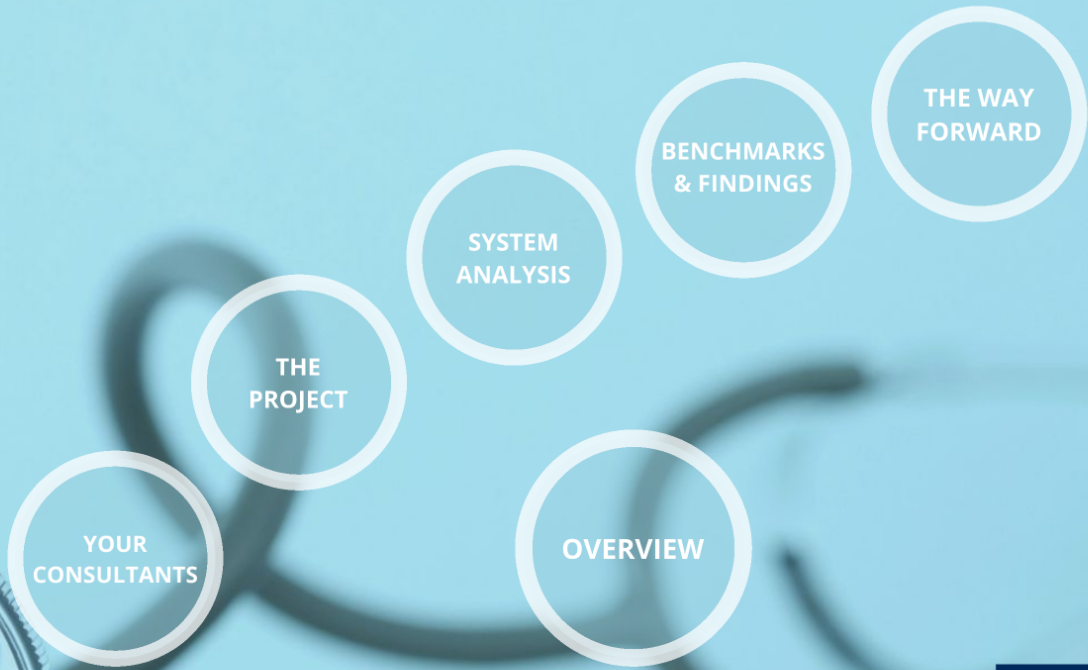


EMERGENCY MEDICAL SERVICES STUDY

FLOYD COUNTY
INDIANA



YOUR
CONSULTANTS

THE
PROJECT

SYSTEM
ANALYSIS

OVERVIEW

BENCHMARKS
& FINDINGS

THE WAY
FORWARD



OVERVIEW

1 YOUR CONSULTANTS

4 SYSTEM ANALYSIS

2 PROJECT SCOPE

5 BENCHMARKS & FINDINGS

3 EXECUTIVE SUMMARY

6 THE WAY FORWARD



YOUR CONSULTANTS

WHO WE ARE

FITCH & ASSOCIATES, LLC

50 U.S. States | 13 Countries

For more than three decades, we've helped organizations of all sizes navigate challenges that public safety agencies face every day: effectively deploying resources, implementing new technologies, recruiting and retaining an engaged workforce, adapting to the evolving healthcare landscape and much more.

Our clients include hundreds of organizations encompassing fire departments, ground and air Emergency Medical Services systems for major metropolitan areas, rural and suburban communities, hospitals and foreign heads of state.



THE PROJECT

PROJECT
SCOPE

EXECUTIVE
SUMMARY

PROJECT SCOPE



Study

The
EMS System



Benchmark

EMS System
Capabilities



Identify

Quantifiable Optimization
Opportunities



Provide

Recommendations for
the Quality Provision
of EMS



Detail

Options that Enhance
Service Quality &
Fiscal Sustainability



Outline

Future Oriented
Service Delivery Options

EXECUTIVE SUMMARY

Existing system is comprised of a diverse mixture of dedicated personnel and entities.



QI efforts are passive and need to be formally integrated system-wide.



The system lacks formal clinical and operational performance standards.



There is no single point of medical direction or patient care protocols.



County EMS governance structures are weak resulting in provider contracts with little enforcement.



Accountability at all levels of the system need to be enhanced.



Key performance metrics need to be independently measured and reported to stakeholders.



The current system is not sustainable for the patient population served.



SYSTEM ANALYSIS

ACTIVITY
ANALYSIS

TIME ON
TASK

RESPONSE
VOLUME PER
HOUR

RESPONSE
VOLUME PER
DAY

GEOGRAPHIC
DISTRIBUTION

EMS SYSTEM ACTIVITY ANALYSIS

The determination of EMS system activity and performance is imperative in order to identify opportunities for improvements in resource allocation and effective service delivery.

The design of an EMS system is dependent upon understanding demand for service on a temporal and geographic basis. Response data was examined using a range of EMS analytical techniques to understand what occurs in the system and provide recommendations based off the results of the analysis.

The purpose of the data analysis process was to:

- Quantify EMS response activity levels
- Measure time intervals for the components of an emergency response
- Identify the geographic and temporal distribution of responses

TIME-ON-TASK PERFORMANCE

Average Time-on-task

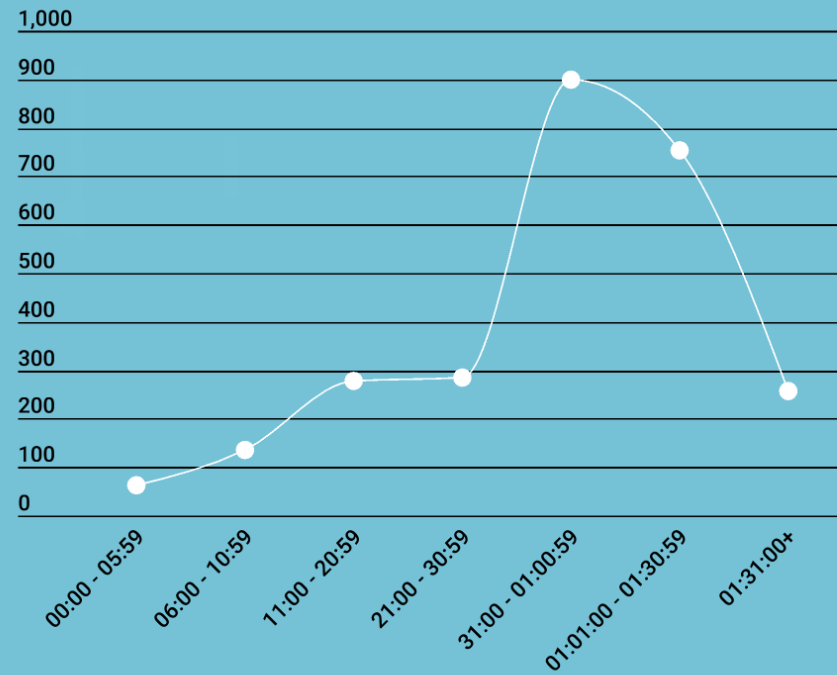
54:05

27%

Responses < 30:00

Time-on-task is measured from the time an ambulance is dispatched until it is available for another response.

Time-on-task
2018



RESPONSE VOLUME PER HOUR

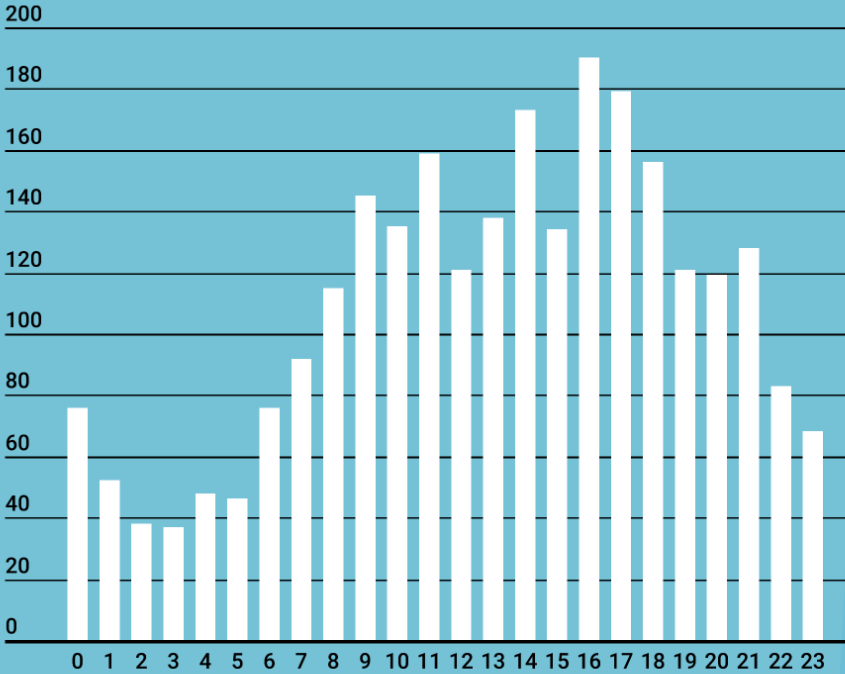
Busiest Hour of the Day



Slowest Hour of the Day

Response Volume per Hour refers to the temporal distribution of calls for each hour of the day.

*Response Volume Per Hour
2018*



RESPONSE VOLUME PER DAY

Busiest Day of the Week

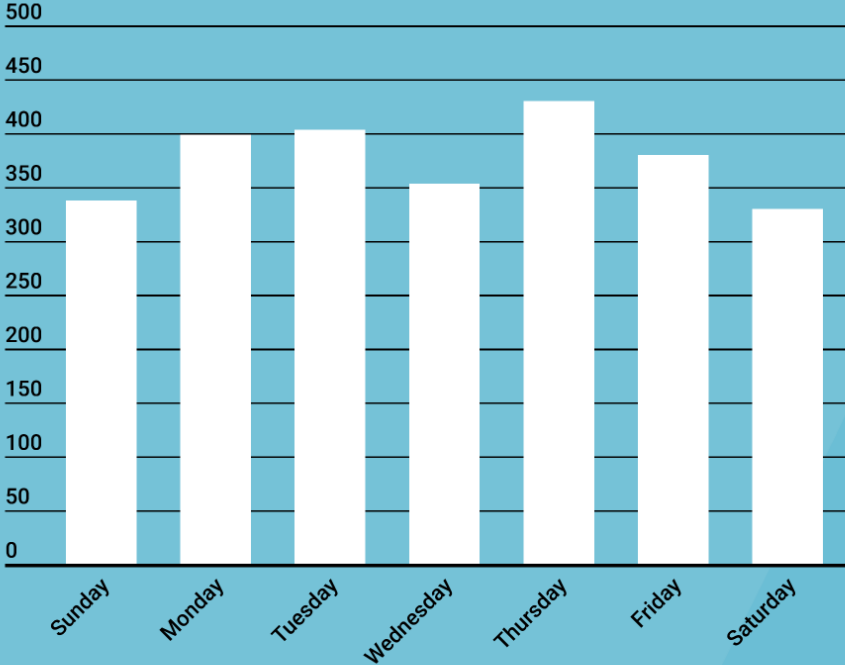
Thursday

Saturday

Slowest Day of the Week

Response Volume per Day refers to the distribution of calls for each day of the week.

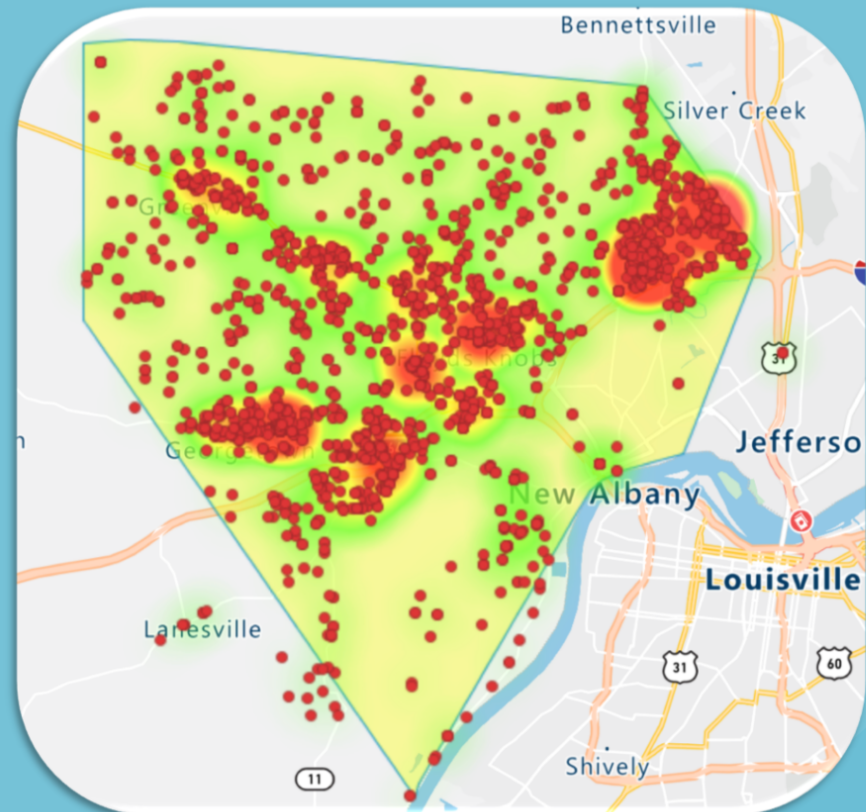
Response Volume Per Day 2018



GEOGRAPHIC RESPONSE DISTRIBUTION

Population density is a noticeable driver of EMS workload in Floyd County. This figure is a heat map identifying the location of EMS responses in 2018.

The red spots show areas with the most EMS responses. Correspondingly, these areas are more urban than areas shown in yellow and green where fewer responses occurred.



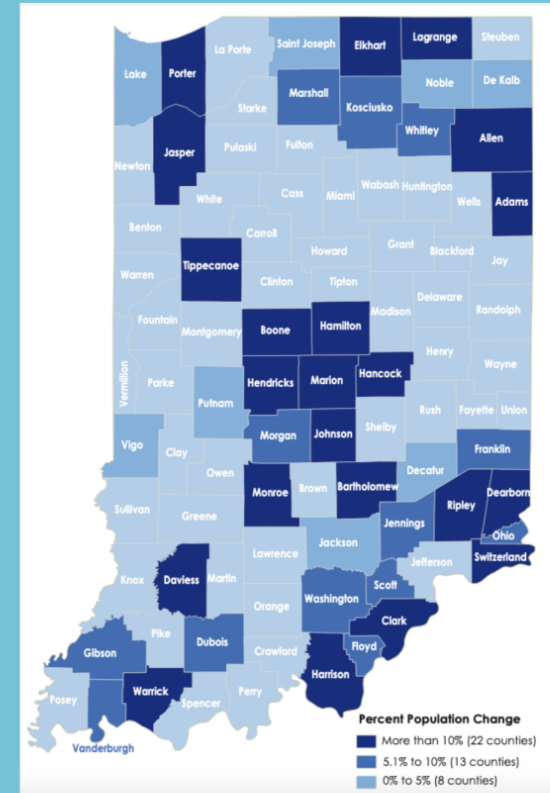
FUTURE SERVICE DEMAND

A key component in planning for future demand for EMS service is the relationship between population dynamics and the need to access EMS.

According to the U.S. Census Bureau, Floyd County's population has grown consistently, at a rate consistent with the population growth of Indiana, from 74,579 in 2010 to an estimated 77,781 in 2018.

The Indiana Business Research Center, Indiana's official state representative to the U.S. Census Bureau, provides demographic and other economic data for the State. The figure to the right from the IRBC represents the projected change in population over the next three decades.

Projected Population Change by County 2010 - 2040



Source: Indiana Business Research Center

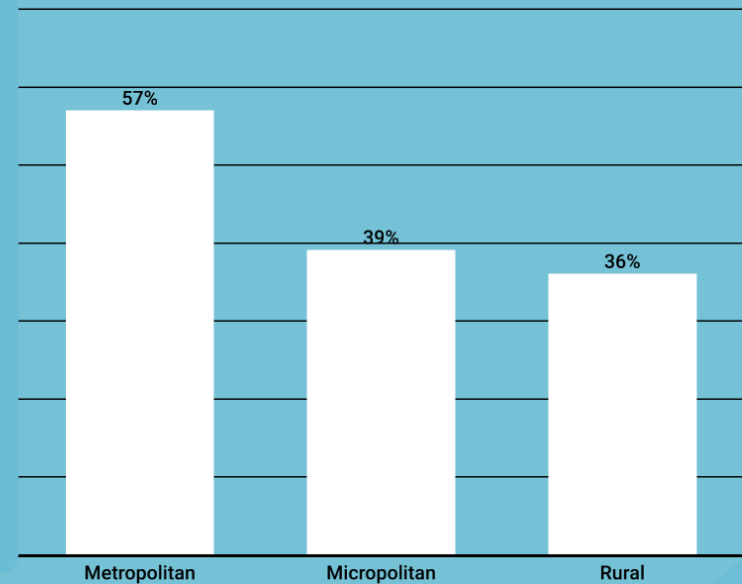
AGE COHORT INCREASES

Geographic shifts, increases or decreases in population and changes in age cohorts can have a significant impact on system demand.

The IBRC projects that one out of every five Indiana residents will be 65 or older by 2030. This age cohort is expected to increase in metropolitan, micropolitan and rural counties.

The population of Floyd County 65 years of age and older is currently 16%, and that proportion is expected to increase over the next two decades.

Projected Median Age of Population by County Type



Source: Indiana Business Research Center

BENCHMARKS & FINDINGS

THE
PROCESS

BENCHMARKS
& FINDINGS

SYSTEM BENCHMARKING

FITCH conducted an in-depth analysis of the system and bench marked EMS system performance against fifty baseline metrics in eight recognized key process areas to identify targeted improvement opportunities and develop future state models.

The benchmarks and process components are based on FITCH's 35 years of system analysis and design experience and are drawn from a wide variety of sources including the National Association of EMS Physicians, the National EMS Management Association, the American Ambulance Association, the National Fire Protection Association and the International City and County Management Association.



ESSENTIAL ELEMENTS FOR 911 SYSTEMS



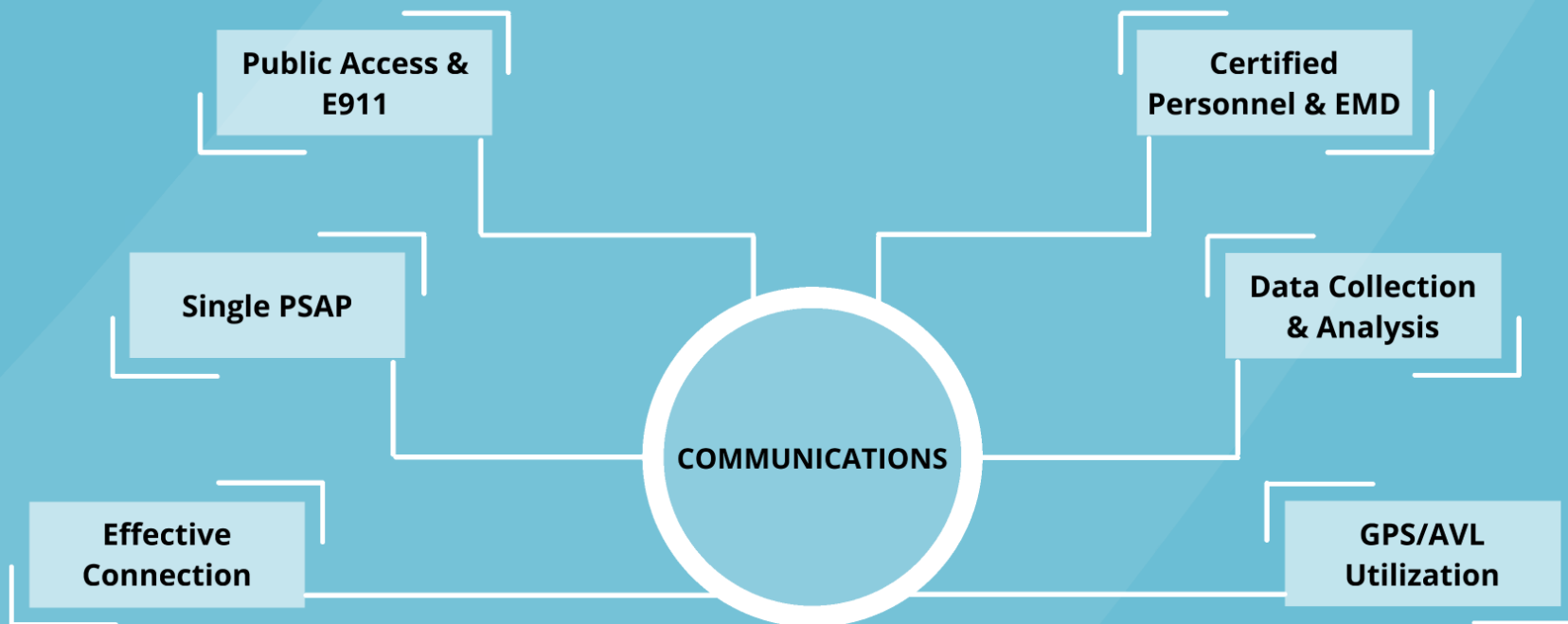
50 Baseline Metrics



8 Process Areas

- ***911 & Communications***
- ***Medical First Response***
- ***Customer & Community Accountability***
- ***Organizational Structure & Leadership***
- ***Medical Transportation***
- ***Medical Accountability***
- ***Prevention & Community Education***
- ***Ensuring Optimal System Value***

COMMUNICATIONS BENCHMARKS



COMMUNICATIONS FINDINGS

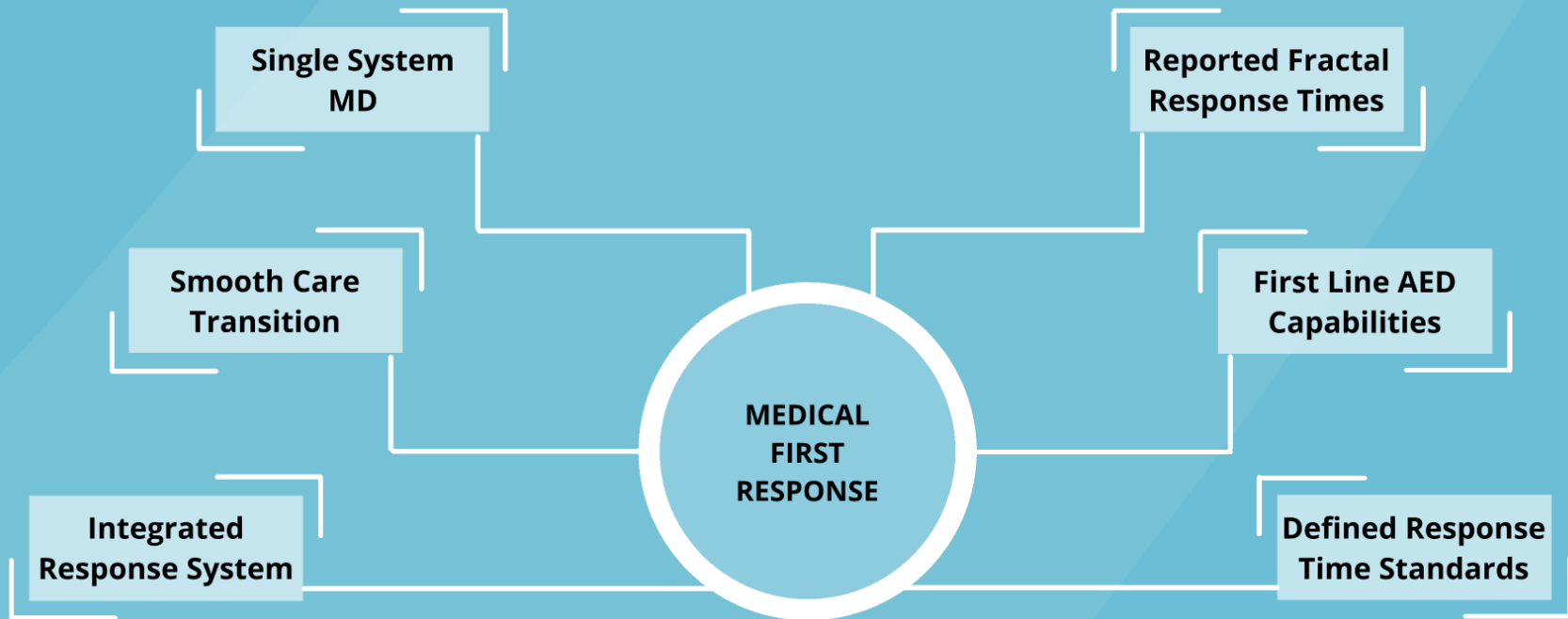
Key: D - Documented PD - Partially Documented ND - Not Documented NA - Not Applicable

Communications Benchmarks		Comments
Public access through a single number, preferably enhanced 911	D	Single number utilized
Coordinated PSAPs exist for the system	PD	The City and County use different CAD systems and there are no CAD to CAD links across the PSAPs making it difficult to analyze the entirety of a call
Certified personnel provide pre-arrival instructions and priority dispatching (EMD) and this function is fully medically supervised	D	9-1-1 center staff are EMD certified and provide pre-arrival instructions
Data collection which allows for key service elements to be analyzed	D	The 9-1-1 center has made significant investments to maintain equipment and technology and data collection is easily achieved
Technology supports interface between 911, dispatching & administrative processes	PD	A Computer Aided Dispatch (CAD) to electronic Patient Care Report (ePCR) interface is not used
Radio linkages between dispatch, field units & medical facilities provide adequate coverage and facilitate communications	D	The communications center and EMS agencies have a coordinated approach for response and documentation and no concerns were expressed by providers regarding radio linkages

SYSTEM RECOMMENDATIONS

- 1 Implement the use of Automatic vehicle location (AVL) technology for all ambulances and EMS first response vehicles.
- 2 Implement a Computer Aided Dispatch (CAD) to electronic Patient Care Report (ePCR) interface.

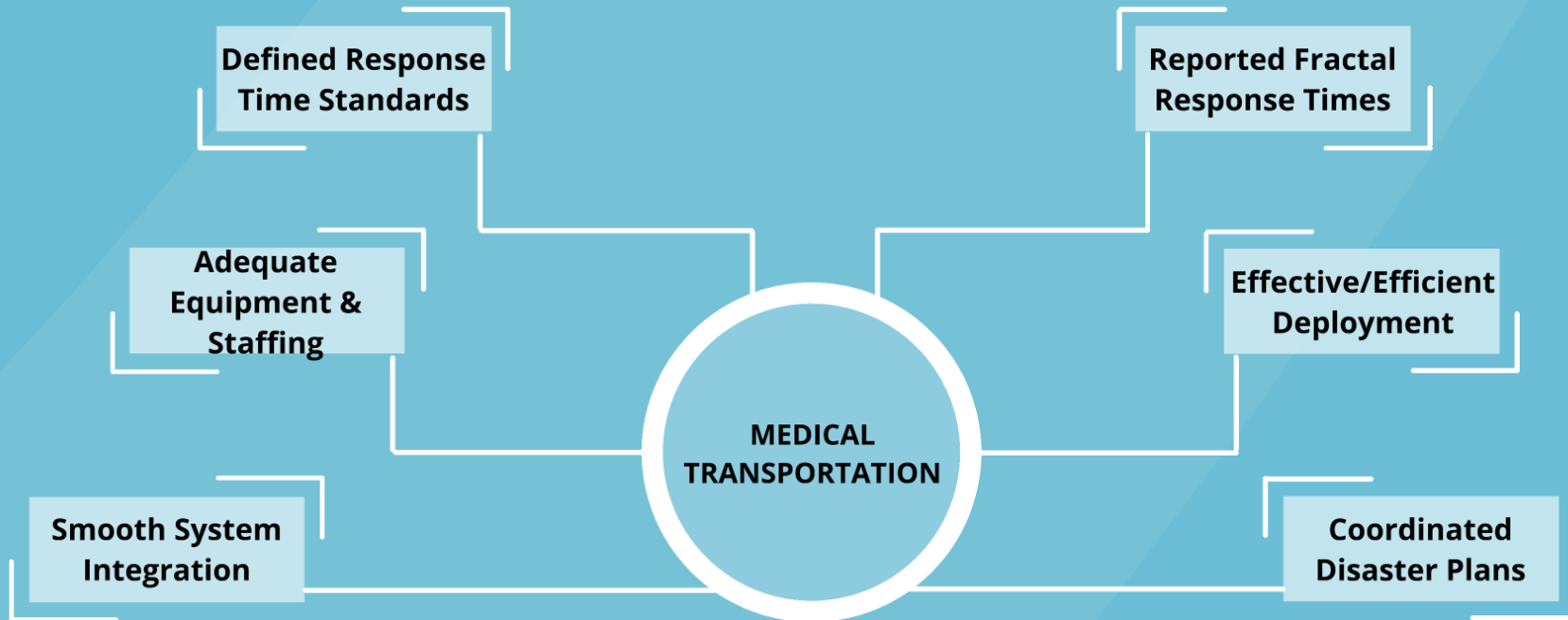
MEDICAL FIRST RESPONSE BENCHMARKS



MEDICAL FIRST RESPONSE FINDINGS

Medical First Response Benchmarks		Comments
First responders are part of a coordinated response system and medically supervised by a single system medical director	ND	<i>Coordination and oversight vary depending on the agency.</i>
Defined response time standards exist for first responders	ND	<i>None of the first responder agencies have defined response time standards</i>
First response agencies report/meet fractile response times.	ND	<i>None of the first responder agencies have defined response time standards</i>
AED capabilities on all first line apparatus	D	<i>Automated External Defibrillator (AED) capabilities are present on all first-line apparatuses</i>
Smooth transition of care is achieved	D	<i>Care transition reported to be patient-focused and non-problematic</i>

MEDICAL TRANSPORTATION BENCHMARKS



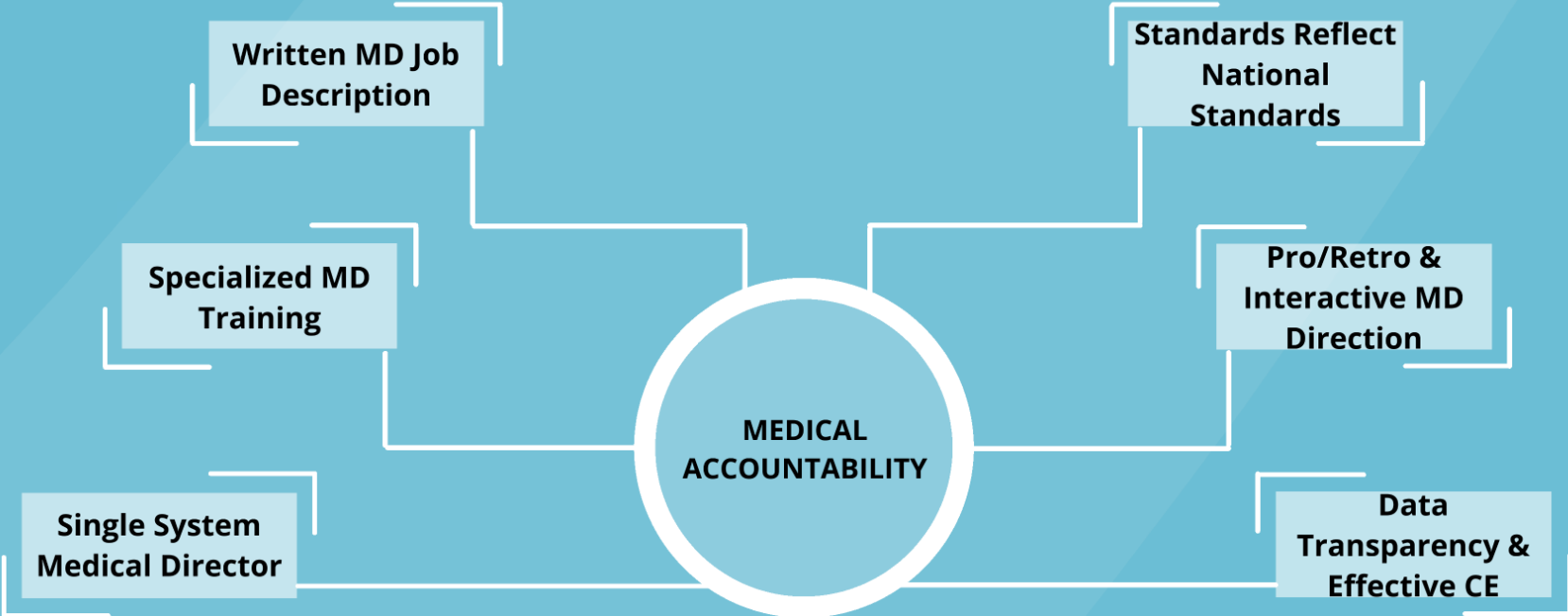
MEDICAL TRANSPORTATION FINDINGS

Medical Transportation Benchmarks		Comments
Defined response time standards exist	ND	Defined response time standards do not exist
Agency reports/meets fractile response times	ND	No uniform fractal reports are submitted to the County
Units meet staffing and equipment requirements	D	Units meet equipment requirements however; unit staffing was expressed as a concern by system stakeholders
Resources are efficiently and effectively deployed	D	Ambulance deployment is static and ambulances respond from fixed locations
There is a smooth integration of first response, air, ground and hospital services	D	No issues noted regarding integration of first response, air, ground and hospital services
Develop/maintain coordinated disaster plans	D	Coordinated disaster plans are developed and maintained by the County Emergency Management department

SYSTEM RECOMMENDATIONS

- 3 Establish, manage and report EMS and first responder response times for life-threatening, non-life-threatening and non-life-threatening/non-urgent responses, at the 90th percentile.
- 4 Establish, manage and report EMS chute times: day time - 60 seconds and night time - 90 seconds, at the 90th percentile.
- 5 Establish, manage and report Emergency Department turnaround times: less than 20 minutes, at the 90th percentile.

MEDICAL ACCOUNTABILITY BENCHMARKS



MEDICAL ACCOUNTABILITY FINDINGS

Medical Accountability Benchmarks		Comments
Single point of physician medical direction for entire system	ND	<i>There are multiple medical directors in the system, which can result in inconsistent application of policy and practices</i>
Written agreement (job description) for medical direction exists	PD	<i>Physician medical director job descriptions detailing essential duties and responsibilities vary by provider</i>
Specialized medical director training/certification	PD	<i>Medical director training and certification varies depending on the provider</i>
Physician is effective in establishing local care standards that reflect current national standards of practice	PD	<i>Care standards are reported to vary depending on provider due to different protocols used by each agency</i>
Proactive, interactive and retroactive medical direction is facilitated by the activities of the medical director	PD	<i>Medical director engagement reported to vary depending on the agency. Additionally, there is a need to develop process outcomes (the link between care protocols and appropriate treatment methods with measurable performance) and system outcomes (link between hospital outcomes and EMS treatments with measurable performance)</i>

MEDICAL ACCOUNTABILITY FINDINGS

PCR/QI data transparency for MD review	PD	<i>Multiple ePCR software is utilized, some with more visibility for chart review than others. A county-wide ePCR software and third-party QI software such as FirstPass by FirstWatch would create a transparent workflow. This software would help automate the evaluation of process and system outcome measures</i>
Clinical Education/Development Effectiveness	D	<i>Clinical education development reported to vary depending on the agency. A county-wide Continuing Medical Education Program would ensure all EMS staff receive evidence-based and updated CE</i>
Clinical Education Efficiency	PD	<i>Clinical education efficacy reported to vary depending on the agency.</i>

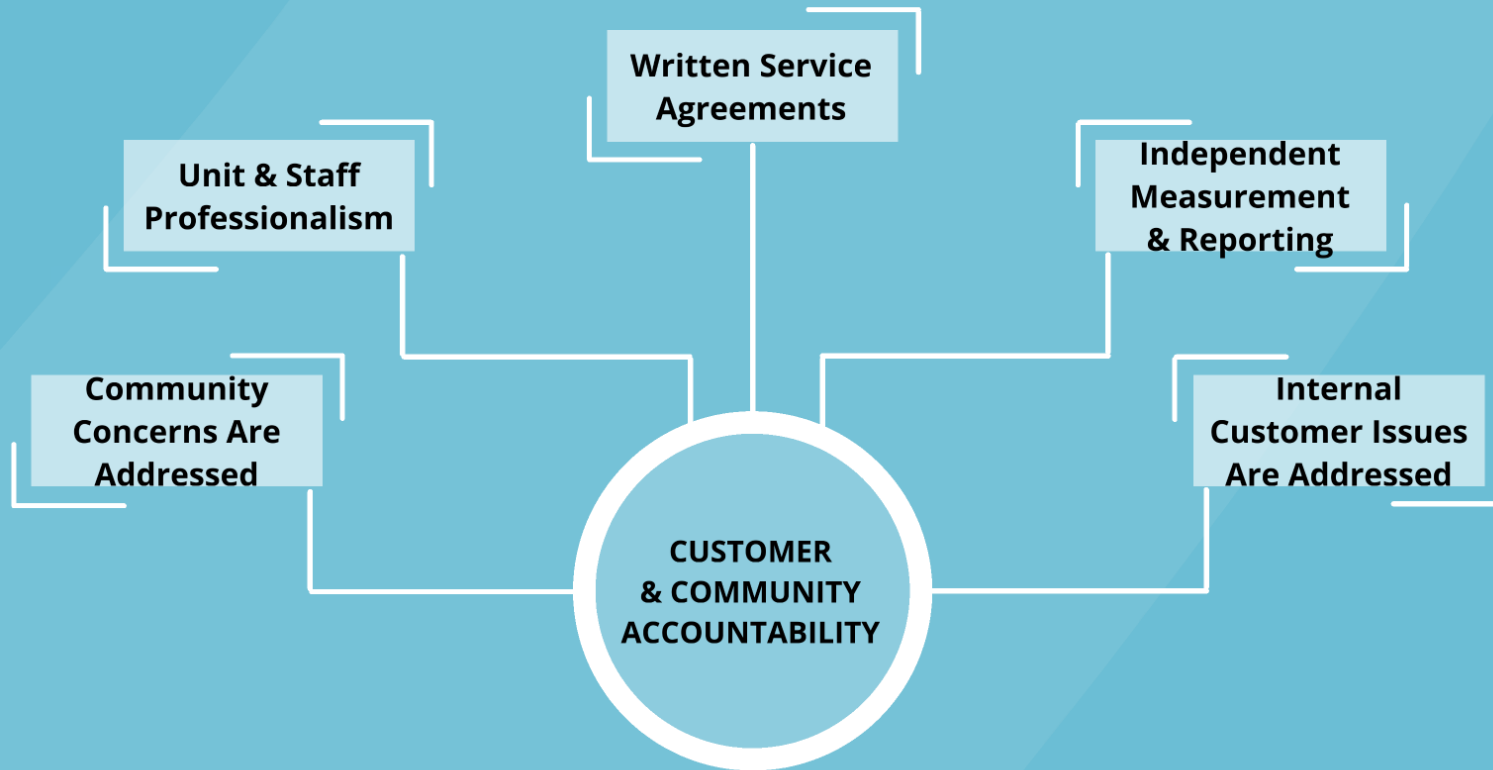
SYSTEM RECOMMENDATIONS

- 6 Select a physician to be the medical director for the entire EMS system. Having a single medical director can help with continuity of care, protocol development and systematic continuing medical education.
- 7 Establish a comprehensive written job description for the medical director.
- 8 Encourage the medical director to complete the medical director's course offered by the National Association of EMS Physicians or alternatively be sub-specialty certified as an EMS Physician.
- 9 Establish a process for the medical director to provide interactive and proactive clinical feedback to all clinical providers.

SYSTEM RECOMMENDATIONS

- 10 Work with the selected medical director to establish a set of patient care protocols to be used by all first responder agencies and the EMS agency system-wide.
- 11 Quality management practices that measure and report critical aspects of the organization provide detailed insight. Monthly scorecards with Key Performance Indicators (KPI) ensure agencies are tracking performance and monitoring clinical and operational compliance. Develop quality goals to include protocol adherence and outcome measures for 911 transport activities.
- 12 Consider implementing a continuing medical education program to be used by all first responder agencies and the EMS agency system-wide.

CUSTOMER & COMMUNITY ACCOUNTABILITY BENCHMARKS



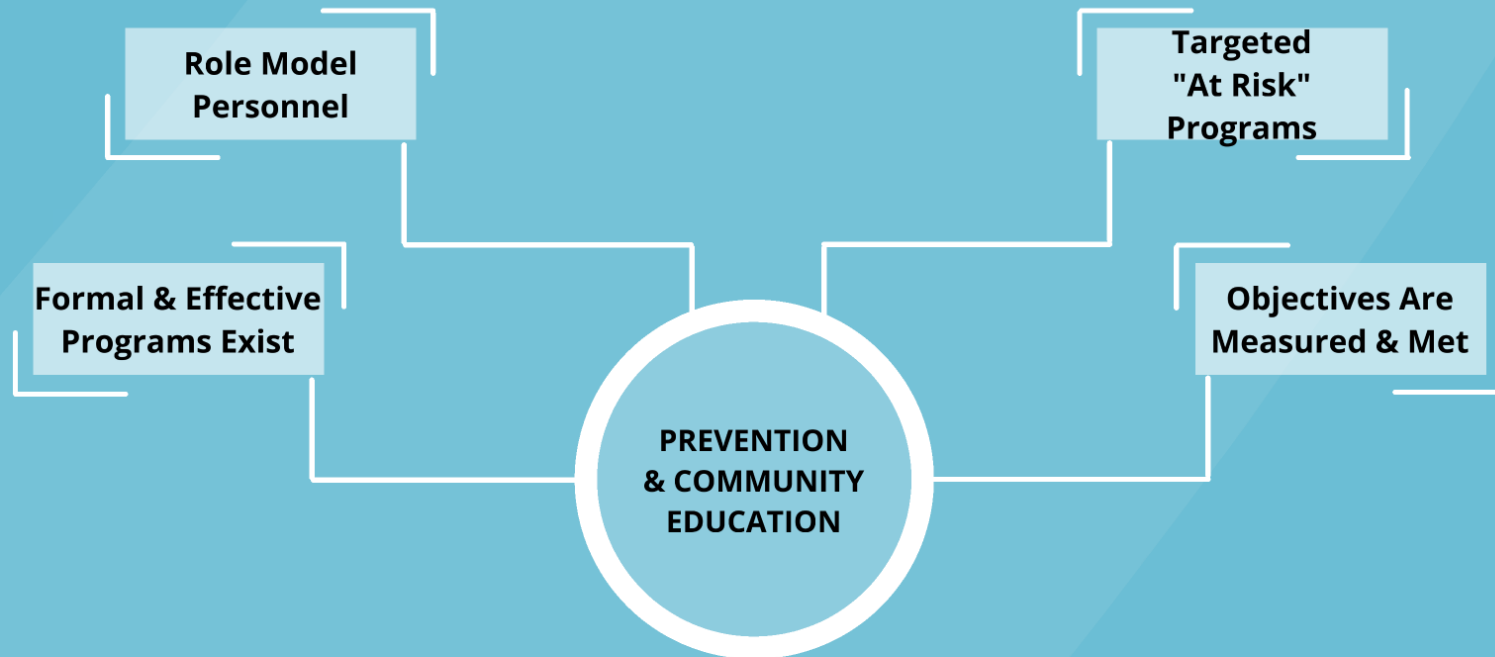
CUSTOMER & COMMUNITY ACCOUNTABILITY FINDINGS

Customer/Community Accountability Benchmarks		Comments
Legislative authority to provide service and written service agreements are in place	PD	<i>Legislative authority is limited however; a written agreement is in place</i>
Units and crews have a professional appearance	D	<i>Appearance varies by agency however, staff exhibited professionalism</i>
Formal mechanisms exist to address patient and community concerns	ND	<i>Formal system-wide mechanism to document and address patient, community or provider issues does not exist</i>
Independent measurement and reporting of system performance are utilized	ND	<i>No independent measurement or reporting of system performance or patient experience</i>
Internal customer issues are routinely addressed	PD	<i>Self-reporting-based system, however, no formal tracking mechanism or documented process to address concerns exists.</i>

SYSTEM RECOMMENDATIONS

- 13 The system lacks a central depository or formal process for patients to register complaints, provide compliments or suggestions. Complaints should be logged, with timelines formalized for acknowledgment, further response, resolution and feedback.
- 14 Consider using a third-party organization to measure, validate and report EMS system performance.
- 15 Develop a report detailing first responder and EMS key system performance metrics for community leaders and the public.
- 16 Develop linkages with health department initiatives to improve population health e.g. fall prevention, CPR and social services/addiction education.

PREVENTION & COMMUNITY EDUCATION BENCHMARKS



PREVENTION & COMMUNITY EDUCATION FINDINGS

Prevention & Community Education Benchmarks		Comments
System personnel provide positive role models	D	<i>System personnel presented themselves as positive role models</i>
Programs are targeted to “at risk” populations	ND	<i>Currently there are not programs targeted to "at-risk" patients</i>
Formal and effective programs with defined goals exist	ND	<i>Formal programs with defined specific, measurable, achievable, reliable and timely goals do not exist consistently throughout the system</i>
Targeted objectives are measured and met	PD	<i>Targeted established objectives vary by agency</i>

SYSTEM RECOMMENDATIONS

- 17 Work with first responder and EMS staff to develop a program aimed enhancing the community's awareness of EMS system activities.
- 18 Consider selecting a third-party organization to proactively survey patients regarding their experience with dispatch, first responders and EMS providers.
- 19 Develop a quarterly report for the community that demonstrates current EMS system activities and accomplishments as well as any public education initiatives that are being offered.

ORGANIZATIONAL STRUCTURE & LEADERSHIP BENCHMARKS



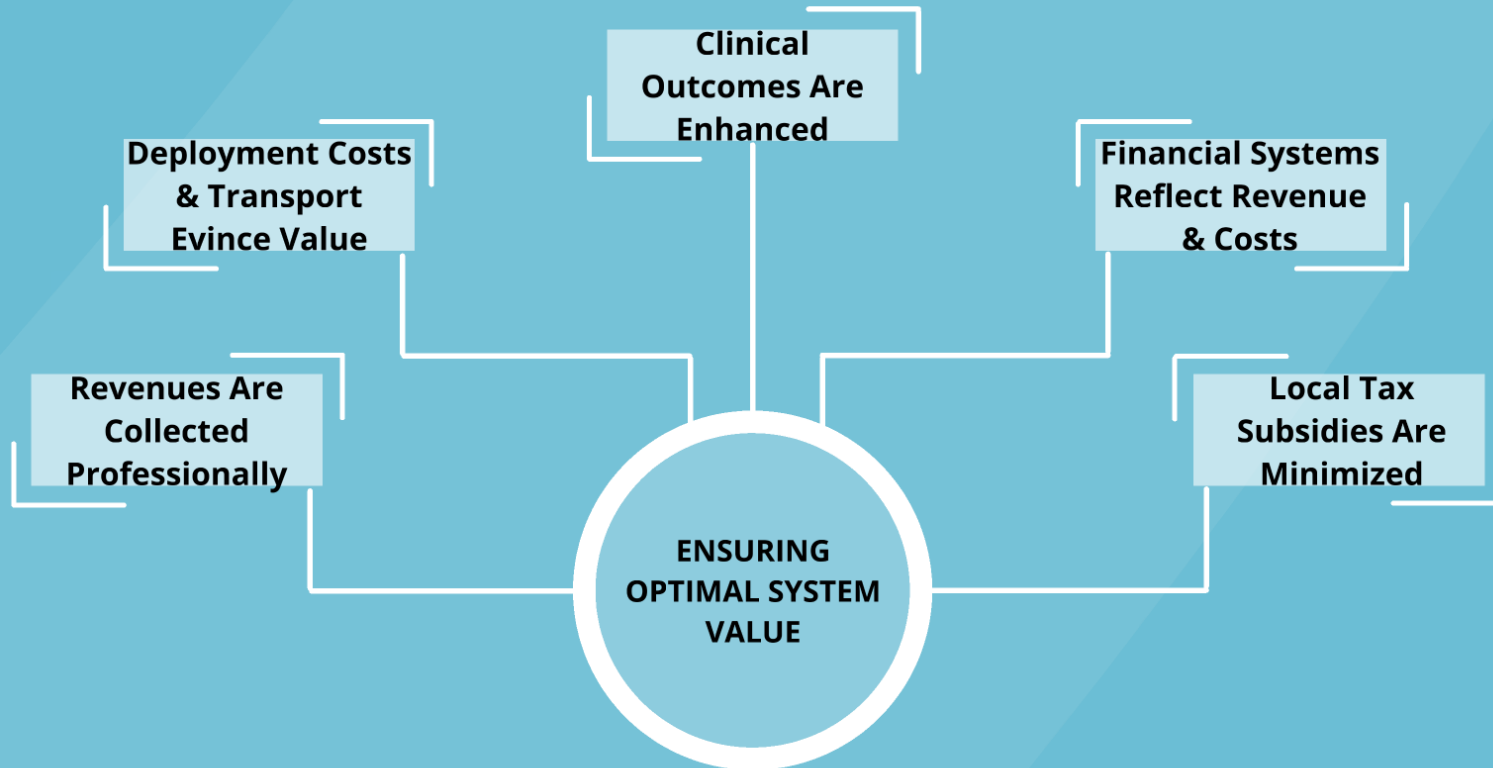
ORGANIZATIONAL STRUCTURE & LEADERSHIP FINDINGS

Organizational Structure & Leadership Benchmarks		Comments
A lead agency is identified and coordinates system activities	PD	<i>The County is the lead agency however, coordination of activities does not exist, and oversight of the system is limited</i>
Organizational structure and relationships are well defined	PD	<i>Relationships with individual agencies reported to be good however, organizational structure is not defined and there is no single point of oversight for all system activities</i>
Human resources are developed and otherwise valued	PD	<i>Human resources vary by agency</i>
Business planning and measurement processes are defined and utilized	PD	<i>Business planning and measurement processes vary by agency but are utilized and valued</i>
Operational and clinical data informs/guides the decision process	PD	<i>Varies by agency. A clinical and operational scorecard are needed county-wide once a single data repository is set up and metrics that EMS controls can be defined</i>
A structured and effective performance-based quality improvement (QI) system exists	PD	<i>Current QI practice is not proactive and depends heavily on internal practices within each agency</i>

SYSTEM RECOMMENDATIONS

- 20 Fortify the County's role as the lead agency and ensure departments and associated administrative staff responsible for contract enforcement are empowered to carry out their duties.
- 21 Support first responder agencies in developing short and long term operational plans.
- 22 A more comprehensive approach to system Quality Improvement and Quality Assurance is needed to advance efforts to achieve the clinical and patient satisfaction goals. Implement a Continuous Quality Improvement Plan that will position the EMS system to provide high quality care now and in the future.

ENSURING OPTIMAL SYSTEM VALUE BENCHMARKS



ENSURING OPTIMAL SYSTEM VALUE FINDINGS

Ensuring Optimal System Value Benchmarks		Comments
Clinical outcomes are enhanced by the system	ND	<i>Clinical outcomes not currently uniformly measured and reported throughout the system</i>
Ambulance Response Utilization and transport Utilization (UHU) is measured and hours are deployed in a manner to achieve efficiency and effectiveness	PD	<i>Ambulances are station based, however; unit hour utilization data was not reported</i>
Ambulance cost per unit hour & transport document good value	ND	<i>Ambulance cost per unit hour data was not reported so it could not be determined</i>
Service agreements represent good value	PD	<i>The service agreement is weak and could be improved, no alternatives for amount subsidized annually could be identified</i>

ENSURING OPTIMAL SYSTEM VALUE FINDINGS

Non-emergency ambulance effective & efficient	D	<i>No issues were noted and area hospital staff reported effective non-emergency transport activities</i>
Non-Ambulance but medically necessary (MAV) services are effective and efficient	NA	
System facilitates appropriate medical access	D	<i>The system facilitates appropriate medical access</i>
Financial systems accurately reflect system revenues and both direct and indirect costs	ND	<i>Financial systems information was not reported and could not be determined</i>
Revenues are collected professionally and in compliance with regulations	ND	<i>Revenue collection integrity could not be determined due to lack of data reported</i>
Tax subsidies when required are minimized	D	<i>Tax subsidies are minimized</i>

SYSTEM RECOMMENDATIONS

- 23 Evaluate recommended service delivery models as detailed in the next section.
- 24 Consider establishing an Emergency Medical Services Advisory Board to review and recommend standards of care in the EMS system.
- 25 Establish a plan to objectively reevaluate the EMS system at regular intervals.

BENCHMARKS SUMMARY

Summary —

<i>Documented</i>	15
<i>Partially Documented</i>	19
<i>Not Documented</i>	15
<i>N/A</i>	1



THE WAY FORWARD

SERVICE
OPTIONS

EMS SYSTEM VALUE

Demonstrating value is particularly important when evaluating the cost of providing ambulance coverage to the respective communities in Floyd County. The goal is to provide high-quality and cost-effective service that meets the needs and expectations of the community.

The County currently contracts with an EMS provider that is paid an annual subsidy. There were no implementable options we identified that could maintain the current quality of care and reduce the level of subsidy provided.



THE WAY FORWARD

FITCH has identified a number of enhancement opportunities to strengthen the EMS system in Floyd County. Without these changes, the system will struggle to implement long-range clinical and operational efficiencies that will challenge provider sustainability going forward.

Two service delivery models were identified and both require careful consideration. While either option can theoretically be utilized; each offers unique opportunities and challenges.

OPTION ONE

OPTIMIZE

Optimize EMS system operations & fortify the County's role as the lead agency

- Establish a new service agreement between the current EMS provider and the County requiring clinical and operational performance reporting, system-wide medical direction, system-wide patient care protocols, fractal response time performance standards and annual subsidy reconciliation
- Determine desired spend to fund system optimization and increase annual subsidy
- Establish system-wide medical direction and patient care protocols, fractal response times and operational and clinical quality metrics as outlined
- Establish time frame to accomplish future state and implement recommendations

OPTION ONE ADVANTAGES & DISADVANTAGES

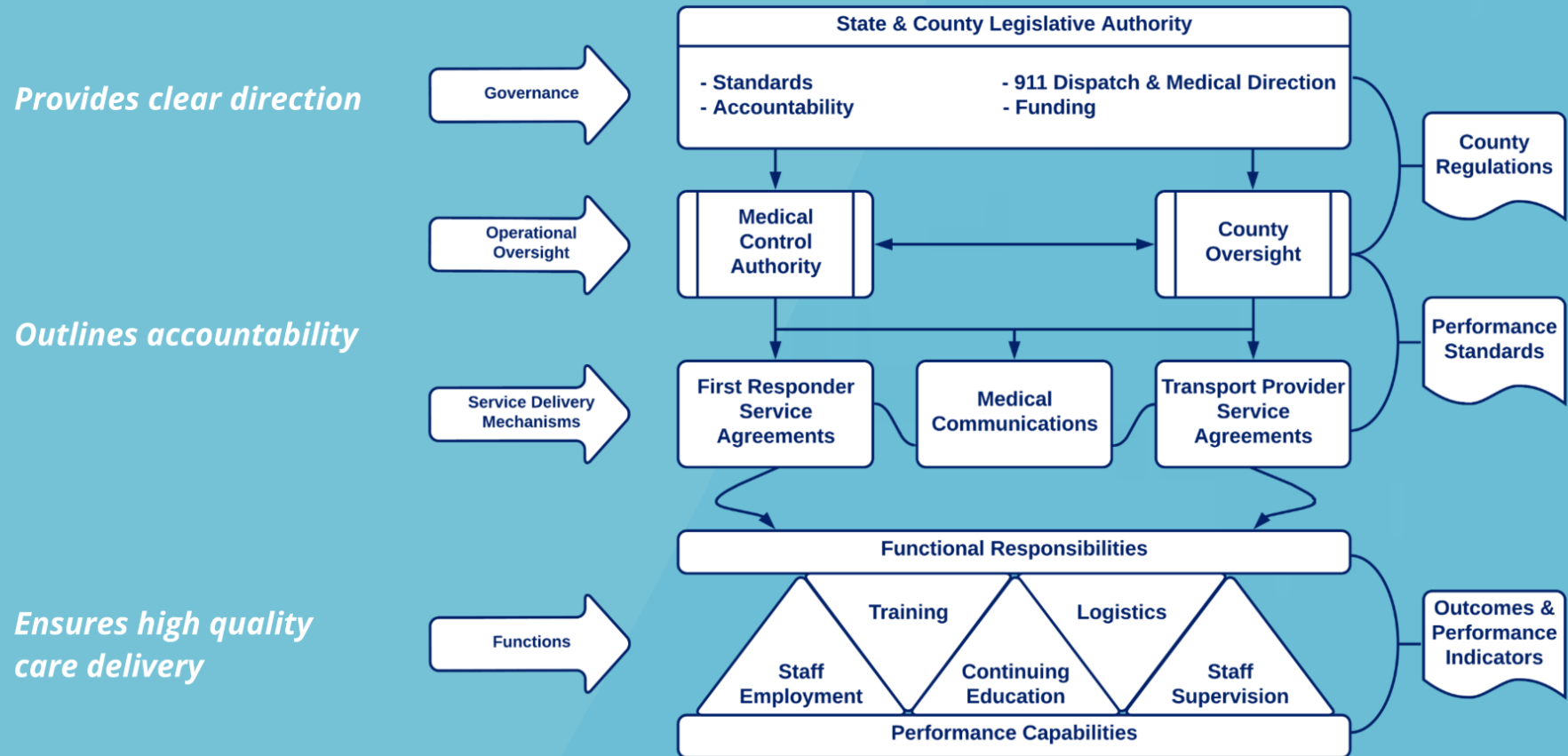
Advantages

- Performance safeguards are established ensuring accountable, high-quality delivery of care
- More cost effective option as the County is not responsible for system infrastructure and operating costs

Disadvantages

- The County and current provider must agree on performance standards to achieve clinical and operational goals and overall system performance
- Changes in current provider strategy, leadership or fiscal position could impact the EMS system

FLOYD COUNTY EMS SYSTEM FRAMEWORK



OPTION TWO

ESTABLISH

Establish a County Operated EMS Service

- Determine Floyd County EMS System structure including funding mechanism for system start up and continued operation
- Establish time frame to accomplish future state
- Establish system-wide medical direction and patient care protocols, fractal response time performance standards and operational and clinical quality metrics as outlined
- Purchase vehicles, equipment and supplies, hire clinical and leadership staff, create a master charge schedule, establish vendor relationships as detailed and implement recommendations

OPTION TWO ADVANTAGES & DISADVANTAGES

Advantages

- Provides a single point of responsibility for the provision of all emergency services within the County
- Allows for continued engagement of current EMS provider to the extent they choose to be involved in non-emergency transport activities

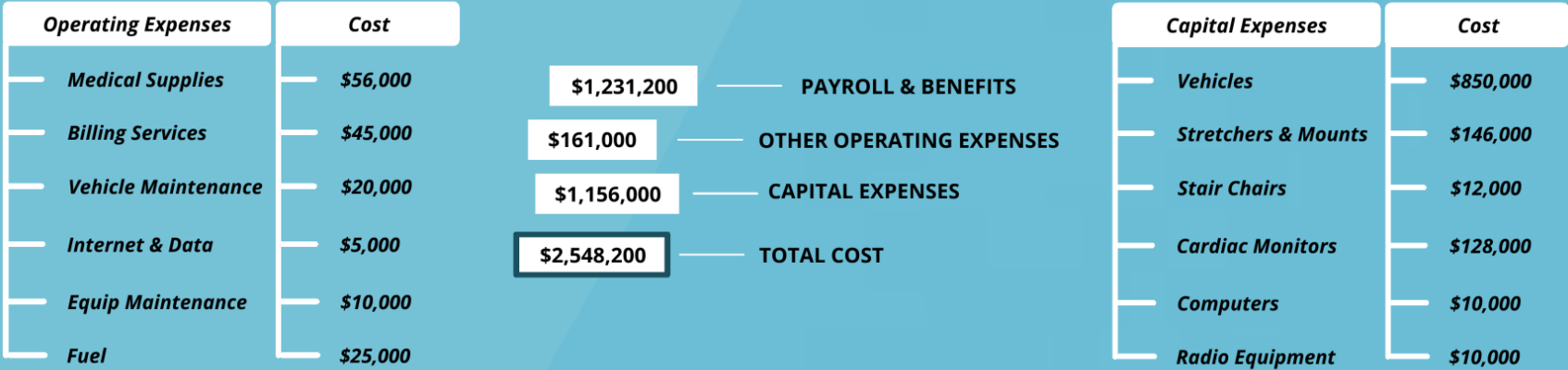
Disadvantages

- The County is responsible for system infrastructure and operating costs
- Area shortages for clinical positions would create a competitive relationship with the current EMS provider for qualified staff

OPTION TWO COST ESTIMATE

The County should anticipate the cost of initial capital and on-going replacement cost of equipment required. Five months working capital should be anticipated to reflect the time required to collect initial system receivables. EMS equipment is typically depreciated over 60 months.

To determine a reasonable operating cost estimate, area wages and other operating expenses for comparable sized systems were utilized.



OPTION TWO REVENUE PROJECTIONS

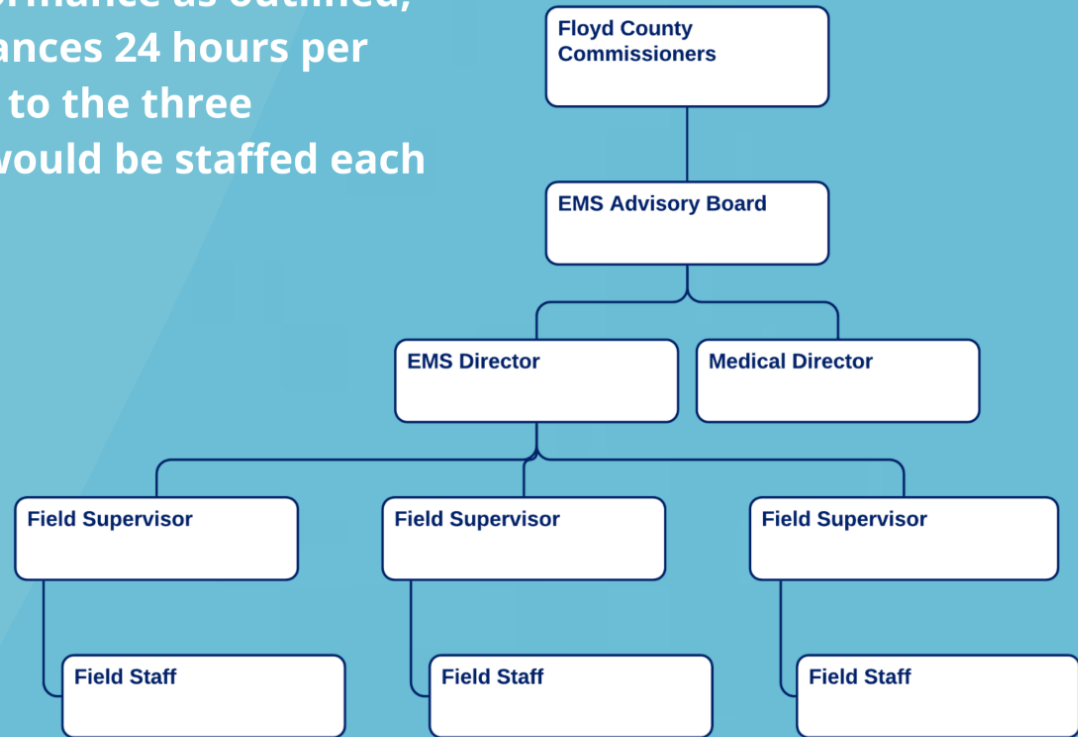
FITCH developed a sample charge schedule based on estimated transport data, national, state and regional payer mix statistics and demographic information from the Indiana Business Research Center and the U.S. Census Bureau.

Using the proposed charge schedule and projected; service mix, payer mix and collection rates, the County should reasonably estimate annual net revenue of \$1,361,238 from EMS transports.

OPTION TWO PROPOSED ORGANIZATIONAL CHART

In order to achieve system performance as outlined, the County would staff 3 ambulances 24 hours per day, 365 days a year. In addition to the three ambulances, a field supervisor would be staffed each day.

An EMS Director would lead the EMS agency and the County would provide governance. Additionally, an Emergency Medical Services Advisory Board could be created to review and recommend standards of care for the EMS system.



OPTION TWO CONSIDERATIONS

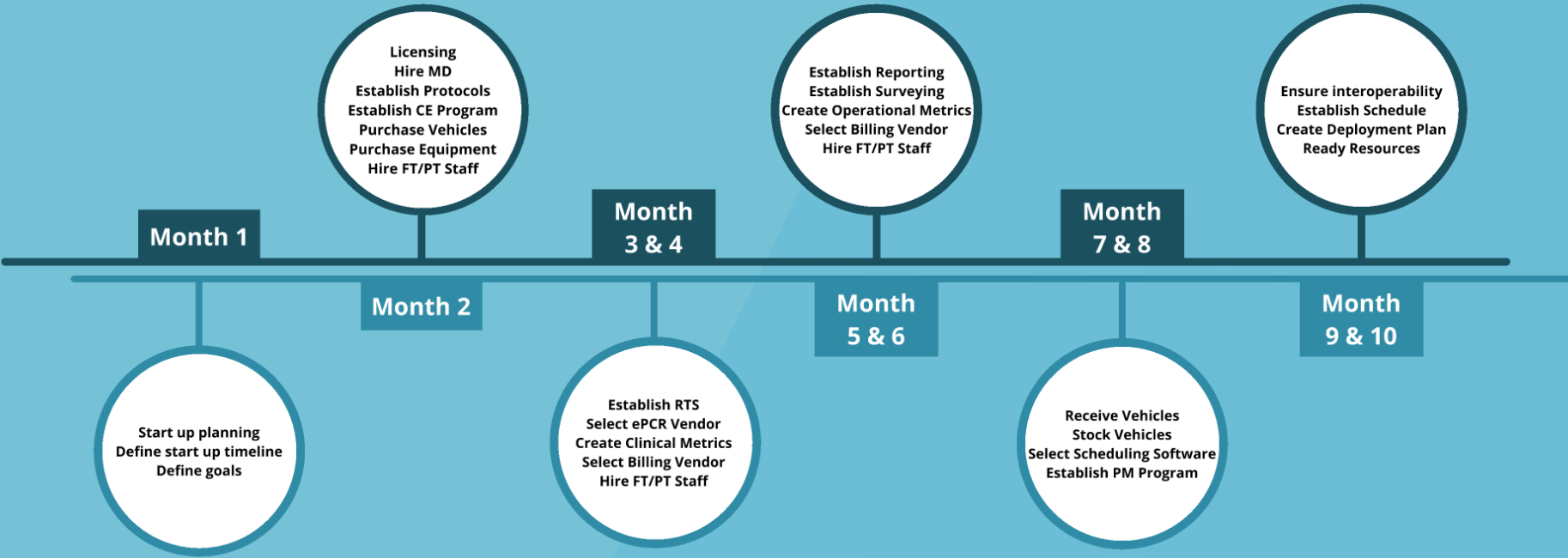
When determining whether or not to establish a County operated service, a number of start up objectives should be considered.

In addition to defining strategic goals, vendors for vehicles, medical equipment, medical supplies and pharmaceuticals, billing services, electronic patient care reporting and scheduling will need to be selected.

Budget constraints, competitive bidding processes and available clinicians to staff positions will drive start up timelines and project costs.



OPTION TWO TIME FRAME



SUMMARY

Floyd County is a difficult area to serve due to its topography, land use, growth patterns, population densities, day-time traffic surges and road system. The County must ensure the service delivery model selected can deliver demonstrable, high-quality care in a cost effective manner.

Focused efforts to implement the recommendations identified throughout this report will enhance the clinical, operational and financial stability of the EMS system as well as start the framework for a data-driven, quality focused initiative to take advantage of service opportunities that are imminent. We appreciated the willingness, collaboration and support from everyone that participated in this study.

EMERGENCY MEDICAL SERVICES STUDY

FLOYD COUNTY
INDIANA

