
Multiple Variable #3	
Area	30%
Incidents	20%
Transports	25%
Population	25%
	100%

The current method of increasing the allocation three percent annually should be abandoned in favor of a system of incident volume review based on a three year rolling average of CAD data and applying a weighted scale to the other variables.

This section of the report consolidates all of the recommendations contained throughout the document and prioritizes them into one of five categories of importance. Each is provided with an explanation of the priority as well as the page number on which the recommendation can be found.

Group 1 Recommendations

Group 1 recommendations are those contained within the body of this report that can be implemented relatively easily with little or no fiscal impact. These recommendations are intended to provide for greater efficiency and consistency across the system.



- The Portage County EMS system of organizational design should be streamlined and policy power given to the EMS Oversight Board with the Technical Team providing field level recommendations. 11
- Each provider should implement a system of incentives to ensure that personnel are responding as quickly as possible to reduce overall turnout time..... 41
- The county should continue to work with the EMS Groups to support training, equipment, and recruitment and retention efforts. 41
- The county should implement a tiered approach to response performance objectives to allow for more detailed analysis of overall system performance..... 52

Group 2 Recommendations

Group 2 recommendations are those contained within the body of this report that should be implemented as soon as possible given available funding. These recommendations may have substantial fiscal impact or create new positions within the organizational structure of the system.

- All EMS system vehicles should be equipped with MDT and AVL capabilities to increase response efficiency and consistency. 15
- Portage County should adopt and fully fund a capital vehicle replacement plan..... 26
- The part-time EMS Coordinator and EMS Specialist positions should be merged into a single full-time position. 28
- Additional part-time clerical staff should be implemented within the Office of Emergency Management..... 28
- One additional transport ambulance should be deployed to PFD to increase system effectiveness and overall performance. 52

Group 3 Recommendations

Group 3 recommendations are those contained within the body of this report that will require substantial fiscal resources and may involve external agencies.

- A single technological system should be implemented and used by all system providers to improve system efficiency and allow for continued quality assurance. 15
- Future planning should begin now for renovation of those facilities that, in the future, may house full-time 24-hour personnel..... 22

Conclusion

As already mentioned, the Portage County EMS System is currently operating at a level that meets the expectations of the community. Still, there is always room for improvement in the way that a system can provide its service whether operationally or fiscally. In today’s economic environment, emergency services personnel must be able to work closely with appointed and elected officials to ensure that the system of providing services is sustainable for a long period, in doing so, many organizations, like



Portage County, need to embrace an attitude of change and cooperation for the greater good of the community.

Simultaneously, the provider agencies should embrace the transformation of the primary organizational mission from fire suppression to medical services and work as a truly integrated part of the overall healthcare system. If the reason for doing something today is, "...because we've always done it that way...", then the way of doing business must change to fit today's societal and economic conditions. The provider agencies should strive to cling to the rich history and tradition of their respective organizations while still being able to adapt and progress with the current environment.

ESCI began collecting information for this project in January 2015, and the analysis necessary for the development of this document has taken nearly four months to complete. It is our sincere hope that the information contained within this report is found to be useful in identifying ways in which the system can work more cohesively in an attitude of cooperation so that the services delivered to the citizens of Portage County can continue to be provided at a high level.



Appendix A – Community Paramedicine Discussion

Community paramedicine is an evolving model of community-based health care in which separate paramedic, or paramedic and nurse teams, could function parallel to customary emergency response and transport roles in ways that facilitate more appropriate use of emergency care resources. Providing community paramedicine can enhance access to primary care for medically underserved populations, recently released hospital patients, and repeat patients that abuse the 911 emergency medical systems for lower level medical problems. This system may also reduce overcrowding in emergency rooms since it would lower the number of patients with non-emergent conditions, potentially reducing costs and making more efficient use of hospital resources. Community paramedicine may also reduce hospital diversion rates and EMS wait times for patient admission.

Community paramedicine is considered a supplement to the traditional EMS response model and bridges both community health service and EMS coverage gaps. Interest in community paramedicine has substantially grown in recent years due to the belief that it improves access to and quality of care for emergency medicine, but also includes the entire spectrum of emergency medical care.

Instead of responding to numerous 911 calls and costly emergencies, community paramedics could be taking extra steps to prevent them. Rather than transporting patients to the emergency room, the community paramedics bring their services to the patient's home. Paramedics could provide patient assessments, blood draws, immunizations, medication administration, wound care, and the like, as well as create a vital communication link between primary care physicians and their patients.

Future considerations:

- As part of a holistic community approach to medical services, Portage County could implement sustained and more robust emphasis on reducing community and individual risk such as slips, trips, and falls for the elderly, medication monitoring (e.g. diabetes), congestive heart failure, sepsis evaluation, ongoing fitting of smoke and carbon monoxide detectors, home risk assessments, creating new channels of public school, and community education beyond current levels.
- Portage County could deploy an EMT and/or Paramedics on vehicles for home visits with a nurse practitioner or physician assistant.
- Developing partnerships with hospital networks or many of the care organizations can be developed that can accomplish the same objectives listed above. This system may assist hospital networks and be compliant with conditions of the Affordable Care Act in order to decrease readmissions.
- Hospitals can provide nurse practitioners, physician assistants, or physicians along with system staff to activate mobile preventative care evaluation teams. This model would also be used to “treat and release” or to determine if transport to urgent care centers is warranted.
- Community paramedic concept would be designed to meet the community needs of Portage County and work under clear physician medical direction and control.

One key to the success of this methodology is effective call screening and prioritization by dispatch operators trained in EMD (Emergency Medical Dispatch) protocols. Properly applied, these procedures have been proven to identify those calls that warrant a higher level of EMS response as contrasted to those that may be adequately managed by fewer responders. To support this new EMS approach, an EMD system would need enhancement within the communications center. It is recommended the system consider implementing a dispatch center that supports a full robust EMD system, to follow through the call sequence with full EMD tiered dispatch protocols.

