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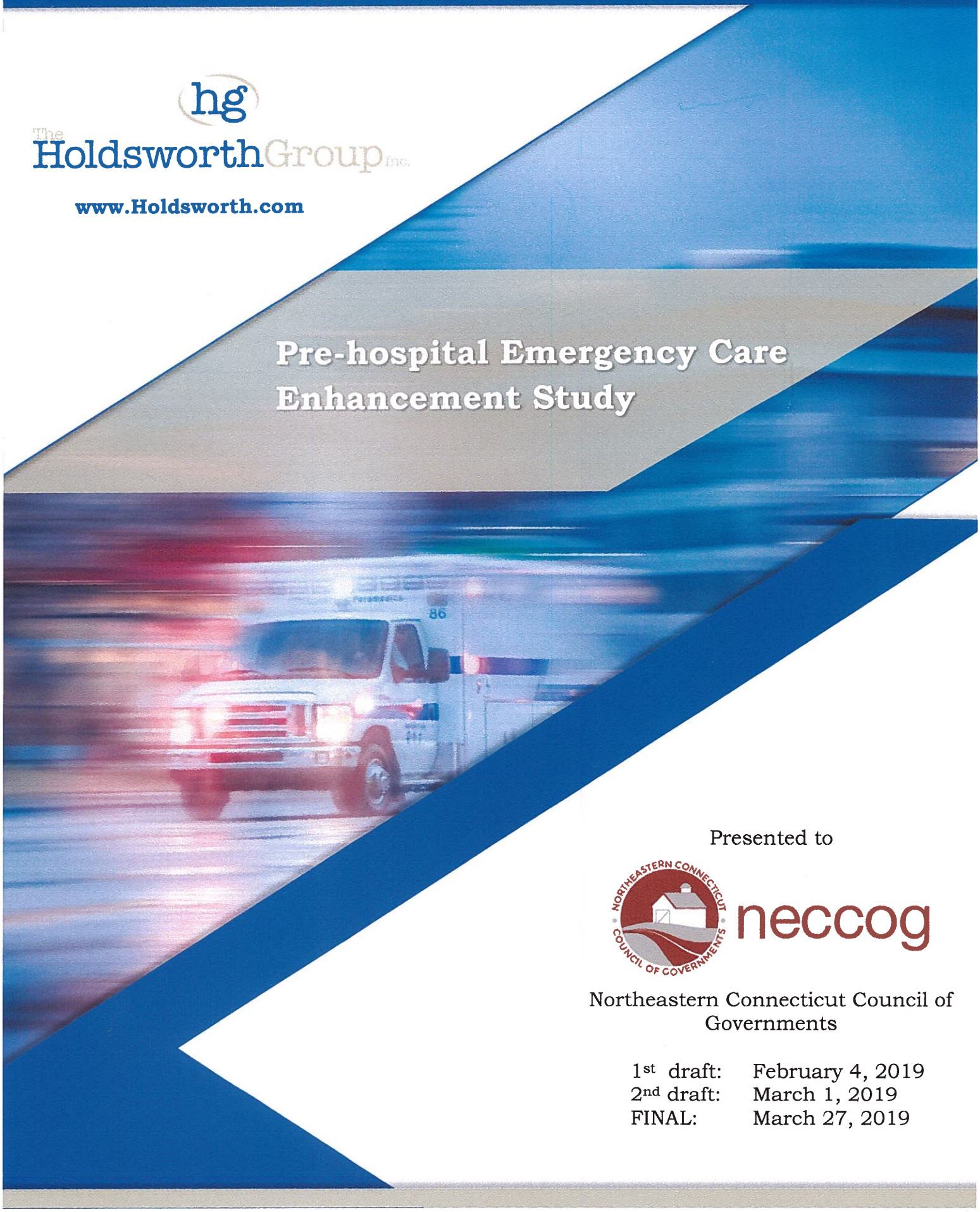
Pre-hospital Emergency Care Enhancement Study



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NECCOG REPORT

Table of Contents

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Table of Contents

Project process and overview

The Holdsworth Group was selected as part of an RFP process to conduct a review of the EMS system in the NECCOG service area. The project, as quoted, called for the consultant to review as much information about each of the EMS transport agencies as the agencies were willing to provide.

In Phase I of this project, the provider was unable to gather much data and there was discussion about a general lack of cooperation by the system stakeholders. Our task was to try and overcome that in Phase II.

The start of the project was deliberately pushed back until September 17, 2018 to allow for an open forum presentation explaining the project, the goals, the information that would be requested and how that data would be both used and protected.

All were assured that internal, proprietary and private data would not be shared without their specific consent. Any publicly available data would not be subject to the same protections.

A letter of introduction and an information request form was provided to all attendees at the meeting on September 17th and then was emailed to each municipal CEO as well as every EMS transport agency's designated contact. An additional data request was made of Quinebaug Valley Emergency Communications (QVEC) requesting call and response data for 2017 and 2018 for all of the agencies that they dispatch as well as the QV medic.

Individual, face-to-face meetings were scheduled with almost all of the EMS transport agencies, a few opted to participate by phone or email.

In the end, almost all of the Towns and EMS transport agencies did participate at some level. Some communities supplied data through their EMS agency, and some EMS agencies did not provide all of the data requested.

One community did not participate either at the Town level or the EMS agency level after several emails, phone calls, contact by EMS agency's medical director and a letter mailed to the EMS Service Chief. Another community did not provide data directly however we were able to obtain some limited data through the EMS service.

We feel strongly that this lack of participation did not detract from the project, have any influence on the recommendations contained in this report or impact our ability to craft the revenue projections we've provided.

We are also gratified that so many EMS and Town leaders did step up and provide data and that they took time out of their schedules to meet with us in person, by phone and/or by email to share their issues, concerns and viewpoints with me. Most were very direct and candid.

While the FD first responders were invited to participate, we focused on the EMS transport capabilities and the issues surrounding the movement of patients.

The first responders are an important part of the EMS system. However, since there are no records to confirm personnel, response times, patient care provided or that responding units were properly staffed, coupled with the fact that the individual departments have set their own disparate response criteria, for the purposes of this study we look upon them as important added value participants but chose to focus on the data we could extract.

There is a deep-seated sense of pride in the region in each agency that we talked to. This is both a blessing and a curse. It is a blessing that so many people accept the call to serve, give of themselves and make their communities better places to live.

It is a curse because that same sense of pride and community is not allowing some to see that there are problems within individual agencies and the system as a whole. Pride and identity are blocking stakeholders from admitting the service that they belong to may no longer be viable and that there are better ways to provide EMS in their area.

The old saying holds true in the region:

"The two things that people hate are the way things are ... and change."

This report will speak to these issues, discuss many of the challenges in getting good data about the operation of the system and will make some recommendations for consideration both in the immediate future as well as for a few years down the road.

There are two other major issues that need to be addressed, the first is the fact the none of the providers can be forced into working with one another and the second is a sense that NECCOG is seen as meddling in the EMS system.

These last two issues, coupled with no sense of urgency or impending system collapse, conspire to make many of the suggestions found in this report difficult to move forward.

This chart shows the participation levels of the
Towns and EMS agencies as of January 28, 2018.

Town	Data Rec'd	Interview	Billing Data	No contact
Ashford	yes		N/A	
Brooklyn	yes		N/A	Through EMS
Canterbury	yes		N/A	Through EMS
Chaplin	yes		N/A	
Eastford	yes		N/A	
Hampton	yes		N/A	Through EMS
Killingly	yes		N/A	Through EMS
Plainfield			N/A	
Pomfret	yes		N/A	Through EMS
Putnam	yes		N/A	
Scotland	yes	yes	N/A	
Sterling	yes		N/A	
Thompson	yes	yes	N/A	
Union	yes		N/A	
Voluntown	yes		N/A	
EMS Agency				
Ashford FD	yes	yes	yes	
Mortlake FD	yes	yes	yes	
Canterbury FD	yes	phone	yes	
Hampton-Chaplin EMS	yes	email	yes	2017 data only
K-B Ambulance	yes	yes	yes	
Moosup-Plainfield				
Putnam EMS	yes	yes	yes	
Scotland FD	yes	yes	yes	
Community FD	yes	yes	yes	
Voluntown FD	yes	phone	yes	
Woodstock FD	yes	phone	yes	
American	yes	email	N/A	By email
AMR	yes	email	N/A	By email
Windham		email	N/A	By email
QVEC	yes	yes	N/A	
Backus Med Control	yes		N/A	
DK Med Control	yes		N/A	
State Rep Pat Boyd	N/A		N/A	

The NECCOG region

The Region is comprised of sixteen Towns and forty EMS and Fire agencies. Thirteen of the forty agencies can provide EMS transport service, four of the agencies can provide ALS level service.

The primary regional ALS service is K-B Ambulance who can provide up to three paramedic units at certain times of the day...typically two units are staffed during the hours of 06:00-18:00 and one is staffed routinely on the opposite shift hours.

The 16 Towns include Ashford, Brooklyn, Canterbury, Chaplin, Eastford, Hampton, Killingly, Plainfield, Pomfret, Putnam, Scotland, Sterling, Thompson, Union, Voluntown and Woodstock.

The region is comprised of mainly small communities with relatively small populations, yet large land mass.

The transportation infrastructure includes interstate a small portion of Interstate 84, Interstate 395 which runs North to South, Route 6 East/West and majority of all other roads are mainly small, two lane secondary roads which slows response times to many areas.

This makes the provision of high-performance EMS a significant challenge.

Source: Connecticut Economic Resource Center (CERC)

Town	Size in Square miles	Estimated 2020 Population	% of population over age 65	% or population age 45-64	2018 EMS Requests
Ashford	39	4,412	13%	35%	398
Brooklyn	29	8,951	16%	31%	1,025
Canterbury	40	5,251	15%	33%	402
Chaplin	19	2,228	14%	34%	411
Eastford	29	1,786	15%	37%	60
Hampton	25	1,819	17%	38%	See Chaplin
Killingly	48	17,981	14%	30%	3,368
Plainfield	42	15,439	16%	29%	1984
Pomfret	40	4,536	14%	32%	See Killingly
Putnam	20	10,253	18%	29%	1,518
Scotland	19	1,777	14%	38%	111
Sterling	27	4,428	8%	30%	See Plainfield
Thompson	47	9,602	15%	35%	916
Union	29	916	22%	32%	
Voluntown	39	2,505	15%	34%	215
Woodstock	61	8,207	20%	34%	535
Totals/Averages	**553**	**100,091**	**16.2%**	**33.2%**	**11,175**
QV Medic					3,484

One of the highest user groups for EMS services is the age 65 and over demographic.

As you can see from this chart, the regionwide average currently shows that only 16.2% of the population is currently in this age group. As we look at and prepare the EMS system for the future, the 33.2% that are on the horizon of joining that group over the next 10 years will have a significant impact on the usage of the system and the reimbursement that is available to support it.

Once 50% of the population is 65 and over, absent any significant development that attracts younger residents, almost all of the reimbursement will be coming from the Medicare/Medicaid systems.

As you will see later, this will require some changes to the system or significant investment from the communities.

AGENCY	TOTAL REQUESTS 2017	TOTAL REQUESTS 2018	TOTAL RESPONSES 2017	TOTAL RESPONSES 2018	TOTAL TRANSPORTS 2017	TOTAL TRANSPORTS 2018	MUTUAL AID REQUESTED 2017	MUTUAL AID REQUESTED 2018
Mortlake Amb.	1003	1025	958	969	804	790	160	
Hampton-Chaplin An	434	411	319	298	257	246	51	21
KB Amb.	3368	3555	3252	3394	2756	2862	77	104
Moosup Amb.	1871	1984	1784	1886	1531	1624	321	287
Scotland Amb.	105	111	44	65	38	53	39	8
Community Amb.	984	916	777	794	564	575	44	24
Volutnown Amb.	241	215	193	179	147	139	23	0
Woodstock Amb.	494	535	469	508	351	393	14	35
Canterbury Amb.	444	447	355	401	269	322	43	26
Putnam EMS*	1357	1518			1083	1113	41	80
Ashford Amb.**	481	458			324	285	14	21
Total	10782	11175			8124	**8402**	**827**	**606**
QV Medic (NECCOG/	3371	3484	3196	3142	2386	**2583**	92	124

* Putnam EMS dispatched by Putnam PD
**Ashford Amb. Dispatched by Tolland (TN)

As you can see in this chart, the overall regional EMS requests rose slightly more than a call a day from 2017 to 2018 (393 call increase).

As the regional population continues to age the call volume will continue to rise.

An industry predictive formula identifies that for every 10,000 residents there should be approximately 1-3 EMS system activations per day. Where there are special circumstances such as a high senior population, significant poverty levels, an influx in daytime population or high tourist populations these numbers rise to 3-6 activations or more per day. This rule holds true in the NECCOG region due to the growing number of seniors in the region.

NOTE: Using the formula: an average of 3 activations per 10,000 per day / 100,000 people = 30 responses per day x 365 = 10,950 calls).

In 2018, there were 11,175 requests for service (30.6 per day)

State of the system

The system is highly fragmented and there is a significant lack of communication between the agencies. Several of the service leaders talk informally to each other, however, these meetings are ad hoc and typically occur to discuss something that happened and how to avoid the problem going forward.

Almost every EMS agency leader indicated that they would welcome something more formal but that they could not recall anything being attempted. All indicated that nothing specific was available or planned to pro-actively address future issues, ways to collaboratively work together or to address common problems.

The pieces of the system:

- 16 Towns
- 40 EMS and First Responder agencies not including police agencies
- 13 EMS transport capable providers
- 4 ALS capable providers
- 3 Dispatch centers

Dispatch centers

There are four different dispatch centers serving the agencies in the region Quinebaug Valley Emergency Communications (QVEC), Tolland County Mutual Aid Fire Service (TN), Willimantic 911 (WW) and the Town of Putnam's own dispatch center operated by the Police Department. Additionally, American Ambulance and AMR are dispatched by their own communication centers.

QVEC is going through an upgrade to their dispatch software system that should alleviate some of the issues that existed during the data collection period of this study. At the time of the writing of this report draft, the installation and programming process is still on going so we cannot comment effectively on the final outcome and capabilities.

Getting usable data from the QVEC dispatch system proved to be a laborious process that took several months. The team at QVEC was very cooperative, helpful and did their best with the system to meet our data requests. The primary issue is that the system was set up to meet the needs of individual agency users and individual transactions (calls/incidents). The programming was not set up to analyze the system in a meaningful way. This was a challenge for the consultant in Phase 1 also.

The dispatch center's dispatch system is capable of assembling all of the data points of each call as a standalone event. Time of call, number of alert tones, mutual aid agencies, medic response and disposition (refused, transported, etc.) can all be provided although some cross-referencing of different agency data is required.

The issues begin to arise when the dispatch system was asked to correlate global region-wide data.

An example to illustrate the system issues and data challenges:

- A 9-1-1 call is received for a person experiencing chest pain in Town One at 20:00. (We've selected this time because in most of the towns the paid staff is off duty after 18:00)
- The first alert tone is sent requesting a crew for the ambulance.
- At the same time an alert tone is sent dispatching a medic to the scene in a non-transport ALS unit...the medics are typically enroute within 2 minutes because they are all paid staff. (KB, Windham, American)
- After three minutes, a second tone is sent out requesting an additional crew member to complete the crew.
- After three additional minutes a mutual aid ambulance crew is requested to respond from Town Two because Town One did not have sufficient volunteers to respond.
- Based upon the location of the call, dispatch identifies the closest mutual aid service and sends an alert tone for a crew to respond.
- After three minutes a second tone is sent out requesting an additional crew member to complete the crew.
- Two minutes later Town Two's Ambulance signs enroute to the call with an estimated response time to the scene of 6 minutes.
- While the medic was on scene in a timely fashion, in this case an ambulance would not actually arrive on scene until approximately 20:17.

The dispatch system has to rely on pulling data from Town One, Town Two and the responding medic service's individual service data bases to get a full picture of this call.

In this example, Town One's data would show the original tone at 20:00, second tone at 20:03 and third tone with a final outcome of *no response* at 20:06.

The medic service's data would show their time of call 20:00 and response at 20:02 and then their arrival time.

Town Two's data would show their time of call at 20:06, second tone at 20:09, on the air responding at 20:11 and arrival at 20:17.

There is no clear and easy way to go through the system looking for issues, delays in dispatch, or truly getting accurate response times within the region that show how long it actually takes to get ambulances to scenes.

We are hopeful that the new dispatch system can be programmed such that the entire event can be captured by a single incident number and the history will be able to pull from the agencies tagged on the call to complete the event sequence more easily.

It should also be noted that each EMS agency has established its own criteria for numbers of dispatch attempts their department wants before sending a call to mutual aid.

In some cases, mutual aid is not being requested until 9 minutes from initial time of call. This does not promote positive outcomes and patient-focused medicine.

We STRONGLY recommend that there be regional consensus on this issue, in conjunction with medical control, to avoid any confusion on the part of the dispatch center.
One regional protocol makes it easy to program and automate.

Given the technology that now exists for EMTs to 'accept a call' electronically, we would suggest that an acceptable regional standard be:

- **original tone,**
- **second tone after 2 minutes,**
- **mutual aid requested automatically after 4 minutes.**

NOTE:

What we are suggesting here is only that crew members accept and commit to the call within the recommended times. We understand that it will take additional time for these crew members to get to the ambulance and respond.

Fire first response

There are 29 Fire Companies that all address EMS first response differently.

In looking through the QVEC response criteria for the different departments, talking with the EMS providers as well as the few first responder agencies that we interacted with, a few things became very clear:

- The first responder agencies have the same staffing issues as the EMS services
- Not all embrace full EMS first response
- There is no oversight of the EMS portion of the first responders service
- There are no standardized response criteria

Several fire departments have taken themselves off responses for behavioral and psychiatric related calls, calls at nursing facilities and in several cases only respond to EMS calls if there is a mutual aid ambulance responding.

This makes sense in communities where the fire departments are volunteer, and the EMS service is paid. The patient may be loaded and ready to transport before the volunteers can muster and respond. In those specific circumstances that policy makes sense. However, during any hours when paid staff is not scheduled, a full response should be initiated and fulfilled by the designated PSAR responder. Communication between the agencies is important to ensure that the patients get the closest available EMS responders.

There is no direct oversight or standardization of regional expectations by anyone. DPH regulations on PSA holders at the first responder level are silent on the issue of selectivity of response types.

While ambulance PSA holders are expected to handle all first calls in their PSA, that same criteria is not explicitly outlined for first responders.

Additionally, there is limited reporting done by the majority of the first responders on the care rendered prior to the handoff of patient care to the ambulance. Some provide verbal reports, others use their NFIRS fire reporting and some have first responder abbreviated reports. This leaves validation of their care to the ambulance service's crew and does not typically account for interventions done prior to ambulance or medic arrival.

Therefore, there is no way to validate that the PSAR regulations that require that a minimum of an EMR/MRT and EMS equipment was part of each response, were met.

There were multiple anecdotal stories that some departments respond without that PSAR staffing requirement being met. We have no way to validate that information as no one would share specific calls and no complaints have been filed with the State Department of Public Health on this issue.

A robust first responder network is important to the chain of survival of patients and as the system is reviewed further and changes implemented, including the first responder agencies in each town will be important. We would strongly encourage standardization amongst the agencies at least in each community. In any given community there should not be multiple ways of providing first responder service simply because there are multiple agencies involved. It can be confusing to the public, the EMS partners and the dispatch centers.

EMS transport agencies

Each of the 13 transport capable EMS agencies are slightly different in their make-up, staffing patterns and stability.

American Ambulance Service and American Medical Response are both for-profit licensed providers and provide back-up 9-1-1 response as well as back-up paramedic service upon request in the region. They primarily provide non-emergency transport services to and from the area hospitals and nursing facilities. The remaining 11 are not-for-profit providers.

7 are Fire Department based providers

- Ashford Fire BLS
- Canterbury Fire BLS
- Community Fire BLS
- Mortlake Fire BLS
- Scotland Fire BLS
- Voluntown Fire BLS
- Woodstock Volunteer Ambulance / Woodstock Fire BLS

4 are EMS third service providers

- K-B Ambulance BLS/ALS
- Hampton-Chaplin Ambulance BLS
- Moosup-Plainfield American Legion Ambulance BLS
- Putnam Ambulance BLS

The PSAR holder for the Town of Union is the Willington FD

Regional ALS service

Regional ALS service is provided by K-B Ambulance through a subsidized contract with NECCOG.

K-B is the designated ALS PSAR for the Towns of Brooklyn, Eastford, Killingly, the northern half of Plainfield, Pomfret, Putnam, Sterling, Thompson and Woodstock

Windham Hospital is the designated PSAR for the Towns of Ashford, Chaplin, Hampton and Scotland and under mutual aid requests to others.

American Ambulance is the designated ALS PSAR for the towns of Canterbury, the southern half of Plainfield and Voluntown.

AMR provide back-up ALS service using units in the area as available.

The Towns of Scotland and Union do not have a designated ALS PSAR.

The QV medic contract requires one ALS non-transport unit to be staffed 24/7/365 and a second, ambulance-based medic, to be available 12 hours a day 7 days a week. We have been informed that K-B Ambulance has voluntarily increased this coverage to 16 hours a day 7 days a week.

The BLS service chiefs identify that while the availability of ALS service in the region seems to have improved, there are still service issues that need to be addressed. They indicate that because of the typical starting point of the response, K-B ambulance headquarters, there are often times that the crews cancel the medics and transport BLS because they are too far away. In Putnam as an example, in 2017 this happened 80 times and in 2018 there was an improvement with only 66 missed ALS intercepts.

In 2017 there were 3,371 region-wide requests for ALS service

In 2018 there were 3,484 region-wide requests for ALS service

Note:

Internal reports provided by K-B ambulance show ALS call volume slightly higher at 3,536 requests in the NECCOG area and 3,673 inclusive of all other responders. We can find no reason for the disparity...although it may be due to K-B including calls completed by their ALS ambulance crew.

On the surface, the overall volume of calls, including the increase, does not indicate that there is a need for a second ALS unit 24/7/365 in the region. During the day, there is a second unit in service, at no additional cost to NECCOG. We suggest reviewing missed intercepts, cancelled responses that were transported BLS due to extended response times by the medic and adjust staffing during peak times.

The monthly analysis should look at the time of day, the Town requesting ALS, where the medic unit originated its response and what it was doing prior to the missed call. The assessment of where the unit was responding from is not a data point in the system currently.

The four largest users of the paramedic are:

- Killingly
- Putnam
- Brooklyn
- Thompson

The current dispatch program and the analysis done by the services has not been focused on these utilization patterns. There is also not a routine deployment pattern that sends the medic unit to higher volume areas during specific times of day.

Because of the topography, geographic size of the service area and the distances that need to be travelled, consideration should be given to staffing two units, one North and one Central/South during peak usage times.

Current reporting functions can look only at overall system-wide usage by hour and by day of week and that data comes from K-B internal reporting. Breaking out individual Town data by time of day and day of week is not currently done.

That data does not account for paramedic back-up units and does not look at the reasons for missed or cancelled intercepts.

As you move forward and hopefully implement some of the recommendations contained in this report, you will have better data which will allow you to adjust and enhance the system to meet changing needs.

Response times

Response times are not routinely tracked by most services in the region, and when they are there is no agreed upon methodology to the process.

As demonstrated in the example on page 10, each agency tracks its transactional involvement and times related to a specific call. There currently exists no easy, global or standardized way to look at response times within the region.

Because of the limitations with the dispatching software at QVEC, that is being replaced as this report goes to press, every alert tone is logged as an event, every unit is logged separately therefore getting good data on an agency's activities must come from the electronic PCR reporting system or a laborious data dump.

We have to recognize that using the PCR based approach is also flawed. We would be relying on a system that is incomplete and open to errors since this process only records the calls that the agency elects to enter into its PCR system. If a service makes a point to enter all requests for service including passed calls, cancelled, stand-bys, etc., then their data is good. If they only enter calls to which they actually respond, the data is incomplete.

Most agencies in the region enter only the calls that they respond to and start their times from the moment that they were given the call. When the first agency is contacted, assigns a crew and responds the times are easy to follow.

Whenever multiple agencies respond, or a call goes to mutual aid, the actual time that the Public Safety Answering Point (PSAP) took the 9-1-1 call and when an ambulance is actually enroute can be difficult to pinpoint.

This gets further complicated when multiple dispatch centers are involved due to the passing of the call and the responsibility to the mutual aid ambulance service's dispatch center.

Any response to complaints, investigations or litigation have to be pieced together transaction by transaction to assemble a complete picture of the specifics of that individual incident.

Also, without extracting Excel based reports containing raw data and then building reporting functions to analyze each agency, and each unit in each agency, response statistics are not valid or easily obtainable.

The scope of this project did not allow for this level of data analysis and custom programming. This is the same issue encountered by the consultant in Phase 1 of this project.

We suggest that all of the agencies adopt a standardized definition of response components so that everyone is speaking the same language.

Activation time
The elapsed time beginning when 9-1-1 is answered until the PSAR is alerted.

Chute time
The elapsed time beginning when the agency is alerted until the ambulance/medic unit is enroute to the call.

Response time
The elapsed time beginning when the unit signs enroute until arrival on scene.

Total response time
The combined total of Chute time and Response time.

We highly recommend that each of the dispatch centers be requested to produce a standardized report that can be run monthly, quarterly and annually for each service that should show:

Calls by date and incident number
All units assigned to the incident

- Time the phone was answered at the PSAP
- Time the call was alert toned to the PSARs
- If a mutual aid request, include the original time of call
- Time of call accepted by responding agency
- Time units are responding
    - Chute time calculation
- Time unit was at scene
    - Response time calculation and Total response time calculation
- Paramedic Intercept time if applicable
- Time unit was transporting / cancelled / refused
- Time of arrival at destination
- Time cleared
- Time in quarters

By getting these reports regularly, trends will be able to be seen more easily and from a clinical oversight of the system outliers will be more easily spotted for additional follow-up.

Medical control and oversight

There are three hospitals that have medical oversight in the region.

- Day Kimball Hospital — Yale New Haven Health System
- WW Backus Hospital — Hartford Healthcare
- Windham Hospital — Hartford Healthcare

The working relationship between the Backus and Day Kimball ED Medical Directors works well as both participate regularly at the regional level in evaluation of protocols, credentialing of ALS crews and working toward the betterment of the system.

There is limited clinical oversight at the BLS level, the scope includes periodic provider meetings, signing of Medical Control agreements, ensuring that training is current for AED, Epi-Pen and Narcan administration and investigation and review of any reported incidents.

It is important going forward that there be more active involvement and oversight of the dispatch and records management systems in the region, in addition to mandated reporting of response times and clinical issues by both the ALS and BLS services on a regular basis as part of medical control expectations.

The dispatch issues discussed previously present some unique challenges for medical control. When presented with a Patient Care Report (PCR) for review, the PCR has been taken at face value. Time of call, response times, connection with ALS and interventions are all documented.

The issue is that the PCR they are reviewing does not identify if that call was passed to the responding agency as a mutual aid call and therefore the original time of call is unknown, and the review of the chart is done without the knowledge or ability to review the entirety of the event.

Mutual aid calls happen more than 800 times per year in the region.

Effective medical control requires good data. Moving forward, data should be mandated, standardized and reviewed service by service and region-wide.

Quality Assurance / Quality Improvement

As discussed in the Medical Control section, Quality Assurance and case review is done at some level on the ALS calls. There is limited case review done on the BLS calls unless there is an issue on a particular call.

There are three services who do some routine internal Quality Assurance, but the results data is not shared outside of the organization.

In conjunction with medical control, setting a goal to have a percentage of BLS calls reviewed for each service makes good clinical sense.

Training needs become apparent when the types of calls, medical acuity of those calls and frequency of specific medical conditions are reviewed and utilized both for provider training and for the design of community-oriented injury and illness prevention programs.

We would recommend a minimum subset of cases be reviewed:

- All calls where a medic was dispatched but did not arrive
- All cardiac or respiratory arrests
- All cases where patients' medications, aspirin, Epi-Pen or Narcan was administered
- All calls where an AED was deployed
- Any patient who returns to the ED within 96 hours

Identify the remaining subset criteria with an eye on the future and the potential for Mobile Integrated Health / Community Paramedicine. Start building your patient database now.

Looking at the Community Paramedicine programs across the country, the most common starting point patient subsets seem to be:

- Diabetics – especially frequent callers
- Patients with breathing problems – asthma, COPD and CHF
- New opiod prescriptions
- Frequent callers – multiple reasons

It is important to understand that a good QA/QI process is focused on improvement, not punitive outcomes. The goal of the program should be to inform and educate the providers to help them grow professionally, improving themselves and the system as a whole.

An effective and positive QA process can be done in several ways:

- In-house at each department with results forwarded to Medical Control

This is the hardest system to start and maintain without there being hard feelings within the departments. Often when a peer reviews and critiques another, there is a sense of "who does he/she think they are" especially if the reviewer is younger or has been in the field less than the person being reviewed.

- Reviewed by EMS staff at Medical Control hospital

This is the most common approach in EMS. An EMS Coordinator, clinical educator or ED physician can conduct the review and feedback sessions.

It is important that anyone reviewing EMS personnel have both clinical and field experience. EMS personnel want to know that the person reviewing their performance understands their job functions. We have seen several well-meaning QA/QI programs implode simply because the reviewer had no street experience and could not generate rapport and credibility with those being reviewed.

- Done by contracted outside organization (we highly recommend Girard & Associates www.GirardAssoc.com)

This type of program allows the agency and Medical Control to remain at 'arm's length' from the process however both get statistical reports based on the review parameters set. This also mitigates the potential problems of respect and acceptance outlined in the previous two models.

Outside perspective, trained reviewers and mutually agreed upon parameters are the highlights of this type of program.

Regardless of the program design selected, a more formal QA/QI program should be established in the region and should include ALS, BLS and First responders.

Training: medical and EMS leadership

Every agency that we spoke with identified that EMS training and recertification is an issue that is impacting staffing and availability. There will be a legislative push this session to adopt the National Registry of EMTs (NREMT) training, testing and recertification standards.

As explained by the State Department of Public Health at an open forum held in Scotland, this would eliminate the recertification process that is causing many to drop from active rosters.

Currently EMTs and EMRs are required to complete a refresher program and retesting every 2-3 years. The state adopted the NREMT test, but the training material and the instructors have not all kept up with the information on the test. This has caused many providers, often with decades of experience, to fail the test and simply withdraw from service.

The new plan would require initial training and testing to the NREMT standard and then recertification would simply be a function of accumulating the required number of continuing education hours in each of the mandatory and elective subject areas and paying the recertification processing fee every two years.

The EMS and first responder agencies as well as NECCOG and the municipal CEOs should all stay on top of this legislation and be very vocal about supporting its immediate adoption.

There was also discussion by many that there is a lack of formal training for the leaders of the EMS agencies to help them more effectively operate their services.

When asked there was no clearly defined preference, group of resources or consistently reliable way for EMS leaders to stay current on trends and issues. Each identified their own way, several did not stay up on EMS issues until the State EMS office identified an issue or action to be dealt with.

We will discuss what NECCOG can do to help with this issue later in the report.

Community awareness

Within the region, there are basically no regularly scheduled events, education programs, school involvement or organized system of outreach to the public to educate them about the EMS system.

The websites for each service, if they exist, are built with a wide variety of platforms with varying degrees of sophistication. Most have basic contact information and a couple of pictures at best.

Of the agencies that have a website, many have broken links and show several months between postings. We found no EMS agency in the region who provided a downloadable information document for the general public discussing how to access the 9-1-1 system and what they could expect the system to provide when called.

Several of the agencies have only a Google name post listing with contact information or a Facebook page.

Each organization does sporadic events like an annual open house, an EMS or Fire Prevention week presentation and/or participates upon request in Town events like festivals and parades.

It is our position that each organization should have a social media presence that is updated at least weekly. Training on how to do that could be done for all.

Crafting an informational brochure or flyer that teaches the public about the EMS system in the region that could be used by all would also help. Each service could add a little agency specific information to the standard form and then post it to their platform of choice.

There was also a clear message from the majority of service chiefs that there is not a good line of communication or understanding between the EMS services and the municipal leaders. Most also acknowledged that they did not routinely try to reach out and educate or provide information to the community leaders however, is was reported that there was also no attempts being made to learn about and understand the EMS industry and issues either.

We will discuss ways that a region-wide approach to educating both the community members and municipal leaders could be developed later in this report.

Recruitment, retention and staffing

There is no region-wide recruitment effort. Each agency identified that they are using word-of-mouth as their primary recruiting tool. Over the last several years, some have used road signs in front of their headquarters, a few have talked at schools and career days to try and entice 16-18 year old members to join and enter training and the rest of the efforts are members talking to friends and neighbors in the community or putting a link on a website or Facebook page and hoping for engagement.

All, with the exception of K-B Ambulance, indicate that they could use additional staff. A large component of the K-B staff is paid and that, coupled with their call volume, affords them a relatively steady stream of applicants. They do have active volunteers as well.

The primary issue with most of the remaining services is that they have very small populations from which to recruit. Training is costly and time consuming and this issue is reflective of a general decline in volunteerism that is impacting the majority of the country.

Because of the lack of new recruitment and the ability to retain members, all but one service has gone to at least some form of paid or incentivized day coverage and most have incentives/stipends for all hours.

Even after adding in these monetary components, agencies are still struggling to get units staffed. Most can get a first ambulance out, most of the time. Getting coverage for second and third calls, for those agencies with more than one ambulance, still proves difficult.

These stipend efforts are more of an immediate band-aid approach to the issue rather than a long-term solution. In four communities, the cost of just day-time coverage is approaching or exceeding $100,000 per year. It is cost-prohibitive and unsustainable in the long run to continue this expense to staff an ambulance that responds to less than two calls per day

One of the data requests that we made was a copy of each agency's staff roster. The reason for these requests were to get a sense of how many people might show up on multiple rosters, meaning the actual number of available people is not as it shows on paper.

We also asked for the number of members on the roster that were at or over 55. We wanted to look at the age issue to get a sense, if possible, of the numbers of staff that might be thinking about cutting back in the future. We did not get good participation with the over 55 question.

Based on the participation that we did get from 7 EMS transport agencies there are:

- 48 EMRs
- 182 EMTs
- 19 Medics (working as EMTs except at K-B)

It was also identified by most of the service chiefs that only about 50% of those appearing on a roster were classified as highly or regularly active.

Additionally, approximately 30% of those on the rosters work for more than one service including American Ambulance or AMR.

Pay scales

• EMR	$10.50 to $14.00	Avg. of $11.50 is the most common
• EMT	$11.00 to $20.50	Avg. of $13.00 is the most common
• Medic	$19.00 to $24.00	Avg. of $21.00 is the most common

Stipend Programs

The stipend programs vary widely and the rates shown below typically apply to paying the stipend to each of the two members of a crew.

Pay per shift/standby	$5.00 per four to six hour shift to as high as $25 for a 12-hour shift during a particularly hard to cover time slot.
Pay per call	$25 per call to as high as $60 per transport
Combination of both	Most common is some combination

Most departments are utilizing a stipend to encourage people to commit their availability to a block of time using the Waiting to be Engaged legal standing.

Members are compensated to be at or near the station, but with flexibility to do whatever they wish as long as they respond to the station and are enroute to a call within a designated period of time. If no calls are received during that shift time they only receive the standby amount.

There also appear to be significant variations in stipends based upon certification level and shift. In some departments an EMR and an EMT have different stipend amounts to incentivize the EMT coverage, since at least one EMT has to be available to complete a legal BLS crew.

There are also variances based upon member's willingness to commit to coverage on hard to staff days and time slots such as holidays and weekends.

The one thing that did stick out as an issue is that none of the departments indicated any interagency agreements that would allow an EMT from one service to complete a crew for another if they were in the service area and willing to take the call.

We would encourage a deeper look into this as a way of getting crews out. When a fire chief allows a member from another department to assist at a fire, the liability rests on the department receiving the service. There could easily be the same agreement between EMS agencies.

Ambulance Inventory

In the region there are 21 ambulances operated by the 11 Fire and EMS agencies. (American and AMR excluded from this count)

- 2003 - 1
- 2004 - 0
- 2005 - 1
- 2006 - 1
- 2007 - 1
- 2008 - 1
- 2009 - 2
- 2010 - 3

2011 - 1
2012 – 2 (one 2003 refurb)
2013 - 2
2014 - 3
2015 - 1
2016 - 1
2017 - 1
2018 – 0

There are preliminary discussions to replace, or remove from service, three of the oldest units but there are still several others that are reaching a natural replacement age.

In the smaller departments handling under 400 calls per year, the life expectancy of vehicles can be stretched past the industry average of 5-7 years. However, 10 of the 21 are arguably at or well beyond a 10-year service life.

Leasing units should be explored as a way to upgrade vehicles in a timelier fashion. Commercial operating or capital leases help keep resources in the bank allowing for payments to made from billing revenue and spread over several years rather than trying to come up with the full amount of a single $185,000-$240,000 payment which often gets deferred year over year.

By leasing the majority of funds are kept in the bank and the payments are made from billing revenue or a smaller line item in the budget.

System finances

Billing and collection

In Phase 1 of the study, revenue data was not provided to the consultant for analysis. In Phase 2 we have been able to get some data from 8 of the 11 regional EMS agencies.

- Six services provided three years of billing and collection data
- Three opted not to provide data
- Two opted only to provided limited data. (calendar year 2017 data)

While each service's individual payer mix is different, there are some significant findings that will help develop the basis of a region-wide pro-forma revenue projection.

Please refer to Appendix A for a region-wide billing revenue proforma

As expected, Medicare and Medicaid are the two predominant payers in the region. As outlined earlier, as the population ages this will continue to play a significant role in the economics of the region.

The region-wide base payer mix (before individual variants):

		Variant range
• Medicare	60.0%	44%-70%
• Medicaid	17.0%	10%-24%
• Insurances	17.0%	11%-30%
• Self-pay	6.0%	3%-21%* (*anomaly - one year)

In 2018 there were:

- 11,175 EMS responses
- 8,402 Billable transports
- 2,583 Billable ALS 31%*

* This number is most likely slightly higher when mutual aid ALS is factored in. We estimate 35% usage of the medic if all had reported. This is consistent with many other paramedic intercept program statistics.

Region-wide billing revenue is estimated to be $3,951,714

The State of Connecticut Department of Public Health sets a Schedule of Maximum Allowable Rates that takes effect every January.

It appears that all eleven of the NECCOG regional EMS services are using this schedule, although eight of the eleven are still slightly below the 2019 State assigned retail rate due to issues with the preparation of state rate application submissions in past years.

Charge Item	2019 State Authorized Rate BLS	2019 State Authorized Rate ALS-1	2019 State Authorized Rate ALS-2	Medicare Rate BLS	Medicare Rate ALS-1	Medicare Rate ALS-2	Medicaid Rate ALL
BLS Base	$743.00	$1,175.00	$1,214.00	$404.63 Was $387.78 in 2018	$480.50 Was $460.48 in 2018	$695.46 Was $666.49 in 2018	$267.20 Was $276.20 in 2017
Actual payment	Varies by plan	Varies by plan	Varies by plan	$323.70 80% Care, 20% patient co-pay	$384.40 80% Care, 20% patient co-pay	$556.37 80% Care, 20% patient co-pay	$267.20
Mileage	$18.08	Same	Same	$7.23	Same	Same	$2.88
Percentage of volume, regional average	17% Insurance 6.0% Private pay			60% Medicare	NA	NA	17% Medicaid

As you review the State Authorized 'retail' rates and the Medicare and Medicaid allowable rates, and look at the payer mix, it is critically important to understand a couple of things about the way that the EMS agencies are allowed to assess charges and the way in which the collection and revenue stream work.

Regardless of the actual number of requests for service (911 calls), only **completed** calls (transports) result in a billable event. Cancellations, refusals, stand-bys and such do not result in any revenue, yet the organization must expend resources and expenses to have an ambulance staffed and able to respond.

The amount listed as the Medicare Allowable Rate is the amount that, by participating in the Medicare program, you agree is the maximum compensation you're allowed.

Medicare then pays 80% of the Allowable Rate and the patient or their supplemental insurance is responsible for the remaining 20% co-pay. The differential between the State Rate and the Medicare Allowable Rate is money that can neither be billed nor collected. It is a contractual allowance (write-off) in accordance with Medicare regulations.

The amount listed as the Medicaid Allowable Rate is the amount that, by participating in the Medicaid program, you agree is the maximum compensation you're allowed.

Medicaid then pays 100% of the Allowable Rate. The differential between the State Rate and the Medicaid Allowable Rate is money that can neither be billed nor collected, it is a contractual allowance.

Because of these Contractual Allowances and the number of self-pay and uninsured patients, the regional EMS agencies that provided data are **only realizing cash collections of 40.3 to 50.4 cents on every dollar billed** (region-wide average of approximately 45 cents) and there is almost nothing that they can do to improve that number.

Municipal Subsidization

Each municipality in the region supports the EMS system to some degree currently. The level and type of support varies and the reporting of the breakdown of expenditures is different in each Town.

In several communities, EMS is provided by the Fire Department and the EMS specific expenses are not broken out.

As expected, the smaller communities are supporting their EMS system at a much higher percentage of operating budget due to the smaller call volumes and therefore smaller amounts of billing revenue.

In several communities, an expenditure of $100,000-$200,000 per year to staff an ambulance that handles less than 2 calls per day defies logical business and fiscal sense.

These agencies would be the most likely targets for consolidation. That said, New Englanders are known for their pride and for standing by the principle of home rule. If the voters and taxpayers feel better supporting the local EMS agency or Fire Department rather than endorsing more fiscally prudent ideas that displace long-standing agencies, staffed by dedicated volunteer or stipended neighbors, these concept of consolidation and any related proposals will be met with strong opposition.

Later in this report we will present some options for consideration that will allow all to have a voice in the regional EMS system of the future and will still allow for operating efficiencies.

In the interim, we believe that it would make sense for two or three of these smaller towns to begin a conversation about working together to accomplish day time coverage in a more cost-effective manner.

If two or more communities, with low call volumes, were to staff one daytime ambulance rather than two, the Towns could share the cost. In fact, rather than two ambulances 10-12 hours per day, we believe that it may be possible to expand the coverage hours and still realize a savings.

Specific data analysis needs to be done as part of the discussions and staffing should be done to augment any holes where volunteers are unavailable. For example, if volunteers are readily available from 16:00-00:00 then staffing may be best used from 00:00-16:00 (16-hours a day).

Expense	Ashford	Brooklyn	Canterbury	Chaplin	Eastford	Hampton	Killingly	Plainfield	Pomfret	Putnam	Scotland	Sterling	Thompson	Union	Voluntown	Woodstock
Ambulance subsidy/contract fee		NBO	NBO	$ 26,400.00	$ 40,784.00	$26,400.00	$20,000.00		$ 5,500.00	$ 76,900.00		$3,325.00	$ 48,000.00		$99,000.00	$141,080.0
Paramedic service fees	$ 21,000.00								$ 7,000.00	$ 28,500.00	$ 1,694.00		$ 17,500.00			
EMS / medical supplies	$ 4,750.00								$ 4,000.00							
Workers comp. insurance	$ 13,500.00						$60,000.00		$ 5,100.00		$ 27,007.00		$ 35,500.00			
Liability insurance	$ 12,500.00								$17,050.00				$ 85,000.00			
Staffing service costs											$132,000.00					
Payroll expenses	$ 95,680.00								$ 4,500.00							
Legal fees									$ 600.00							
Accounting fees									$ 4,500.00							
Vehicle																
Vehicle repairs – town garage	$ 7,000.00								$20,000.00							
Utilities									$15,340.00							
Fuel (town supplied)	$ 6,000.00								$ 3,500.00							
LOSAP/Retirement contributions																
Tax abatement cost	$ 11,000.00										$ 10,000.00		$ 35,000.00	$ 22,500.00		
Total	$ 171,430.00	NBO	NBO	$ 26,400.00	$ 40,784.00	$26,400.00	$80,000.00		$87,090.00	$105,400.00	$170,701.00	$3,325.00	$221,000.00	$ 22,500.00	$99,000.00	$141,080.0
Region total **	**$ 1,195,110.00**															

** Undervalued due to accounting methods
Canterbury - EMS not broken out from FD
NBO - Not broken out Town funding included in Fire Dept Budget

All of the data included in this table is publicly available.

There is a wide variance in the categorizations of funding and in several communities the EMS specific funding is not broken out from the Fire Department budget.

Our best estimate is that if all communities' expenditures were accounted for, and standardized reporting adopted, region-wide municipal funding of the EMS system is approximately $1.5M

Municipal subsidization estimate: $1,500,000

Region-wide billing revenue pro-forma: $3,951,714

Total estimated system revenue: $5,451,714

Required system review points (in RFP document)

One of the requirements of the RFP, and the grant that funded this project, is that we address each of the following seven topics:

- Recruiting & Retention and impact of hiring paid staff

As we have discussed earlier, a region-wide community/public education program should be created and used to recruit for both fire and EMS. We are looking at the EMS system in this study however, the next issue on the horizon for most municipalities is how to respond to fires as the numbers of volunteers drop off there as well.

It is already a standard practice for multiple fire departments to be dispatched to almost every reported working fire strictly to ensure that there is adequate manpower. Raising the awareness of the emergency response system throughout the region, and how people can participate, will have spillover impact to both EMS and fire departments with the same expenditure.

The impact of hiring paid staff is already reflected in the budgets and planning for all of the services. K-B Ambulance and Putnam EMS are more than 70% paid and all but one of the other services have paid day time staffing and stipends for the remainder of calls/shifts.

The true impact will be felt if the stipends do not work for the night and weekend shifts and each of the services need to hire paid staff 24/7/365.

There will be a forced regionalization/consolidation of the smaller services simply because the smaller towns like Woodstock, Scotland, Hampton, Chaplin and Ashford will be hard pressed to subsidize stand-alone EMS services at price points in excess of $500,000 per community for 100-400 calls per year.

See the sample pro-forma budget in **Appendix B**. This shows the approximate cost of running one BLS ambulance with fully paid staff.

We hope that this report will put some of the economic and staffing issues in perspective and start communities and services talking about ways to share services, personnel and expenses.

- Administrative options – shared services

There are significant redundancies and issues amongst the services. Every agency has a need for some or all of the following services: bookkeeping, scheduling, training, recruiting, public relations, website updating and hosting, tax preparation, access to legal services, billing services, annual physicals and state reporting.

The precedent has already been set for the outsourcing of services. All of the agencies have outsourced their billing and collection functions to one of three billing services.

Additional services could and should follow this same path. We believe that this might be a very good place for NECCOG to play a significant support role. The Council has a proven track record of supporting multiple municipalities in tax assessment, animal control and regional transportation. Providing support staff that work directly for the EMS agencies, lightening the burden on the volunteer and part-time staff would be of significant value.

- Partial collaboration/consolidation/joint working group

Regardless of any consolidation of response services or administrative functions, a regional EMS provider group should be formed that has a representative from each EMS provider, the paramedic providers, medical control and the dispatch centers. Municipal leaders should have an open invitation as well to help foster improved communication.

Review of reports from the dispatch centers, any service issues, any new equipment placed into service, discussion of best practices as well as ideas and a combined master schedule of upcoming training classes that all can attend should be included. A discussion of any pending hearings and/or legislation and the crafting of any joint responses should all be part of the monthly agenda.

It would make sense for several of the smaller services to at least begin looking at the horizon and exploring options for consolidation with a neighbor.

Consolidation/outsourcing has already happened in the region:

- Eastford obtains its EMS service from Ashford FD
- Pomfret has outsourced to K-B Ambulance
- Union obtain its EMS service from Willington FD

- Functional collaboration/special functions

During the evaluation process, no specific service stood out as having any unique or special capabilities. K-B did upgrade to the ALS level and is contracted as the regional ALS service but that is the sole specialty.

There are no EMS agencies specifically trained in SWAT/Tactical medicine, rope rescue, high-angle, confined space or dive team operations. These typically fall to the fire departments, regional multi-agency response teams or the Connecticut State Police.

There are also no capabilities for bariatric transportation amongst the regional services. It might make sense for one of the ambulances that is due for replacement to be retrofitted to accommodate bariatric patients and for that unit to be made available to all in the region.

We would suggest talking with medical control at both facilities to see if there might a joint funding project between the hospitals and the area EMS services to equip the ambulance and train a group of EMTs/paramedics to be able to be called out when the unit is needed.

Additionally, if an entity were to step up and become a specialist in any discipline, it would make sense for the other agencies to embrace that and utilize that agency for that specialty rather than try and duplicate it in their department without a high demand and demonstrated need for that duplication.

- Operational collaboration/consolidation

As we have stated already, the smaller services with high municipal subsidization and low call volumes should have serious conversations with their neighbors about consolidating the services. With 21 ambulances, 10 of which are due or overdue for replacement, careful thought should be given to the best way(s) to get trained responders to patients.

Should money that would go towards a replacement ambulance (even leased) be redirected to enhancing first responder capabilities? If two small services became one, and the rosters were combined, would that make a stronger, more responsive and better funded single transport provider?

At the very least, until consolidation conversations bear results, all of the agencies should take immediate steps to execute agreements allowing for the shared use of members in good standing to get ambulances on the road.

Another way for the system to save money would be for two or even three services to share one paid ambulance during the busiest hours to cover multiple towns.

The unit can be staffed by consolidating the personnel, rotating which ambulance is used one week at a time and pooling financial resources to lessen the overall burden per town.

- Selected geographical/area specific collaboration

The overall region is not that large that collaboration between services can't be beneficial to all.

Looking at consolidation between neighboring services, as we've already stated, makes sense.

The recommendations here are the same as those in the previous section.

- Full regional consolidation to create one legal and operational entity

Looking at the creation of a single entity through full consolidation would certainly provide economies of scale that are not being achieved currently.

That said, at this point in time, we believe that the conversations should begin around partial consolidation and cooperative shared service options because the actual move towards full consolidation will be a non-starter.

The 'home rule' pride as well as the current levels of support by the Towns and the taxpayers all conspire to create no sense of urgency and therefore no impetus to move in this direction.

Looking at some of the other ways to work together, share services, potentially merge a couple of the smaller services with their neighbors, develop a much more in depth and robust data collection and analysis process will all pave the way for a stronger system and create future opportunities.

We believe however that the system is not providing the best possible patient care to the residents in the region nor is it making the best use of the system resources. As the data improves, and can be scrutinized month over month, it will become clear that response times can be improved, especially after the paid staff go off duty in most communities around 18:00. It will also become clear that delays caused by more than 800 mutual aid calls annually can be reduced.

If the patients are front and center to any discussions, then cooperative agreements, collaboration, potential consolidations and perhaps one day full consolidation can all happen. The impacts of full consolidation would include:

Elimination of redundant costs including:

- Insurance
- Accounting
- Staffing/payroll services
- Administrative overhead
- Employee training and recruiting
- Legal services

There is also no need to incur the expense associated with a fleet of 21 ambulances for 11,175 responses. We believe that the fleet size could effectively be reduced by a minimum of 30% (7 ambulances) and, if leased, the fleet would never be older than a 5-6 year service life, additionally reducing maintenance and operating costs.

The region can have a significantly more robust and responsive EMS system simply by reallocating the $5,451,714 of billing revenue and municipal subsidization currently being spent.

The obstacles that exist to bring that integrated system to fruition are significant and are not easily overcome. We suggest small cooperative steps in the areas of shared services and staff, joint training and leadership education, regular region-wide user group meetings and better data collection to analyze the system's performance are all reasonable first steps that over time can make the thought of consolidation more palatable.

How NECCOG can play a role

NECCOG has a proven track record of consolidating administrative services for cost effectiveness in several service areas. Community leaders are entering into more joint ventures, shared service agreements and interlocal agreements.

Other than mutual aid agreements, this concept is not typically embraced by EMS and Fire organizations.

We see a significant opportunity for NECCOG to assist the area services by developing some or all of the service areas outlined ahead. If there are economies to be realized, then the services who choose to participate would benefit by paying NECCOG for the service and administration rather than independent negotiation of service agreements, rates and having to administer the functions themselves.

Recruitment and retention campaign for EMS and Fire

NECCOG could create a standardized region-wide recruiting campaign inclusive of informational brochures about Fire and EMS careers. These can be handed out at events, left at every Town Hall and provided to high school kids.

Additionally, create a professional, broadcast quality advertising/public service campaign. As 501© 3 organizations, cable and broadcast stations in the region are required to give air time to non-profits and a request from a regional entity will get their attention. Have one centralized website and phone number and refer the caller to the service closest to where the live.

Creating a regional EMS training academy

- OSHA training (annual and new hire training)
- Emergency Vehicle Operators Training (EVOC)
    - Perhaps retaining one of the older ambulances as a driver training and EMS classroom training unit
- EMR & EMT training (initial and recert)
    - Career opportunity training - jobless to EMS (Grant)
- EMS leadership training series
    - Basis of EMS system/agency operation
    - Marketing and Public relations
    - EMS finance
    - Data collection and analysis
    - Communications for leaders
- Municipal CEO education about EMS issues and economics

Staffing services

There is no longer an OEMS regulation requiring the licensing of EMS staffing services. NECCOG could hire, train and lease EMTs and EMRs back to services as needed, potentially more cost effectively that the other staffing services and certainly more cost effectively than a town hiring their own.

Employee benefits program and administration

Explore the possibility of group purchasing of employee benefits and a group contract for administration of the benefit plans. These can be offered to those you hire for the staffing service as well as potentially offered to other regional agencies.

Region wide QA/QI program

If there is no manpower locally to conduct a QA/QI program, NECCOG could assist by negotiating with an outside vendor to provide the service independently to departments who are interested. Of course that 'interest' needs to be directed by Medical Control requiring that a certain number of calls be put through a QA/QI process on a monthly/quarterly basis.

AVL grant program – (cooperative agreement between services)

In the Phase 1 report a lot of emphasis was placed on AVL unit tracking being deployed as a way to improve response times that neither consultant could clearly quantify with available data and the scopes of the projects.

Automatic Vehicle Location (AVL) systems, as well as the cooperative agreements between the services that would allow dispatch to fully utilize their capabilities, does make sense. Getting the closest available unit to a critical call is just good medicine.

Cooperative agreements allowing dispatch to send a closer unit into another agency's PSA on life-threatening calls would be required. This should not be a problem for any agency truly focused on optimum patient care. If economics drive decisions, that will be an obstacle to implementation.

NECCOG could look for and assist in this process by hosting planning meetings, helping to draft a standard working agreement and looking for grant money to subsidize the purchase and installation of the AVL units as a regional health system improvement or homeland security readiness project.

Buying co-op

Regional approach to purchasing and services should lead to savings. The largest obstacle to implementation will be each agency's entrenched buying patterns and preferences. Demonstrating savings and ease of ordering will need to be demonstrated to get acceptance.

- Ambulances
- Medical supplies
- Uniforms
- Accounting/tax services/990 prep services
- Insurance (see Ambulance Authority)
- Payroll services
- Physicals
- Fit testing

Medic program oversight continued

Because this program has been successful for several years, it should simply be continued and as we have outlined, expanded to support other areas of the EMS system in the region.

NECCOG regional EMS user group meetings

It was made very clear during our conversations with the services that there is no real regional attempt to get together, with an agenda, to discuss operational issues. There are periodic EMS regional meetings, as a subset of the eastern EMS Council, but these have not been well attended.

Facilitated by NECCOG, with all EMS agencies invited, representatives from Medical Control, ALS services, dispatch and Town Officials with data review, operational issues that have occurred and discussion of how to improve, QA/QI reports and an educational presentation may spark more involvement.

Case reviews, leadership education and vendors with new technology are all topics than can be rotated to keep the meetings fresh and interesting.

Lobbying / advocacy /grant efforts

The majority of the agencies would benefit from participating in joint projects and learning ways to more effectively lobby/advocate for the needs of the region.

If the agencies can work together more cohesively then grant and advocacy efforts will have more impact. Showing how monies spent will impact up to 16 communities and 100,000 people garner more attention than individual Town requests for a piece of apparatus or 25 sets of gear.

Smaller services and communities always do better when working collaboratively and NECCOG is uniquely positioned to take that lead role in helping the EMS system advocate for its needs.

EMS Administrative Officer to handle the needs of many

One of the largest complaints by many of the services was the amount of administrative paperwork and compliance that they needed to do in addition to keeping the agencies running and staffed.

NECCOG could create a jointly funded EMS Administrative Officer that could maintain state reporting, help keep and create databases for the departments and generally handle the administrative burdens for the smaller services. The Admin Officer would meet with each EMS agency monthly, discuss their needs, gather any new and revised data, enter it and then produce any necessary reports for the Chiefs of Service to sign and send.

Additionally, this Admin Officer can handle the scheduling, notification and agendas for the regional user group meetings, producing informational packets for all participants with dispatch data and other items that the group may want.

Future trends and recommendations

Over the next three to five years there will be some significant changes in the EMS system and the way EMS gets reimbursed.

Outcome data, meaning using data to show that the EMS system is positively impacting the users/patients, is likely to become part of the algorithm by which EMS agencies are reimbursed.

In the region, we are estimating that currently 77% of the region's reimbursement comes from Medicare (60%) and Medicaid (17%.) As the population continues to age these numbers will continue climbing.

Medicare has already started looking at client satisfaction, outcome data and patients that recycle back to the hospitals in short periods of time as ways to change reimbursement and offer hospitals their accreditation. Most hospitals in CT have already seen some level of Medicare payment reduction penalties, ranging from 1-3%, mainly because of patient recycle rates.

Other healthcare specialties will follow, and the same scrutiny can be expected to reach EMS at some point. Being in the "Quiet Corner" will not delay it reaching you any later in the process. If a reporting and service level standard is applied in Connecticut by the Medicare and/or Medicaid carriers, you will have to meet the standard or deal with the impact.

The lack of good, easily accessible and analyzable data will prevent you from validating the work that you are doing.

Overall response times, time of call to arrival of a qualified and equipped first responder, BLS ambulance response, access to ALS in a timely fashion and then the satisfaction and outcomes will all need to be produced both by the service and by region.

We have discussed this issue at length in several sections of this report because of the impending impact on revenue if the preparation to produce this data is not started relatively soon.

The dispatch center's ability to produce good data, effective Medical Command insisting on good clinical care and a QA/QI program that can prove best practices will be critical to the viability of the region's EMS providers.

We have spoken about these issues for several years and encouraged cooperation, consideration of consolidation but within five years, those that don't embrace these concepts in some meaningful fashion may find themselves struggling even more or become extinct.

Mobile Integrated Healthcare / Community Paramedicine

The concept of utilizing the EMS resources in the communities as a pro-active outreach extension of the healthcare system, rather than just a transporter of patients, is catching on around the country with significant success.

The premise behind these initiatives is to help treat patient in their homes, reduce the number of unnecessary ambulance transports and relieve the burden on the emergency departments. The reason they are not moving ahead faster is that almost all of the programs are less then three years old and no permanent funding or rate schedule changes have been assigned...yet.

EMS and emergency departments are often the safety net for millions of citizens around the country. Transports are expensive as are the treatments required to meet medical standards of diagnosis when a patient presents at the hospital, even if they are presenting for the third time in a week.

Add to that the financial impact on the system, the potential penalties for readmission that the hospitals face plus the strain placed on the EMS system and the concept has significant long-term merit.

Thus far the State of Connecticut has been unwilling to approve even pilot projects, but we feel strongly that this position will change relatively soon led by climbing budget issues and significantly positive results from several states.

As stated earlier, we suggest that you begin to identify potential subsets of patients in the region who disproportionately use the EMS system and begin developing a patient database.

Once the core patient group is identified, EMS based protocols to visit, assess and treat these patients and their disease processes in their homes, the training of a core group of personnel to be able to serve these patients and developing the electronic health record interfaces necessary to connect with the hospitals can get underway. By starting now, in advance of the changes that will inevitably come, you will shorten the implementation time and help realize savings as soon as the State allows pilot programs to begin.

Looking at the Community Paramedicine programs across the country, the most common starting point patient subsets seem to be:

- Diabetics – especially frequent callers
- Patients with breathing problems – asthma, COPD and CHF
- New opiod prescriptions
- Frequent callers – multiple reasons
- Others based on data

Regional Ambulance Association

- Northeastern Connecticut Ambulance Authority (NECAA)
- Northeastern Connecticut Regional Ambulance Association (NCRAA)
- Northeastern Connecticut Regional Ambulance Co-Op (NCRAC)

Regardless of what it's called, there is a way to allow for some continued autonomy and still reap the benefits of a joint venture/cooperative. Forming a regional ambulance association.

Additional study and legal advice is needed, and is outside the scope of this report. However, bringing interested services together, forming a regional organization, pledging resources and combining needs under one well-funded roof may be the answer.

Here are two ways to build an association:

Option One

Create a new entity that is administrative in nature and that interested departments can join as members. Each entity joining would pay into the association and would have a seat on a governing board. All of the support services previously listed as things that NECCOG could offer, would instead be offered by the association.

Instead of an EMS Administrative Officer working for NECCOG and the benefit of the region's services, the association would instead hire an Executive Director and support staff as needed to accomplish the goals of the association's members.

Each organization would retain its autonomy but would contribute a portion of its revenue to the association for services provided by the association and would refer to itself as a member of the association.

All staff members (EMTs/EMRs, etc.) would be interchangeable between member agencies. Master accounts for payroll, purchasing and other services can be established.

In talking with insurance providers who specialize in association policies, there does not appear to be a way to eliminate the redundancies of individual polices but there could be a way to create an umbrella policy and perhaps obtain better group coverage rates for members.

Option Two

Accomplishing this option would require potential members to be willing to give up their autonomy in exchange for a seat on the board and being part of a larger organization.

Our vision would need approvals by the State Department of Public Health pertaining to the Need for Service Process and if they were to view the creation of an association as a new EMS agency or simply a restructuring of existing providers.

One of the EMS only agencies that is neither part of a fire department, nor a municipally owned entity, would change its name and mission with the Secretary of State, Medicare, Medicaid and the IRS and would become the association. Once this is done the other interested members would then merge into the association.

The merger would require transfer of assets, reassignment of PSAs, community support, rehire of staff by the association and again support from the State to include recognizing that the financial assets (cash and receivables) of one organization would count towards the requirement of six months of working capital of the master association.

This would allow for the elimination of redundant insurance policy expense, hiring and payroll expenses, increase the flexibility of staffing assignments, improved benefit purchasing and allow the associations board to streamline response options.

Under this scenario instead of each Town having to staff its own ambulance for relatively small call volumes, the association can staff one unit, staged between two or more towns and have ready back-up when the first unit is sent on a call.

Each community that joins the association under these parameters would allow its PSA to be merged into the association's overall PSA responsibility.

There are a lot of moving parts to this option. However, in the interest of allowing services to realize the potential economic benefits of consolidation this option mandates that each community have a seat on the governing board rather than simply giving up its service to a neighbor.

Conclusion

There is a lot of information contained in this report that needs to be digested and discussed.

We have done our best with the information that was made available to us and our knowledge of the various ways that EMS can work both in CT and nationally to present the system as is exists and to point out things that could and should be improved.

We have also tried to assimilate and consolidate data into easily understandable charts and tables. In many cases what is condensed into a single table, on a single page, required multiple days of analysis and research.

As we have hopefully communicated, there are several components of the current EMS system that all should be proud of, specifically the pride that comes from service and making your communities safer.

There are however several components of the system that need attention:

- Data standardization and reporting
- Data collection and analysis
- Recruitment and retention programming and inter-service staffing options
- Crafting a regional standard for mutual aid requests
- Developing a regional, medical control endorsed QA/QI program for both BLS and ALS providers
- Finding areas of common ground which will allow agencies to reduce expenses

We understand and expect that some of the issues raised in this report will create a natural inclination for some to push back, downplay the significance of an issue or find one piece of the report that they disagree with and thereby attempt to dismiss the report in its entirely.

This is natural behavior when confronted with inconvenient and uncomfortable truths.

This report is designed to spark debate. It should start in depth conversations and encourage people to look for common ground and ways to work together rather than to encourage single points of information to derail any effort at all.

11,175 times last year, approximately 31 times every day,
a citizen in the region dialed 9-1-1 for help.

As you move into the 'what do we do next?' phase of this project, remember that the primary reason for all that we do is NOT the survival or perpetuation of any single entity, it is providing the most reliable, highest quality, most responsive out of hospital medical care possible.

As you have your discussions and make your decisions it will be hard to remove the emotions that will creep into the discussions. Write these facts down and keep them where you can refer to them regularly:

11,175 times last year, approximately 31 times every day, a citizen in the region dialed 9-1-1 for help.

The system needs to provide the most reliable, highest quality, most responsive out of hospital medical care possible.

Even if the decisions are hard, and do not favor your agency, ask yourself as you go through the decision tree, if you were the patient, in need of rapid and reliable emergency care, will the system you eventually create be one that you have complete confidence in to save you? If not, keep refining the system until it can.

We sincerely appreciate the candor, time, effort and cooperation from all who participated in our meetings, research and data collection.

We look forward to discussing the findings in greater detail with all of you and to potentially working with you in the future to make some of the changes we've put forth for consideration.

Respectfully submitted,

Bob Holdsworth, President

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Appendix A

Region-wide billing revenue proforma

Potential **Billing Revenue**

NECCOG Regional Revenue

For Illustration only
Calculated using 2019 rates

Billable Transports:	8400				
		Item:	**Rate**	**# of Calls**	**Total**
Percentages:					
Medicare 60% of volume:	0.6	Pvt. BLS Base	$743.00	1256	$933,059.40
Medicaid 17% of volume:	0.17	Pvt. Mileage	$18.08	15,456	$279,444.48
Ins / Private 23% of volume:	0.23				
		Medicare BLS Base	$0.00		$0.00
		Medicare BLS Emergency Rate	$404.63	3276	$1,325,567.88
Billable Miles Per Trip:	8	Medicare Mileage	$7.55	40,320	$304,416.00
		Medicaid BLS Base	$267.20	928	$248,015.04
		Medicaid Mileage	$2.88	11,424	$32,901.12
Number of Trips:					
Medicare:	5040	ALS Charges Medicare - 1	$480.50	1588	$762,841.80
		ALS Charges Medicare - 2	$695.46	176	$122,679.14
Medicaid:	1428	ALS Medicaid Base	$267.20	500	$133,546.56
		ALS Charges Pvt ALS-1	$1,175.00	609	$715,081.50
Private:	1932	ALS Charges Pvt ALS-2	$1,214.00	68	$82,090.68
				8400	
		****Total Gross Revenue:**			$4,939,643.60
Bad Debt %:	0.2	**Bad Debt Allowance:**			$987,928.72
		Potential Net Revenue:			$3,951,714.88
		Assumes 65% BLS 35% ALS			
		Assumes 90% ALS-1, 10% ALS-2			
		**** Medicare & Medicaid allowances are already deducted**			

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Appendix B

Pro-forma budget showing the cost of a single BLS ambulance staffed 24/7/365

Single BLS Ambulance approximate replacement cost

	Hours	# staff	# days	Rate	Weekly	Annual	
Direct Labor							**Staffing pattern**
Ambulance One	24	2	7	$15.00	$ 5,040	$ 262,080	24/7/365
Ambulance Two	0	0	0	$ -	$	$	- -
Overtime @ 10%	0	0	0	$ -	$	$ 26,208	-
EMS Supervision					$	$	- -
On-call night pay					$	$	- -
Total direct labor					$ 5,040	$ 288,288	
Payroll taxes & comp @ 17%					$ 857	$ 37,477	
Benefits @ 28% payroll					$ 1,411	$ 80,721	
Total labor costs					$ 7,308	$ 406,486	
Non-labor costs							
Ambulance lease						$ 30,000	$2500/mo per truck
Bad debt and refunds						$ 5,000	
Books & training						$ 7,000	Refreshers, etc.
Computer Expense						$ 4,500	
Depreciation /Financing						$	-
Dispatch fees							TBD
Dues & Subscriptions						$ 950	
e-pcr chart usage fees						$ 1,200	
Fuel / oil & Maintenance						$ 23,300	
Insurance General/Vehicle						$ 60,000	
Medical supplies						$ 14,000	suppies and oxygen
Miscellaneous						$ 1,000	
Office expense						$ 3,300	
Outside services						$ 12,000	billing fees-% based
Postage						$ 500	
Printing						$ 3,000	
Radio /Tablet equipment						$ 5,000	
Rent expense						$	-
Rental/leased equip						$	-
Service Awards						$	-
Service contracts						$ 8,500	
Small equip						$	-
Telephone/cable						$ 5,000	
Uniforms						$ 3,500	
Total Non-Labor						$ 157,750	
Total of ALL						$ 564,236	