# SafeTechSolutions

Final Report

## ASSESSMENT
### OF
## EMERGENCY MEDICAL SERVICES
### IN
## STAR VALLEY, WYOMING

April 2017

SafeTechSolutions
*Guiding Leaders, Organizations & Communities*

**Contact: Aarron Reinert, MA, Partner**

**29251 Potassium Street NW • Isanti, MN  55040  |  Tel 866.611.5515**

**aarron@safetechsolutions.us  •  www.safetechsolutions.us**

## Table of Contents

## Executive Summary

SafeTech Solutions spent three months between December 2016 and April 2017 researching the EMS system in Star Valley, Wyoming (North Lincoln County, Wyoming). This work included three site visits and approximately 30 interviews with key stakeholders, research about Star Valley and its EMS system, an analysis of Wyoming Ambulance Trip Reporting System (WATRS) data, and an analysis of financial and operational data for each of the valley's three ambulance services.

Based on its work, SafeTech Solutions recommends that Star Valley begins a process to create a vision for the future that includes a single collaborative EMS model. The valley's EMS system today is fragile. On most days, ambulances are able to respond in a relatively reasonable amount of time; however, our research found that on occasion, ambulance responses were delayed or, in some cases, services were unable to respond, resulting in one of the other three services to respond at a greater distance and a prolonged amount of time. Waiting to begin this process could result in more frequent failures of the system or a complete collapse of the system. Star Valley has significant resources and foundational structures already in place to create a valley-wide collaborative EMS system, and, if led by a committee of concerned citizens, could create the roadmap to transition from the current patchwork of ambulance organizations to a new, reliable, sustainable, and long-term viable valley-wide EMS system.

SafeTech Solutions recommendations are based on the following key observations:

1. Today there is a patchwork approach to the delivery of EMS in Star Valley.
2. EMS is a vital, desirable, and expected element of healthcare and quality of life in Star Valley.
3. EMS has always been and will likely need to be subsidized going forward.
4. There are already significant EMS resources currently available within Star Valley.
5. The current EMS system design is inefficient.
6. Workforce recruitment and retention is and will continue to be a major challenge.
7. As operating today, Thayne Ambulance and Alpine Ambulance are not sustainable and might be out of compliance with state requirements.
8. There is a perceived lack of fairness in the sharing of the financial burden of EMS within the valley.
9. Some of the structures and practices of an integrated countywide EMS system are already in place.
10. There is a lack of clarity around what residents are willing to pay.
11. The current funding system rewards the lack of integration.

In summary, SafeTech Solutions recommends the following:

1. Create a vision for a single-integrated EMS system.
2. Create a detailed design and implementation plan.
3. Create a transitional roadmap and timeline that honors local dedication and commitment.
4. Align funding to the new design/plan.
5. Assist unsustainable services in meeting immediate needs.

# I. Introduction & Methodology

Star Valley, Wyoming, is facing what can best be described as the convergence of several storms, i.e., the perfect storm. First, volunteerism across the area, across the state, and across the nation is declining at an alarming rate. Second, the regionalization of healthcare is demanding more and more patients be transported further distances, resulting in ambulance services already under strain for staffing to ask more of their staff. Third, the ever-increasing cost of providing Emergency Medical Services (EMS) along with the ever-decreasing reimbursement for services result in few, if any, financial resources available to maintain and grow EMS organizations. And, finally, the multi-year decrease in mineral and energy production in the valley has reduced much of the tax resources available to communities to support EMS.

Star Valley does have three ground ambulance organizations; however, at least two of these organizations are struggling to meet all requests for service, and as operating today, they do not appear to be sustainable long-term. All three face challenges in financial sustainability, low call volume, long interfacility transport distances, decreasing labor pool, insufficient revenues, regionalization of healthcare, demands for ever-more sophisticated out-of-hospital clinical care, and workforce recruitment and retention.

These concerns, as well as many more, led all three ambulance organizations to collaborate in an application to the Wyoming Office of EMS and Trauma for grant money to fund an assessments of the EMS systems in the valley.

SafeTech Solutions, LLP, was contracted to conduct the assessment. SafeTech Solutions is an EMS consulting firm with extensive expertise evaluating EMS organizations and assisting in the development of rural ambulance services and systems. SafeTech Solutions has worked with rural Wyoming EMS agencies through its EMS Leadership Academy and previous assessments throughout the State of Wyoming.

The goals of the Star Valley assessment was to:
- Evaluate the sustainability, reliability, and long-term survivability of EMS in the valley from a systems approach;
- Look for system components that are working well; and
- Make recommendations for change and improvement that would foster a collaborative valley-wide EMS system.

Note: Unlike other region-wide assessments, each individual ambulance service was not assessed in detail; rather, they were evaluated with an eye toward how they do or might participate in a potential valley-wide EMS system.

The assessment focused on valley-wide needs, current operations, system design, and available supporting resources with an eye toward long-term sustainability. The scope of the assessment was limited and was not an audit of operations, finances, or clinical performance. Air medical service was not part of the assessment.

**Methodology**

SafeTech Solutions' assessment team used a process of inquiry and investigation that capitalizes on the firm's extensive understanding of rural EMS systems. Its principals gathered quantitative and qualitative data through research, site visits, interviews, and, as needed, community meetings. Two consultants visited Star Valley to review documents and data, conduct interviews, and assess operations. In addition to broadly evaluating the ambulance organizations (organizational structure, leadership, and operations), SafeTech Solutions paid special attention to the social, economic, demographic, cultural, and political issues in Star Valley, carefully analyzing data and making its recommendations based on industry best practices, as well as what is meaningful, measurable, and actionable in Star Valley. Observations, key findings, and recommendations were presented to key stakeholders in a valley-wide meeting in which the attendees were invited to provide feedback. This report summarizes the findings, key observations, and recommendations for Star Valley.

Information pertaining to the current system of EMS in Star Valley was gathered through interviews, data requests, and written statements from key individuals within the current EMS system. To the best of SafeTech Solutions' abilities, the data has been verified and validated and believed to be materially correct as presented by the leaders of the current system.

## II. Overview of Star Valley, Wyoming

Located in North Lincoln County, Wyoming, Star Valley sits amid three National Forests: the Bridger Teton, Caribou, and the Targhee National Forests. The area was inhabited by Shoshone Indians during the summer and fall until the early 1800s. It wasn't until 1812 that white explorers first traveled through the valley seeking lands further west. Settlement of Star Valley began in earnest in the 1870s with the arrival of Mormon settlers.[1]

Star Valley-area settlers worked to develop infrastructure in the area in an effort to reduce the harsh winters experienced there. This development led to the first electric power in Afton in 1907. Star Valley residents outside of Afton would have to wait another 30 years before they too saw the innovation of electricity in their homes. Other innovative technologies followed with the introduction of telephone service in 1949 and Internet service in 1995.[2]

While not as well-known as Jackson, Wyoming, to the north, Star Valley does boast some of the best schools in the state, especially known for the outstanding sports programs offered. In addition to offering top-notch schools and other services, Star Valley also has brought to its residents the latest in medical technologies at the various Star Valley Medical Centers throughout the area.

_Afton_
As the largest town in Star Valley, Wyoming, Afton features popular area attractions, including the CallAir Museum, the Daughters of the Utah Pioneer Museum, and the annual Lincoln County Fair. Hiking, fishing, and camping also provide some of the activities available for sightseers and sportsmen visiting the Afton area.

_Thayne_
Located in Northern Star Valley, Thayne sits amid ranches and grassland. Known for its many restaurants, Thayne is a favorite stopping point for tourists traveling through the Star Valley region on a tour of the valley.

_Alpine_
Sitting at the convergence of the Grey's, Salt, and Snake Rivers, Alpine functions as the Southern gateway to the Snake River Canyon and the Palisades Reservoir. In addition to its close proximity to many outdoor activities, the small town serves as the residence for many who work in nearby Jackson Hole, Wyoming.

**Summary of Star Valley**
Overall, the Star Valley, Wyoming, region offers a unique mixture of outdoor activities and small-town atmosphere. Afton, Alpine, and Thayne represent three of the only four incorporated towns in Star Valley — Star Valley Ranch being the other

---

[1] "A Brief History of Star Valley, Wyoming," http://www.starvalleywy.com/Star-Valley_Wyoming_history.htm
[2] ibid

newly incorporated town. The growing nature of the communities within Star Valley — specifically, Afton, Alpine, and Thayne — present exceptional challenges and opportunities when it comes to out-of-hospital EMS.

**The Land**
Located on approximately 700 square miles in Western Wyoming, Star Valley includes both grassland and surrounding higher elevations that range from 10,000 feet in some surrounding mountains to 5,600 to 7,000 feet in the valley below.[3] Located between the Salt River Range to the east and the Webster Range to the west, Star Valley also holds Palisades Lake, fed by the Snake and Grey's River from the north, while the Salt River winds through the center of the valley. In addition, Star Valley lies in close proximity to three National Forests: Bridger-Teton National Forest to the north, Caribou National Forest to the west, and Targhee National Forest to the north.

Nearly 74.7 percent of land in Lincoln County, where Star Valley is located, is federal public land,[4] most of it administrated by the U.S. Forest Service. Public land in the Star Valley area is used primarily for camping, hiking, skiing, and other outdoor activities.

**Transportation**
Star Valley is about 14 miles wide and 50 miles long.[5] The main thoroughfare, Federal Highway 89, enters Star Valley from the south and runs through Smoot, Afton, Grover, Thayne, and Etna before entering Alpine in Northern Star Valley, where it turns into Federal Highway 26. In addition to many smaller county roads, State Highway 239 branches off from Federal Highway 89 to Freedom on the Idaho border to the west. State Highway 238 heads west out of Afton before turning north and cutting through the Southwest part of the valley before reconnecting to Federal Highway 89 about nine miles further to the north. You can travel to Grover, Wyoming, from State Highway 239 via State Highway 237, which cuts across to Highway 89. And, if you need to cut around Afton altogether, going directly to Highway 239, State Highway 236 branches off from Highway 89 to the south of Afton and connects to Highway 238 before it makes its northward swing.

Star Valley is served by one public airport owned and operated by the town of Afton, Wyoming. Afton Municipal Airport lies southwest of the town's business district and has one runway that can handle smaller, single-wheeled aircraft. The airport handles about 24 flights per day, with about half of those (52 percent) being general aviation aircraft; 44 percent of those being general aviation aircraft in transit; and three percent of those flights being air taxis servicing surrounding airports.[6] Also, further to the north in Alpine is the Alpine Airpark, a fly-in community that gives easy access to area activities and the nearby Palisades Reservoir.

---

[3] "A Brief History of Star Valley, Wyoming," http://www.starvalleywy.com/Star-Valley_Wyoming_history.htm
[4] NACo County Explorer, Mapping County Data, http://explorer.naco.org/#
[5] "A Brief History of Star Valley, Wyoming," http://www.starvalleywy.com/Star-Valley_Wyoming_history.htm
[6] FAA Information via https://www.airnav.com/airport/KAFO

**Land Use, Tourism, and Industry**

Whereas agriculture used to be the predominant use for land in Star Valley, recent years have seen a reduction of agricultural land use to around one percent.[7] In addition to a tourist destination, Star Valley has become a bedroom community for nearby Jackson, Wyoming, with workers in the Jackson Hole Valley making their home in the nearby valley. Coal was also a dominant industry in Star Valley in the past; in recent years, the area has seen coal take a backseat due to a decline in demand.[8]

For the most part, the economy in Star Valley has gravitated more toward tourism in recent years. Serving as the portal to such areas as the Bridger-Teton National Forest and Targhee National Forest to the north and the Caribou National Forest to the west, Star Valley also lies in close proximity to Yellowstone National Park further to the north past Jackson, Wyoming. Some of the activities available to visitors to the area include camping, hiking, fishing, and skiing in the surrounding mountains and valleys.

While the tourist trade plays a major role in the economic outlook of Star Valley, some of the major businesses in the area include the J.R. Simplot Company's Smoky Canyon Mine in Afton, Star Valley Medical Center, and the Lincoln County School System, among others. It is also estimated that more than 1,000 workers in nearby Jackson, Wyoming, call Star Valley home.[9]

**The People**

Since the 1970s, Star Valley has seen a rise in its population. Current population within Lincoln County hovers at around 18,106 people, as of the 2010 U.S. Census. This is an increase of 19.5 percent over 2000 Census numbers of 14,573 people. Since the 2010 Census, the population of the area has been estimated to have seen a positive growth of 0.90 percent between 2014 and 2015.[10]

---

[7] Star Valley Historical Society Historical Books Inventory Details, http://lincolncountywy.org/archives/VirtualMuseum/Agriculture,%20Garren%20Stauffer,%20'Star%20Valley's%20Agricultural%20Past%20Diminishing',%20Unknown,%20Document,%202p,%20Website,%20(494).pdf

[8] *2016 Star Valley Economic and Demographic Review*, https://www.bosv.com/pdfs/2016EconomicReport.pdf

[9] ibid

[10] *2016 Star Valley Economic and Demographic Review*, https://www.bosv.com/pdfs/2016EconomicReport.pdf

## Lincoln County Population by U.S. Census Count
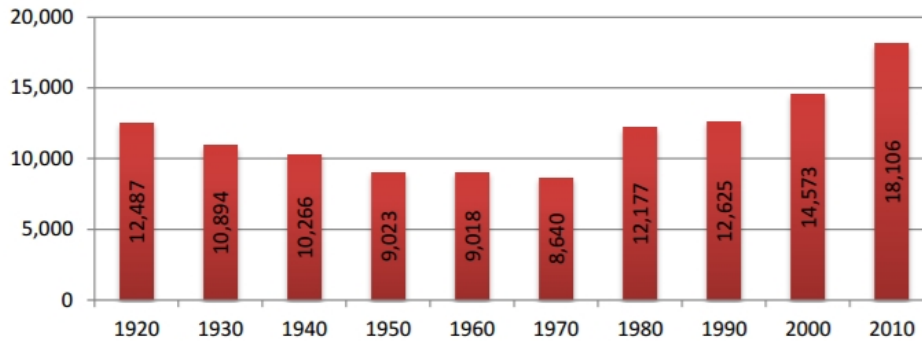


Source: State of Wyoming Department of Administration and Information Economic Analysis Division

Lincoln County and Star Valley, in particular, have a high percentage of traditional family households, at 63.20 percent of total households, and a low percentage of single individual households, at 27.80 percent of the total households present.[11] Star Valley has also seen an increase in the number of retired individuals who call the area home, due in part to the lower tax rate in Wyoming as compared to other states.
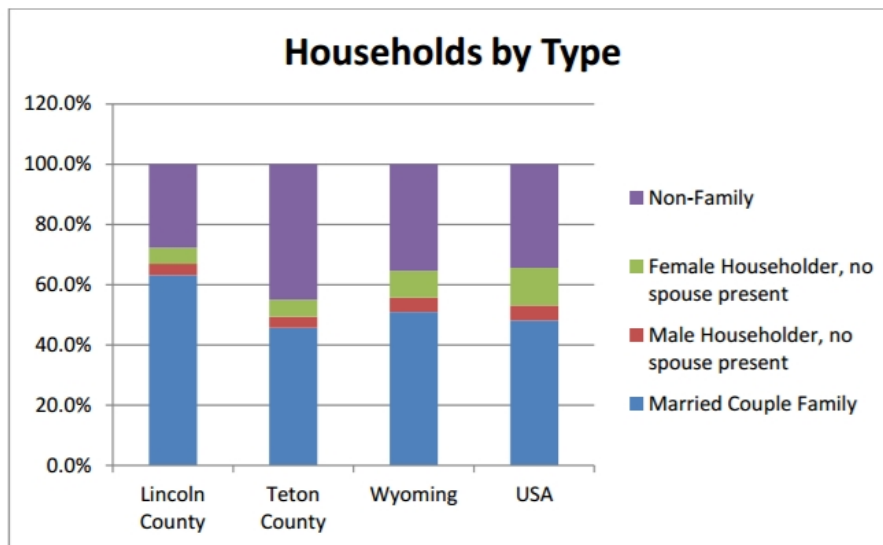


Source: US Census Bureau and SuburbanStats.org

The ethnic makeup of Star Valley is dominated by Caucasians, with population percentages hovering around the mid 80-percent range in most of Star Valley. This

---

[11] *2016 Star Valley Economic and Demographic Review*, https://www.bosv.com/pdfs/2016EconomicReport.pdf

includes a population of 89 percent Caucasian in Afton in Southern Star Valley and 86 percent in Alpine at the Northern end of the valley. Hispanics account for the next most populous ethnic group, with eight percent of residents in Afton and 13 percent of the population in Alpine being of Hispanic or Latino origin. African Americans make up about one percent of the population in Alpine and zero percent in Afton. Native Americans make up zero percent of the population in Star Valley.[12] In Thayne, according to 2010 statistics, 88 percent of the town's population is White, nine percent is Hispanic, one percent is Asian, and one percent is two or more races.[13]

The total number of communities in Star Valley include Afton, Thayne, Alpine, Star Valley Ranch, Freedom, Etna, Grover, Bedford, Smoot, Fairview, Osmond, Auburn, and Turnerville. Out of those, only Afton, Thayne, Alpine, and Star Valley Ranch are incorporated.

Roughly 36 percent of the estimated population of Star Valley (13,080) lives in one of the incorporated towns, with the rest living in unincorporated parts of the valley.[14] Most of the population lives around the main roadway through the valley, federal highway 89, and around state highways 236, 237, and 238.

| Star Valley Population by Community | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2000 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | Change in # People | Growth Rate |
| Thayne | 341 | 366 | 360 | 356 | 362 | 364 | 376 | 12 | 3.52% |
| Alpine | 550 | 828 | 822 | 814 | 835 | 845 | 852 | 7 | 1.27% |
| SV Ranch | 776 | 1,503 | 1,492 | 1,489 | 1,523 | 1,541 | 1,546 | 5 | 0.64% |
| Afton | 1,818 | 1,916 | 1,911 | 1,908 | 1,947 | 1,968 | 1,965 | -3 | -0.17% |

Source: State of Wyoming Department of Administration and Information Economic Analysis Division

Star Valley is seeing an aging of its population as more retirees move to the area and an ever-increasing number of younger residents leave the valley to pursue their education or to seek employment elsewhere. As such, a predominate age group in the valley are individuals aged 55 years and older.[15] Taking a look at the Lincoln County population, a little over 50 percent of residents in the valley are working-age adults, another 27 percent are under the age of 18, and the remaining 15 percent are over the age of 65.[16]
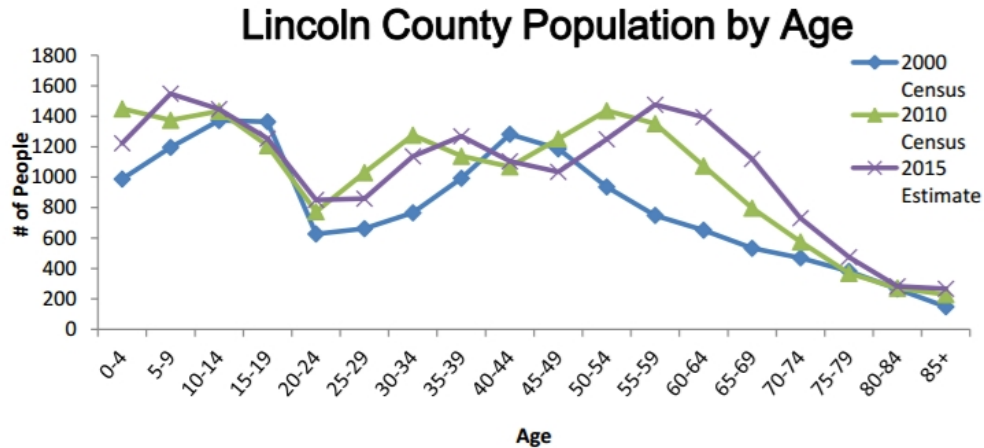
---

[12] http://livability.com/wy/afton and http://livability.com/wy/alpine
[13] http://www.city-data.com/city/Thayne-Wyoming.html
[14] *2016 Star Valley Economic and Demographic Review*, https://www.bosv.com/pdfs/2016EconomicReport.pdf
[15] *2016 Star Valley Economic and Demographic Review*, https://www.bosv.com/pdfs/2016EconomicReport.pdf
[16] http://www.census.gov/quickfacts/table/PST045215/56023

## Lincoln County Population by Age



Source: United States Census Bureau

With many area outdoor activities to offer, Star Valley sees an influx of tourists during the summer months. In addition, the area's close proximity to three National Forests and Yellowstone National Park, make Star Valley a popular tourist stop. This increased flow of tourists also necessitates the need for a robust EMS in the area, as tourists frequently use such resources when away from home, especially if injured while participating in recreational activities or involvement in vehicle accidents.

Estimates for population growth in Star Valley see an increase in the total population to roughly 13,795 individuals by 2020, with a further increase to around 15,280 individuals by 2030.[17]

---

[17] *2016 Star Valley Economic and Demographic Review*, https://www.bosv.com/pdfs/2016EconomicReport.pdf

## Star Valley Population Projection
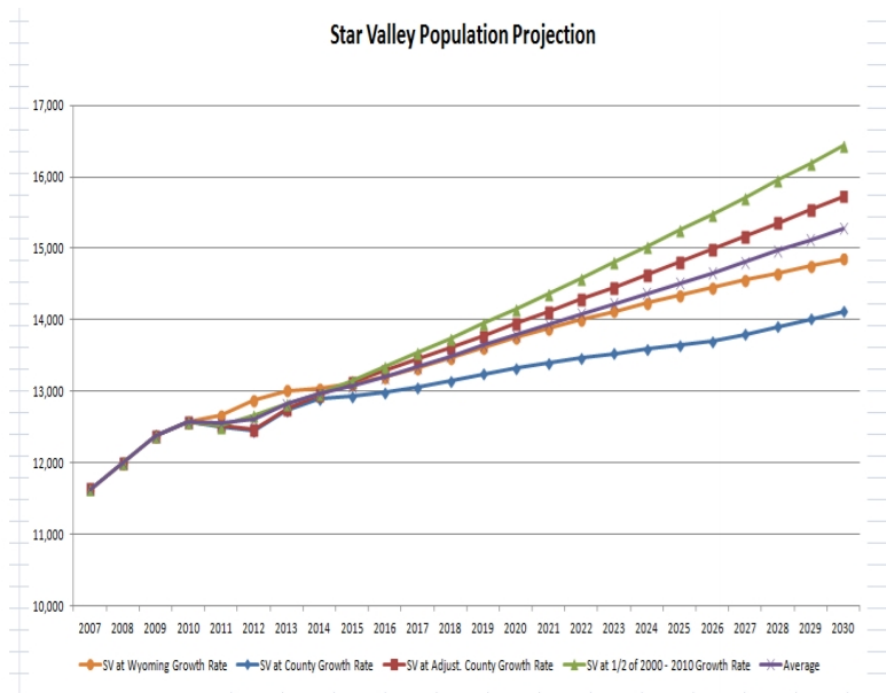


*Source: 2016 Star Valley Economic and Demographic Review*

**The Economy**

The median household income in Lincoln County, Wyoming, is about $68,200 annually, about $8,000 above state averages.[18] Within Star Valley, median household incomes are $66,714 in Afton,[19] $70,729 in Alpine[20], and $41,250 in Thayne.[21]

Even though Lincoln County in general has a rather low per capita income level, which usually signifies income inequality, the poverty rate of the area only sits at nine percent, under the poverty rate of 11.2 percent for the state of Wyoming and also below the poverty rate of 14.8 percent for the rest of the U.S. Over time, the poverty rate in the area has seen a decrease as estimated using the levels of participation in the Supplemental Nutrition Assistance Program (SNAP), which was at a low of 5.95 percent of the total population participating in the program.[22]

The unemployment rate in the county is also at a low of 4.5 percent,[23] down from a peak of 10.6 percent in 2010.[24] This is due to either an increase in the number of jobs or there might not be as many laborers in the area seeking nonexistent jobs, as many young individuals leave the area to attend college or seek employment

---

[18] http://www.city-data.com/county/Lincoln_County-WY.html

[19] http://www.bestplaces.net/economy/city/wyoming/afton

[20] http://www.bestplaces.net/economy/city/wyoming/alpine

[21] https://datausa.io/profile/geo/thayne-wy/

[22] *2016 Star Valley Economic and Demographic Review*, https://www.bosv.com/pdfs/2016EconomicReport.pdf

[23] ibid

[24] https://fred.stlouisfed.org/series/WYLINC3URN

elsewhere. One industry that has seen an increase in recent years is the medical field as more residents reach retirement age or relocate to Star Valley to retire.
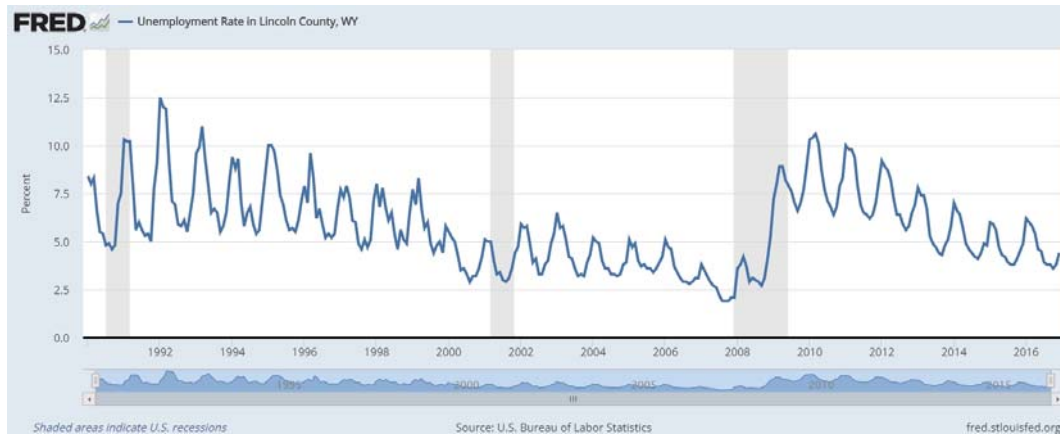


Eighty-five percent[25] of residents under the age of 65 in the Lincoln County area, which includes Star Valley, have health insurance.
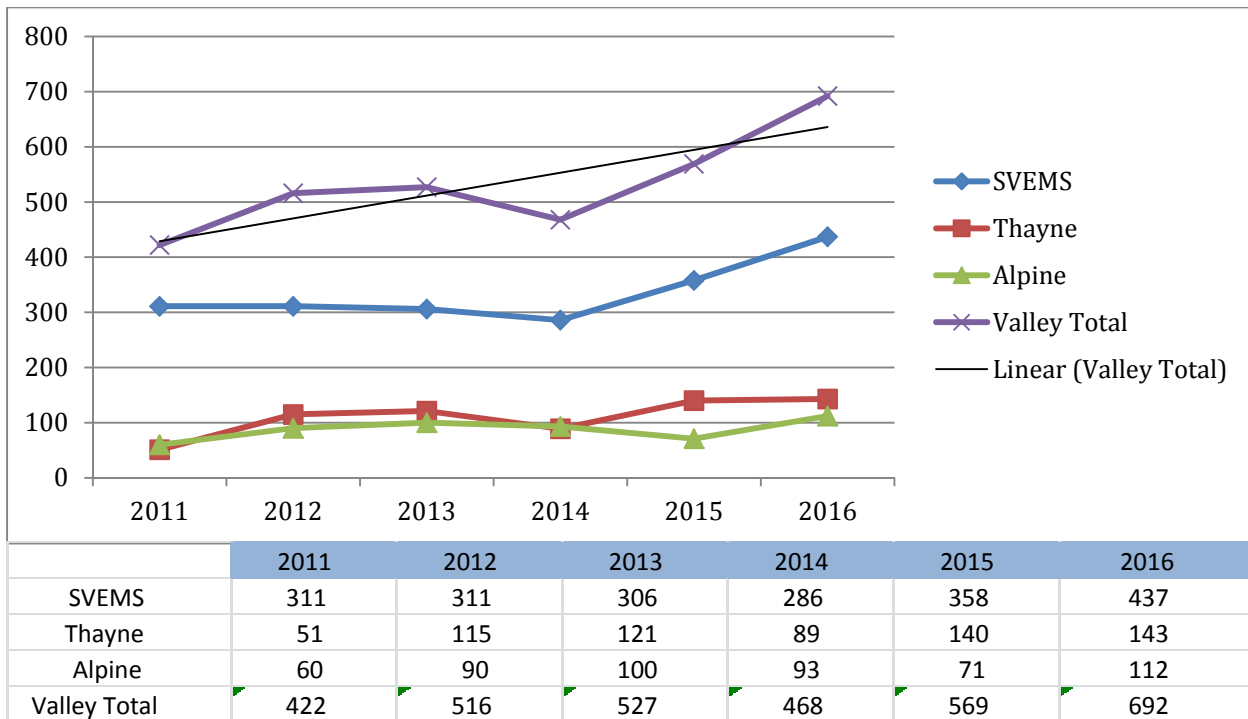
25
http://www.census.gov/did/www/sahie/data/interactive/sahie.html?s_appName=sahie&s_statefips=56&s_stcou=56023&s_measures=ic_snc

## III. Overview of Star Valley, Wyoming, EMS System

The EMS system in Star Valley includes a Public Safety Answering Points (PSAP), three ambulance services, access to air medical services, a receiving hospital, and medical oversight and quality assurance. Ambulance services are developed locally without comprehensive planning or provisions for long-term sustainability.

The number of requests for EMS in Star Valley in 2016, as reported to WATRS, was 692. The chart below provides an overview of call volume in the valley for the past five years.[26]



| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|
| SVEMS | 311 | 311 | 306 | 286 | 358 | 437 |
| Thayne | 51 | 115 | 121 | 89 | 140 | 143 |
| Alpine | 60 | 90 | 100 | 93 | 71 | 112 |
| Valley Total | 422 | 516 | 527 | 468 | 569 | 692 |

EMS responses in Star Valley are handled by three independent ambulance organizations: Star Valley EMS (a department of Star Valley Medical Center), Thayne Ambulance Service, and Alpine Ambulance Service. Each of these agencies operates completely independently with its own organizational structure, leadership staff, clinical staff, equipment, facilities, vehicles, and budget. While there is some cooperation among services, such as Paramedic Intercepts, there is not a system approach to the provision of EMS over a relatively small geographic area with a limited overall population.

Located in Afton, Star Valley EMS is the largest of the three ambulance organizations. It provides emergency medical services for the South end of Star Valley, spanning 330 square miles to include Grover, Auburn, Afton, Osmond,

---

[26] Source: WATRS

Fairview, Smoot, and the Simplot Smoky Canyon Mine.[27] Star Valley EMS also works with the Thayne Fire & EMS, and Alpine Fire & EMS, providing mutual aid to those communities. Star Valley EMS is a department of Star Valley Medical Center and the only Paramedic Advanced Life Support (ALS) service in the valley. As part of the medical center, it is a private, not-for-profit organization and is funded by patient billing revenue and a portion of the three mills (roughly $550,000 in 2016 created to support the hospital)[28] the medical center receives from Lincoln County through a special taxing district. The service also receives support services from Star Valley Medical Center, such as accounts payable, accounts receivable, Human Resources, IT, etc. As an organization, it is staffed by a combination of full-time ALS paramedic staff and volunteer EMTs and drivers.

Thayne Ambulance Service is the second-largest EMS provider in the valley. Thayne Ambulance appears to be owned by the city of Thayne. However, ownership is unclear. Ambulance personnel report they are an independent not-for-profit but are unsure if they have all the required legal filings, such as being registered in Wyoming as a charitable organization, determination documentation from the IRS for federal tax exempt status, and annual 990 tax return filings. Thayne Ambulance Service is funded by billing patients for medical transport and subsidies from Lincoln County, Star Valley Ranch, and the City of Thayne. It also receives in-kind services from the City of Thayne through a building and administrative service, such as insurances and accounts payable. The ambulance staff is entirely volunteer with a combination of EMTs, AEMTS, and EMT-Intermediates. It is able to provide intermediate level ALS when the appropriate personnel respond to a request for service.

Alpine Ambulance Service is the smallest of the three valley EMS organizations. It covers some 750 full-time residents and 2,500 part-time residents[29] and 25 square miles in and around the Town of Alpine. Owned and operated by the Alpine Fire District board, it operates with a full-time EMS chief and part-time and volunteer staff. It is funded by billing patients for medical transport and subsidies from Lincoln County, City of Alpine, and community donations.

Combined, the three Star Valley EMS agencies operate four staffed ambulances (two based in Afton, one in Thayne, and one in Alpine) to respond to roughly 600[30] calls each year. Total EMS employees in the valley number approximately 41. Total number of vehicles is eight. The system uses three ambulance stations/garages in three geographically diverse locations and is subsidized through a combination of patient revenues, county general fund dollars, city general fund dollars, a special taxing district, and community donations[31].

---

[27] Star Valley Medical Center, https://www.svmcwy.org/our-services/emergency-medical-services-ems
[28] Source: Star Valley Medical Center
[29] Alpine Fire District, http://alpinefire.net/about_us
[30] Source: WATRS
[31] Source: Information provided by ambulance service directors

# EMS Resources in Star Valley

## Operational Resources

| | | |
|---|---|---|
| Calls (2016) | 692 | |
| SVEMS | | 437 |
| Thayne | | 143 |
| Alpine | | 112 |
| Employees | 41 | |
| Directors | | 3/5 |
| Paramedic | | 3 |
| EMT | | 29 |
| Drivers | | 6 |
| Vehicles | 8 | |
| SVEMS | | 4 |
| Thayne | | 2 |
| Alpine | | 2 |
| Education programs | 3 | |
| Billing processes | 3 | |
| Medical Directors | 2 | |

## Financial Resources

| | | |
|---|---|---|
| Taxing Financial Resources | | $230,400 |
| SVEMS | $136,400 | |
| Thayne | $59,000 | |
| Alpine | $35,000 | |
| Billing Financial Resources | | $395,300 |
| SVEMS | $298,900 | |
| Thayne | $56,400 | |
| Alpine | $40,000 | |
| Total Financial Resources | | $625,700 |

Note: SVMC receives 3 mills worth approx. $550,000 (designated for hospital use)

Note: Northern Lincoln county is roughly 1,500 sq. miles with a large percentage of the area being forest service land

## IV. Description of Star Valley EMS Operations

**Communications & Dispatch**
Ground ambulances are dispatched by a countywide 911 system, which has two dispatch centers, one in North Lincoln County, located in Afton, and one located in South Lincoln County, located in Kemmerer. The dispatch center is a department within the Lincoln County Sheriff's department. All dispatchers receive training in medical priority dispatch, and the center provides pre-arrival instructions through a formal program. The center is the public safety answering point and dispatch center for all emergency services within the county to include police, sheriff, fire, EMS, and search and rescue.

Radio communications in Star Valley are a blend of technologies to include the WyoLink statewide, trunked, VHF P-25-compliant public safety communications system, analog VHF trunked systems, and commercial systems such as "I am Responding." Paging is conducted through analog paging technology. Throughout the valley, radio coverage is reported to be strong in most areas.

**First Response**
There is no uniform system of first response in the valley. Law enforcement agencies are generally started to co-respond with EMS agencies, but in some areas, law enforcement may not be available. Fire departments first respond to assist with heavy rescue and extrication, and when requested for additional manpower, such as a lift assist.

**911 Response & Medical Transport**
Dispatch sends ambulances from the three valley EMS organizations based on a coordinated system of ambulance districts. Beyond the assigned districts, the ambulance organizations back up one another according to a system of mutual aid agreements.

**Air Medical Service**
Due to the small geographic area and close proximity to Star Valley Medical Center, air medical services are often not used for prehospital care. Patients are treated and stabilized in the field and transported to Star Valley Medical Center. In some occasions, patients in the Alpine area are transported to Jackson, Wyoming.

**Receiving Hospitals**
Most EMS transports in Star Valley go to Star Valley Medical Center in Afton, Wyoming. Star Valley Medical Center is a 22-bed acute care facility that is designated as a Wyoming Community Trauma Hospital – Provisional (comparable to an ACS Level IV facility). Star Valley Medical Center was named one of the nation's top 100 Critical Access Hospitals by the National Rural Healthcare Association. Residents on the North end of the valley occasional are transported to St. John's Hospital in Jackson, Wyoming.

There is no Level 1 or Level 2 Trauma Center in the valley. Patients who need very high levels of care generally are transported to Idaho Falls, a two-hour transport, or Salt Lake City, a three-and-a-half-hour transport. Both destinations require navigating mountain roads. Air medical transportation is available to higher levels of acute care through several providers.

**Medical Oversight & Quality Assurance**
Medical oversight and quality assurance within the valley is as fragmented as the overall system. Today, each ambulance service has its own Medical Director, though, until recently, all three services shared the same individual acting independently as each service's Medical Director. Each organization has its own medical guidelines and an internally developed quality assurance process, some more formal than others. On a statewide level, all EMS organizations submit call data to the Wyoming Ambulance Trip Reporting System (WATRS); however, WATRS is not used in the County as a quality assurance tool. Additionally, there appears to be a mismatch between run volumes reported by the PSAP, WATRS, and the ambulance services themselves. All three sets of numbers are different.
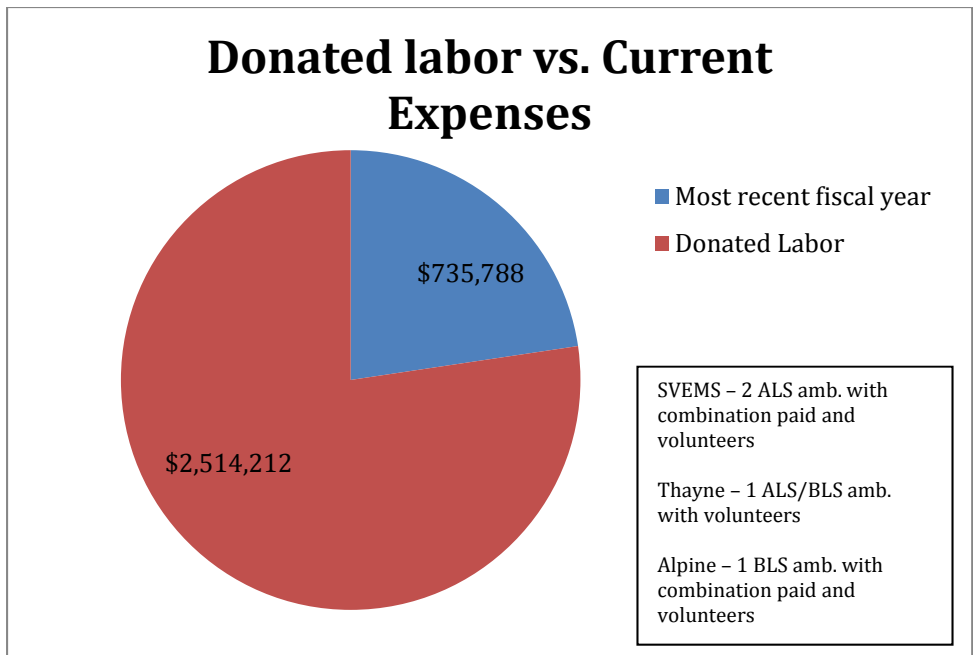
Although there is some variance of quality and level of care provided by the ambulance organizations based on experience and level of training, emergency department staff report that prehospital emergency care provided by Star Valley EMS organizations is acceptable. Patient care protocols are consistent with industry norms, and no major concerns about clinical care were reported.

**EMS Education**
A variety of EMS education is provided locally by all three EMS organizations, such as hands-only CPR, EMT, and EMR classes. There is some collaboration among the EMS organizations in the valley to provide continuing education for EMS personnel, although continuing education can be a challenge for personnel for whom EMS is not their primary occupation. There is also some tension about the location of classes, i.e., are they all located in Afton, Thayne, or Alpine, or do classes travel and, if so, where and how often?

**EMS System Finance & Funding**
The three active ambulance services report spending just over $735,788 on the delivery of EMS to valley residents. SafeTech Solutions derived this total by adding up reported operating expenses (vehicles, fuel, medical supplies, other supplies, ambulance equipment, facilities, communications, and paid labor). This total does not account for the cost of first response, nor does it take into account the value of volunteer labor.

## Donated labor vs. Current Expenses



Legend:
- Most recent fiscal year
- Donated Labor

$735,788

$2,514,212

SVEMS – 2 ALS amb. with combination paid and volunteers

Thayne – 1 ALS/BLS amb. with volunteers

Alpine – 1 BLS amb. with combination paid and volunteers

This total of $735,788 is deceptively low because it does not account for the value of volunteer labor (donated labor), which is the single largest subsidy of EMS operations in Star Valley. This unrealized cost is not unique to Star Valley. Rural communities across America have failed to account for the value of volunteer labor for years, making rural EMS systems appear more economically viable than they truly are. This becomes critically important when EMS organizations are unable to recruit and retain volunteers, resulting in communities needing to face the true costs of EMS, such is what is happening in Star Valley.

SafeTech Solutions calculated the valuation of volunteer labor in the valley at $2,514,212.[32] When one accounts for donated labor, the true total cost of the EMS system in Star Valley exceeds $3 million.

The challenge for Star Valley, like many other rural EMS systems in America, is that volunteerism is declining. As a result, Star Valley will need to address three simple yet profound questions. First, what level of EMS does the community want in the valley? Second, how much EMS do they want (how many vehicles located where)? And third, what is the community ready and willing to pay for?

Star Valley funds EMS through several mechanisms, such as fee for service (revenue received when patients are billed for ambulance transports), direct financial support from the county's general fund, financial support from cities, a healthcare

---

[32] *A note about SafeTech Solutions' determination of the value of volunteer labor:* The value of donated labor is calculated using the value of a volunteer hour, which in Wyoming is $23.46/hour, as determined by the Independent Sector, a not-for-profit organization that calculates value of volunteer hours for all 50 states using Bureau of Labor Statistics data. The $23.46/hour rate includes the cost to replace a volunteer with a full-time, benefitted employee. In our experience, Independent Sector volunteer labor value is generally accurate although tends to be on the conservative side. SafeTech Solutions calculated the value of volunteer labor based on $23.46/hour multiplied by the number of people and the number of hours that volunteers served on-call or on-duty shifts.

special taxing district, donations, and donated labor. Annual tax subsidies for each EMS agency are as follows:[33]
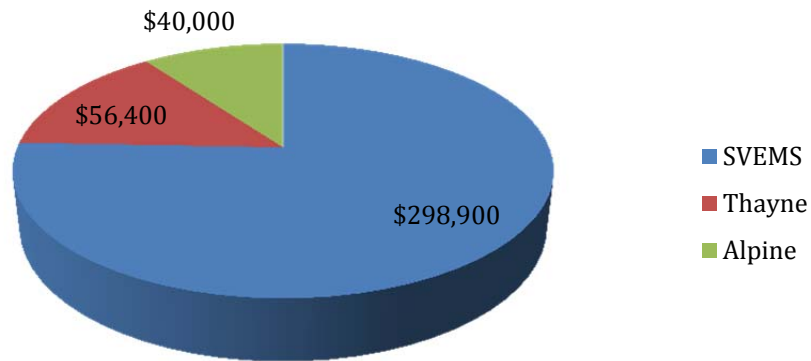
**Taxing Financial Resources**
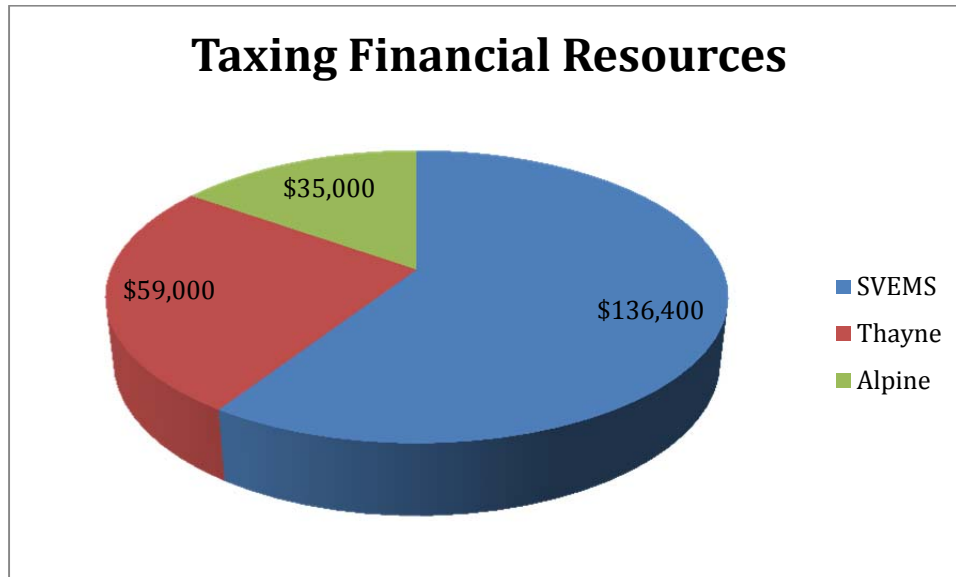


All totaled, taxes being directed to the EMS system annually account for $230,400, roughly 10 percent of what would be needed to replace the donated labor used to sustain the current system should the volunteer subsidy disappear entirely.

In addition to tax subsidies, each EMS organization bills, when appropriate, for the services they provide, primarily, only when a patient is transported. Agencies bill Medicare, Medicaid, commercial insurances, and private individuals. Two of the three organizations use contracted billing services, and Star Valley EMS uses the billing department within Star Valley Medical Center. While not specifically investigated, reimbursement levels seem appropriate for the area, through billing rates appear low compared to national averages and the true costs of service (accounting for the donated labor). At current billing rates and reimbursement levels, the system is generating nearly $400,000[34] in revenue; however, this is only 16 percent of what is needed to replace the volunteer labor. The combination of tax revenue and patient revenue results in $625,700 available to a possible system. This amount is roughly 20 percent of the funds needed based on four ambulances in their current locations. The true costs of the system today, as it is currently operating and accounting for donated labor, is $3,250,000. This amount is calculated by using the value of a donated hour along with the usual and customary costs for a BLS ambulance, ALS ambulance, and part-time ALS ambulance; they are $1 million, $500,000, and $750,000, respectively. These are estimates based on national averages and could be higher or lower — most often driven by labor costs, specifically, the cost of recruiting, and retaining a full-time person in a given area.

---

[33] The calculation of subsidies is based on 2016 figures provided by the three EMS organizations.
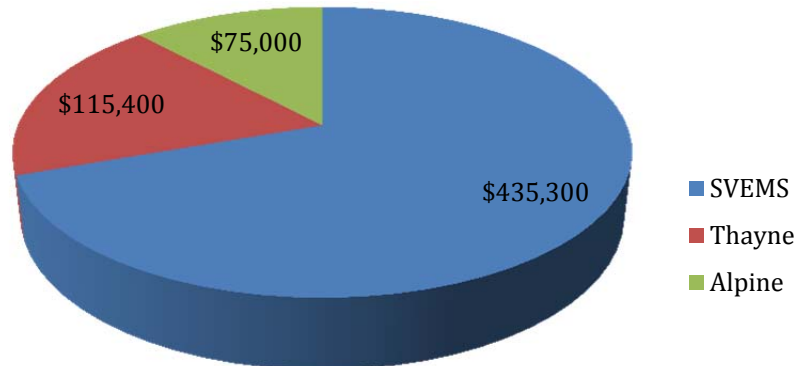[34] The value is a summation of gross patient revenue reported by each organization in their 2016 profit and loss statements.

## Billing Financial Resources

$40,000

$56,400

$298,900

- ■ SVEMS
- ■ Thayne
- ■ Alpine

## Total Financial Resources

(tax revenue and patient revenued combined)

$75,000

$115,400

$435,300

- ■ SVEMS
- ■ Thayne
- ■ Alpine

Note: Billing Financial Resources could double, if not more.

### Equipment, Facilities & Vehicles

Generally, all three EMS agencies have modern equipment, in good working order, and consistent with current medical guidelines and prehospital care practices. A few areas of note: SVEMS has two ambulances that could benefit from replacement. Their age and mileage raise doubt about their long-term dependability, and as such they warrant consideration for replacement. While SVEMS has ambulance crew quarters, the facility is separate from the Star Valley Medical Centers main campus and, as such, creates a physical and sometimes perceived barrier between the EMS department and rest of the organization. Thayne EMS has a facility that stores its vehicles, as well as provides training space; it does not have space, currently, for ambulance crew quarters and sleep rooms.

## V. Key Findings

**Finding 1:       Today there is a patchwork approach to the delivery of EMS in Star Valley.**

As operating today, Star Valley does not have a single EMS system, but rather it has three independent ambulance services, including administration, operations, education, accounts payable, accounts receivable, human resources, information technology, and other aspects necessary to administer an EMS organization. On the surface, not only is this not uncommon, it is necessary for modern EMS organizations to operate more like businesses than like community social clubs. However, with a total call volume of around 700 calls a year, a small geographic service area, ever-increasing cost to provide prehospital care, consistently decreasing revenue streams, and the national crisis in volunteerism, this duplication of services jeopardizes the valley's ability to provide reliable, viable, and long-term sustainable EMS.

**Finding 2:       EMS is a vital, desirable, and expected element of healthcare and quality of life in Star Valley.**

There are multiple factors that support this finding. First, throughout this assessment's field work, individuals consistently spoke of the need for a robust EMS system to support their quality of life within the valley. Second, due to the rural nature of the area, EMS plays an important role as a safety net within the healthcare system to provide both access to the system and prehospital care and stabilization. Third, EMS provides a link between the local healthcare system and higher levels of care. Often when a critically ill patient is in need of transfer, ground-based EMS is the only resource available to move the patient while maintaining their in-hospital level of care.

**Finding 3:       EMS has always been and will likely need to be subsidized going forward.**

Donated labor has been and continues to be the largest single subsidy of EMS in Star Valley. With a low call volume, limited ability to generate revenue, and a community expectation to provide and maintain EMS within the valley, it seems reasonable that there will be a need to provide funds to close the gap between revenues and expenses. This gap will continue to grow as less and less donated labor is available.

**Finding 4:       There are already significant EMS resources currently available within Star Valley.**

When considered as a system, Star Valley has significant resources available. For example, there are eight ambulances, 41 personnel members of varying certification levels, three education programs, and countless pieces of EMS equipment. All three

agencies collect and submit EMS data to the WATRS system, and all bill for services. In the past, the services have shared a single individual who acted as their service's Medical Director. Their operations and medical guidelines are very similar, and all three use Star Valley Medical Center as their primary destination for patient transports. Also within the valley are numerous taxing revenue streams that today go to individual ambulance services.

### Finding 5:     The current EMS system design is inefficient.

As mentioned above, there is countless duplication and expense when three EMS organizations operate within 10 to 20 miles of each other. Each has a service director, training program, and usual and customary expenses associated with an EMS service. Each maintains a spare ambulance and all the equipment needed for the spare ambulance. Purchases are made in small quantities as compared to leveraging group buying power. Most importantly, limited resources like tax subsidies are spent on costs that are duplicative of each other, squandering those dollars.

In a system view, a difficult question would be whether or not the valley needs four ambulances on duty 24 hours a day for roughly 700 calls for service. If not, what does the data suggest is the correct number of ambulances and where does the call density suggest placing those ambulances?

### Finding 6:     Workforce recruitment and retention is and will continue to be a major challenge.

All EMS services report challenges with workforce recruitment and retention. These challenges are related to:

- A general shortage of EMS workers in Wyoming;
- The continuing decline in volunteerism and the inability to replace volunteers who are leaving. The decline in volunteerism is related to changes in rural socioeconomic conditions, aging rural populations, changing attitudes about volunteerism, the increasing demands of working in EMS, and the regionalization of healthcare resources;
- Many EMS workers' beliefs that EMS is not a lifelong career;
- Relatively low wages and benefits paid by EMS agencies;
- The relatively low volume of 911 calls in Star Valley; and
- The hours of time demanded by being on call and, in some cases, long-distance transfers.

### Finding 7:     As operating today, Thayne Ambulance and Alpine Ambulance are not sustainable and might be out of compliance with state requirements.

All state ambulance services are regulated by the Wyoming Department of Health and must have a license issued by the same. To hold and keep its license, the license holder must staff an ambulance with at least one driver and one licensed EMT (W.S. 33-36-101 Chapter 4, section 2, a). It must have an ambulance en route within 10 minutes of a call, and its ambulance must be available for calls 24 hours a day, seven days a week without exception (W.S. 33-36-101 Chapter 2, Section 11,a & b). It is not permitted to operate on a part-time basis or only when volunteers are available.

While both Thayne and Alpine report that they have not recently missed any request for service (911 calls), both report that in the recent past they have missed ambulance calls, and due to volunteerism, the time between dispatch to en route may, at times, exceed the state requirement. In addition, both services report challenges maintaining adequate roster numbers to ensure 24 hour a day, 365 days a year rapid response to calls for service.

SafeTech Solutions assesses the sustainability of volunteer ambulance services by considering the number of active volunteers on a service's roster, multi-year trends regarding total numbers of active volunteers, and the ability of an ambulance service to fully schedule call time. In more than a decade of studying volunteer ambulance services, SafeTech Solutions has determined that:

- At least 14 _active_ volunteers are needed to safely and humanely staff one 24/7 ambulance unit;
- When a service dips below 10 active volunteers, it is nearly impossible to increase those numbers because the call-time load on volunteers is too great and the organizational culture becomes primarily focused on survival;
- A five-year trend of declining roster size suggests that volunteerism will most likely continue to decline; and
- The stress on volunteers dramatically increases and makes it more likely volunteers will quit when a service is incapable of regularly and consistently creating a call schedule with at least two volunteers to cover call time 24/7. An "all-call" system suggests that all volunteers are responsible 24/7 and increases stress because no one is ever really not on call.

**Finding 8:     There is a perceived lack of fairness in the sharing of the financial burden of EMS within the valley.**

During stakeholder meetings, EMS leaders, volunteers, EMS workers, governmental officials, and business leaders all expressed concerns about their perception of the unfair sharing of the financial burden for EMS. The following concerns were expressed:

- Some felt SVEMS received little, if any, tax payer funding but yet responded to the largest number of calls, including long distance interfacility transfers;
- Several individuals shared comments about the three mills that go to Star Valley Medical Center. The comments range from the three mills not being enough, to some of the mills should go to SVEMS, to the three mills should be shared between all three EMS organizations; and
- Some communities, such as Thayne and Alpine, are provided tax support to agencies, and some communities are not providing any tax support.

### Finding 9: Some of the structures and practices of an integrated countywide EMS system are already in place.

Today the valley's ambulance services collaborate in several meaningful ways, such as shared classes to train and certify EMTs, continuing education classes for existing clinical personnel, emergency management planning and training, mutual aid, and ALS intercepts, when needed. In the past, all three agencies shared the same Medical Director, and their existing operations and medical guidelines are very similar.

### Finding 10: There is a lack of clarity around what residents are willing to pay.

While SafeTech Solutions found a general desire to have local EMS resources available to residents 24/7/365, it was unclear what level and amount of EMS residents are willing to pay. For example, are residents willing to pay for the full costs of having 24-hour ambulance coverage in all three locations that currently have EMS (Afton, Thayne, and Alpine)? If donated labor is no longer available, will residents and communities pay the full cost of EMS? Is Advances Life Support a desired level of service knowing the costs needed to deploy and maintain such a service?

The cost of ambulance service can also be estimated by looking at full costs broken down into unit hour costs (the hourly costs of having one ambulance and crew ready and available to respond). The following chart shows typical unit hour costs in rural areas.

| Estimated Unit Hour Cost for Rural Ambulance Service | | |
|---|---|---:|
| Labor | $23.46/hr. x 2 EMTs per ambulance | $47 |
| Vehicle, ALS equipment & supplies, fuel, insurance, facility | $140,000/year/8,760 hours in a year | $16 |
| Administrative | 30% of above costs | $19 |
| **Unit Hour Total** | | **$82** |
| Annual cost per unit | ($82 x 24 x 365) | $718,320 |
| Cost for 4 units | | $2,873,280 |

**Finding 11:     The current funding system rewards the lack of integration.**

Today, public and private dollars go directly to individual ambulances services, not to a system. These dollars allow each individual organization to function, to some extent, independently. It seems reasonable that as long as these dollars continue to go directly to individual organizations, there is little incentive to consider a collaborative model. If, instead, the dollars were given to a system, and dollars then were spent to support and maintain a system, even if the system had individual parts, there would be an incentive to participate in the system. This approach both rewards participation, maximizes the limited financial resources, and allows for small steps toward a more collaborative future.

# VI. Recommendations

EMS in Star Valley is delivered through a patchwork of EMS agencies, funding tools, and donated labor. Two of the three ambulance agencies are not sustainable, and the system is inefficient. However, there are significant resources and foundational structures in place to create an integrated, efficient, and sustainable valley-wide EMS system.

## Recommendation 1: Create a vision for a single, integrated EMS system.

The current approach of three independent ambulance organizations responding to around 700 calls a year within 15 to 20 minutes of each other is not effective or efficient. A collaborative countywide EMS delivery system should be created in which there is a model where limited financial resources are maximized and duplication of services and costs is eliminated. As a community, three simple yet powerful questions must be answered: What level of service does the community want, how much ambulance service does it want (how many ambulances in what locations), and how will it gain the financial resources needed for question one and two?

If Star Valley adopts the recommendation to create a single, integrated, countywide EMS system, SafeTech Solutions makes the following additional recommendation to support that process. Form a committee of concerned citizens (a board name to describe key stakeholders from the entire valley) to describe the vision for this new integrated model and champion the process forward. These committees are often best facilitated to ensure the outcomes are meaningful, measurable, and actionable.

## Recommendation 2: Create a detailed design and implementation plan.

A detailed design and implementation plan translates the vision into a form that fosters buy-in from a wide variety of stakeholders. Creating a detailed design will require listening, learning, and participation. The process will need input from a wide variety of stakeholders, including EMS leaders, first-responder agencies, medical directors, government officials, taxing district board members, taxpayers, and industry leaders. Some of the questions that should be answered during the visioning process include:

- How much EMS is needed and/or wanted?
- What can be learned from other successful rural EMS systems?
- What are taxpayers willing to pay for?
- What are the major concerns of local communities in not having locally owned EMS?
- Should there be a single taxing source to subsidize EMS (i.e., a single valley-wide taxing district for EMS)?

- What are the major hurdles to achieving a single, integrated delivery system?

## Recommendation 3: Create a transitional roadmap and timeline that honors local dedication and commitment.

Great success comes one small bite at a time. EMS in the valley is a product of local organic growth with deep pride and ownership. Failing to recognize this while leading change is a sure recipe for failure. However, the roadmap should also be honest by outlining expected changes and what is realistic, efficient, and sustainable long-term.

## Recommendation 4: Align funding to the new design/plan.

Matching funding and the new design is critical both in incentivizing the change and providing the critically needed resources to operate the design.

## Recommendation 5: Assist unsustainable services in meeting immediate needs.

Both agencies operating today that are not sustainable should immediately address non-compliance by taking one or more of the following steps:

- Contracting for coverage (from another EMS agency in a formal written agreement) for uncovered hours;
- Suspending operation as an ambulance service and becoming a first-responder organization (in which they may respond as volunteers are available); and/or
- Surrendering their ambulance license and becoming a substation of another EMS organization, in which they operate legally on a part-time basis under the umbrella of the other agency.

Assistance with this process should be a topic of discussion and planning. Those providing funding should ensure and hold the organization accountable to take immediate action. Funding bodies should mandate that organization regularly report key performance measures, such as:

- Call schedule coverage and any times when there is not at least two appropriately certified personnel on duty 24 hours a day;
- Chute times, the amount of time from when they receive a call for service to when they respond to the call (ambulance tires turning in the direction of the patient, not someone arriving on scene without an ambulance);
- Any time when their organization was unable to respond to a call;
- Roster numbers of _active_ personnel; and

- How all dollars are spent.