



THE **911 FUND**, INC.
441 Central Park Avenue, PO Box 644
Hartsdale, NY 10530-0644
914-479-8800 tel
914-725-7733 fax
hittmann@911fund.org

Stephan Hittmann
President

4 December 2011

Martin Enrique Siller Hermosillo
Fomento Economico Meoqui
Calle L. Vicario 403
Cd. Meoqui Chihuahua 33130
México

Dear Martin:

Thank you for your wonderful hospitality during our recent visit. In addition to all of your efforts, we would like to thank José de Jesús Ramierez Escobar of Calvillo, Ramon Porrás Valencia of Julimes, Martin Fuentes of Rosales, Cesar Muñoz Reyes of Saucillo, Salvador García Esquivel of Meoqui, Martin Mata Carrasco of Delicias and Cesar Dajlala Armaja of Parral, their staff, the many municipal and government officials, and the many firefighters with whom we met for their availability and tireless support in making this visit a reality.

We feel privileged to have spent time with you, the firefighters and medical personnel in Aguascalientes and Chihuahua. You have much to be proud of, as was evidenced by the high level of morale of everyone with whom we met. We were welcomed like family and made to feel like royalty, and we will never forget the friendships made during the visit.

The trip was an important educational experience given what we were able to observe first-hand. We applaud your recognition that there are challenges to be met and a willingness to devote time, energy and resources in response to local needs. We're also grateful for your efforts to create a visitation schedule that provided so complete an overview of each of the organizations and the many communities that we visited.

As promised, we have summarized our observations and recommendations in the attached report. We look forward to receiving your comments and continuing this collaboration in the realization of your efforts to reduce firefighter risk, enhance civilian health and safety, and minimize property loss from fires and other emergencies.

Sincerely,

Stephan Hittmann
Firefighter Stan Aviles, FDNY
Chief Dennis K. Haas (ret.)

The 911 FUND is an approved 501(c)3 not-for-profit charity
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Municipio de Calvillo

Estado de Aguascalientes, México

Municipios de Delicias, Meoqui, Parral y Saucillo (visitado)

Municipios de Julimes, Madera y Rosales (no visitados)

Estado de Chihuahua, México

Observations, Recommendations and Topics for Further Discussion
following our visit
of
31 October - 5 November 2011

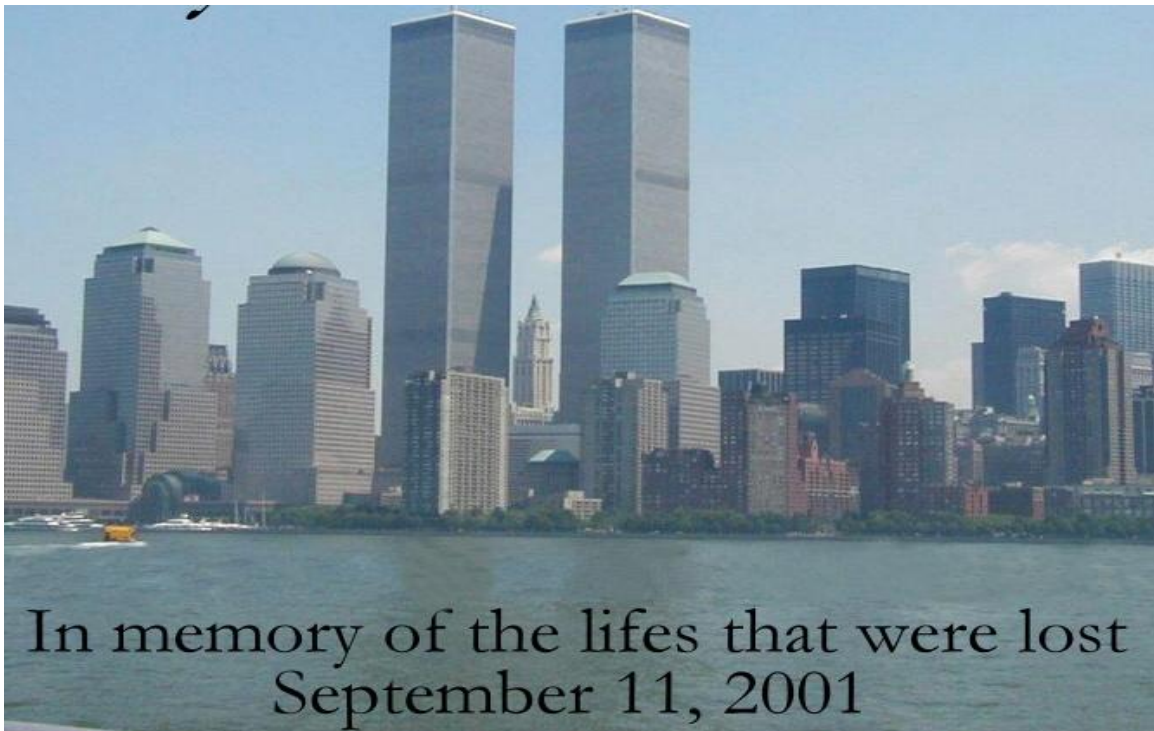


4 December 2011

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History and Background of the 911 FUND



Created in the aftermath of the tragedy that occurred on September 11th, 2001, the 911 FUND was born from the personal, hard-won experience and first-hand knowledge of New York City firefighters and emergency personnel, all-of-whom worked on September 11th at the World Trade Center, and for countless days thereafter. As we watched brother firefighters commit their efforts, and in 343 cases their lives, to the rescue of 25,000 innocent civilians, we became convinced of the need to enhance our systems of emergency management and preparedness, and to share this understanding, along with our skills and lessons-learned, domestically and with friends and allies the world over.

Ever since September 11th, we have worked to acquire fire trucks, firefighting equipment, ambulances, medical supplies and equipment, then to donate them, along with training, to fire departments, first responders, medical facilities, industry and others, as part of a continuing effort to build preparedness, reduce risk, enhance civilian safety, and minimize property loss from fire and other types of disasters, be they natural or man-made.

Firefighters and other first responders routinely put themselves in harms way to protect the citizens of all nations. Service, solidarity, fraternity, brotherhood, and the willingness to accept risks and make sacrifices is the common bloodline of firefighters worldwide.

That said, however, our experience is that firefighters and first responders in far too many places have significant training and equipment deficiencies, yet typically assume the same risks as those taken by American firefighters. The training, equipment and/or apparatus that we donate are gifts that keep on giving, while adhering to the best principles and highest traditions of the international fire service.

Over the past ten years, the 911 FUND has undertaken numerous fact-finding missions at the request of various countries, and has donated dozens of fire trucks and/or ambulances, as well as millions of dollars of equipment and/or training (pre-service, in-service and specialized training, as well as instructor development) to 18 countries, including: Argentina, Belize, Cameroon, Chile, Colombia, the Dominican Republic, Ecuador, El Salvador, Haiti, México, Panama, Paraguay, South Africa, etc. *All of*

our efforts in support of the 911 FUND are voluntary and unpaid, and 100% of the apparatus, equipment and training that we provide are given free-of-charge.

Introduction



The following report is drawn from information obtained from four areas, namely:

1. Materials provided by Calvillo, Delicias, Julimes, Meoqui, Parral, Rosales and Saucillo before and/or during our visit of 31 October - 5 November 2011.
2. First-hand observations while in the aforementioned and neighboring communities during our visit.
3. Discussions with the firefighters, medical personnel and municipal representatives with whom we met.
4. Independent research.

The report that follows is divided into three sections. Section One parallels the chronology of communities visited, and includes key observations from each visit. Section Two provides information on communities involved, but not visited. Section Three is divided into twelve subject-specific areas that outline problems identified in specific areas, recommendations in response to these problems, and topics for further discussion. Subsequent to these sections are Appendices that are included for reference purposes and elaboration of the topics discussed.

We cannot stress strongly enough that none of the observations made, problems identified or recommendations made are in any way intended as a criticism. They are, rather, a starting point upon which we hope to develop an expanding dialogue with officials in government and industry, the firefighters and medical personnel with whom we met, and the communities you serve. As we

have repeatedly said, our goal in this effort is to develop an ongoing relationship with Calvillo, Delicias, Julimes, Madera, Meoqui, Parral, Rosales, Saucillo and the neighboring communities as the 911 FUND works to support your efforts to reduce firefighter risk, enhance civilian health and safety, and minimize property loss from fires and other types of emergencies.

Section One
Communities Visited and Key Observations

The following is an overview of the visits we made between 31 October and 5 November 2011 to municipalities, Fire Departments, medical facilities and factories in the states of Aguascalientes and Chihuahua. These visits enabled us to observe current realities in the communities visited, assess overall needs, interview personnel and in certain instances observe actual operations. The observations made emanate from these visits, and we assume full responsibility for any inaccuracies included herein.

Calvillo, estado de Aguascalientes



Located approximately 35 miles from the main airport in the state of Aguascalientes, Calvillo has a population of 55,000 residents in an area of 360 square miles, making it the second most populous city in Aguascalientes.

Our first visit was to City Hall, where we met with the Mayor, Director of the Office of Emergency Management (OEM) (see **Appendix A** for a list of acronyms included in this report), Police Chief and several municipal officials. Among the topics discussed were disasters that occurred in Calvillo and major event coordination (sports competitions, the annual guava festival each December, the Dia del Muertos currently underway, etc.), which collectively surpass the capacity of Calvillo's fire and emergency medical service (EMS) capabilities when a large-scale response is required.

The major producer of guava in México (with three large companies whose sole product and distribution is the guava fruit) and widely known as the guava capital of the world, Calvillo also has a number of other major industries (one of which, the Koos Factory, employs 2,000 people), as well as numerous smaller agricultural producers and related commerce.

Medical Facilities, Ambulances and Medical Personnel

Our first visit was to Calvillo's main hospital, and its soon to be opened "Unidad de Hemodialisis," where it will expand treatment for people suffering from pulmonary and respiratory illness, often attributed to local industries polluting the water supply. Although modern in many respects, the EMS needs were clearly evident, with the hospital's single Type II ambulance minimally-equipped and used almost exclusively to transport patients not *in extremis*. During emergencies and cases where a patient *in extremis* must be transported, a second very well equipped Red Cross ambulance staffed by two or three paramedics is dispatched from the city of Aguascalientes, a distance of 35 miles. Given the shortage of ambulances, transportation delays are often commonplace, especially when one of the aforementioned ambulances is otherwise committed or out-of-service. The police department has occasionally provided a helicopter for EMS transport, but this is extremely rare.

The paramedics referred to above are paid by Calvillo and well trained by the Red Cross, with great demands placed on them, which they handle in a highly professional manner. The need for additional paramedics and ambulances is evident, and the introduction of a program to teach cardio-pulmonary resuscitation (CPR), which would greatly benefit the community by increasing the chances of survival for anyone in cardiac arrest when paramedics are in route or otherwise unavailable.

Local Industry

Calvillo has a number of factories (the Koos Factory, Cendi Factory, Kinders Factory, etc.), and our next visit was to the Koos textile factory, the largest employer in Calvillo with 2,000 employees. Prior permission from the municipal government was needed for us to tour this two-story 350,000 square feet facility, but once there, everyone was extremely open and responsive to all of our questions.

Our first observation was the fact that one floor of the building was sprinklered, and one was not. Numerous hose cabinets (supplied with standard 1-1/2", single-jacketed, cotton hose lines with brass "mystery" nozzles) and portable fire extinguishers were located throughout the facility, and company fire brigades are trained in fire suppression. Emergency fire hose connections were also in place, as was a large water reservoir. Although no one seemed to know the capacity of the reservoir, it was clear that the reservoir provides water to the hose cabinets and sprinkler system via fire pumps located throughout the building. We were told there was a fire hydrant on the property, but saw no method or location for fire apparatus to connect to it. Noted was the fact that several of the hoses were improperly stored, some showed signs of wear, and no self-contained breathing apparatus (SCBA) was available within the factory.

Another observation was the web joist roof construction. Firefighters need to avoid operating on the roof during a fire since joist construction has a high risk of collapse.

The high level of concern for the well being of the factory workers and the overall working conditions were quickly evident in the emergency fluorescent signs that were easy to spot, the many no smoking and caution signs throughout the factory, the full-time physician on staff, etc. The medical office was first-rate in terms of the equipment available to treat injuries, and when

asked about the medical conditions treated most frequently, the doctor informed us that they're mostly common colds and minor abrasions, with very few work-related injuries.

This factory reportedly houses the largest laundry machines in México, which we saw during the tour. We couldn't help but wonder about the effect of a lint dryer (or other) fire getting out of control. The Koos management must be commended for the cleanliness of the factory, and the emergency action plan that would go into effect in case of emergency. This plan involves the activation of designated fire brigades throughout the factory, which is divided into five sectors with a fire brigade of between 7 and 18 employees, depending on the sector they cover. Federally mandated emergency response training for companies that exceed certain numbers of employees per square foot, and which mandate the presence of full-time medical personnel, in this facility is provided by a contractor. The staff spoke with great confidence about their emergency preparedness, even though limited discussion took place about the actual training provided. If not included, we believe that training in hazardous materials (Haz-Mat) awareness and emergency first aid should be provided.

Located on the property are two large propane tanks, estimated to be approximately 100,000 gallons each. Responsibility to contain a gas leak is that of the local gas company (not the factory's fire brigade or Calvillo's local firefighters), who respond to gas emergencies since they're the only ones trained and equipped to mitigate and contain such an event. In case of a gas leak or other emergency, the decision to evacuate the factory is made by the gas company in consultation with the factory's management.

The size of the factory, number of employees and potential dangers pose a concern if, for example, a disgruntled or deranged individual were to randomly shoot factory workers with a firearm. Such an event would likely cause a stampede of evacuating employees, with unattended machinery, chemicals, gas lines and/or the nearby propane tanks catching fire and/or exploding. This is clearly a worst-case scenario, but such an incident is entirely possible.

This facility offers an ideal opportunity for tabletop scenarios/multi-unit drills on mass casualty incidents (MCI), as but one example. Factory personnel, firefighters, police, the gas company and other municipal agencies should become proficient at evacuation, organizing staging areas, fire suppression, water augmentation, etc. A disaster of any magnitude involving this factory would also have an enormous detrimental impact on the local economy, and should be avoided at all cost.

The Fire Department, Firehouse, Firefighter Training, Apparatus and Equipment

Our last visit in Calvillo was to the local firehouse, which was acutely ill equipped. What the firefighters lack in training and the firehouse lacks in apparatus or equipment, they make up for in their commitment to be of service to the community.

The Calvillo Fire Department has a huge response area that includes the city, surrounding forests, mountainous regions, farmland and a flatlands area. The Fire Department has 12 firefighters, 6 of whom work an established tour schedule (24 hours on, 24 hours off, with rotating days off). Of the 12 firefighters, 10 are paid and two are volunteers.

The firehouse itself was void of furniture with the exception of two desks, six beds, a gas stove, small office and a communications system consisting of a two-way radios that are supplemented by cell phones. This being the only firehouse in Calvillo, it's our understanding that the Fire Department responded to over 2,500 calls last year, which included vehicle accidents, structural and forest fires, bee colonies, mud slides, fuel spills, downed wires, etc.

The Fire Department relies upon a refurbished rapid response pickup truck (donated by the police department) as their only vehicle. We were impressed with the fact that the police department, having recently received new vehicles, was in the process of donating two additional pickup trucks to the Fire Department, which now need to be retrofit for fire duty.

Firefighter training (provided by the "Departamento de Protección del Estado y Bomberos del Estado") is sporadic at best, varying between ten and forty hours over a three-month period, with much of the practical training seemingly firehouse-based. Future training should include the Incident Command System (ICS), fire ground accountability, basic fire suppression utilizing hand lines, master stream use in large fires, wildland firefighting and training in handling MCI's.

The equipment carried on the fire truck is older fire hose in rather poor condition, a few ladders, rusty machetes, some Indian packs, a set of "Jaws" hydraulic extrication tools and some shovels. We saw no SCBA, and not all firefighters had personal protective equipment (PPE), helmets, boots, hoods or gloves. The PPE that they did have was outdated, mismatched and offering limited burn protection at best. The firehouse and overall departmental needs are quite extensive.

A nearby auto graveyard could be accessed for cars to practice extrication training and car stabilization. Adjacent to the firehouse is a large open area where drills could be conducted, CPR could be taught, a Fire Cadet program (to be discussed in greater detail later in this report) could be introduced, etc.

We were pleased to hear that Calvillo operates a single phone number for emergencies, similar to our 9-1-1 system. All emergency services, however, operate on a single frequency. While mutual aid is available by calling neighboring communities, it appears as if none of the responding agencies utilize an ICS.

Calvillo clearly needs newer apparatus, possibly a Class A pumper capable of delivering 1,000 to 1,500 gallons per minute (GPM) for large fires. The pumper should also have the capability to connect to the cisterns at the Koos Factory to supplement the sprinkler system, hose cabinets and to control fire flow in the event of a large fire.

Water Supply

Water to fill the fire truck comes from a cistern/underground well next to the firehouse that holds 10,000 liters (2,500 gallons) of water. Although access is cumbersome, we were pleased to note that the Fire Department has direct access to a fairly large water supply.

Although the amount of water carried on the makeshift pumper is limited, firefighters rely on a vast network of strategic points throughout the area for replenishment, with this information available to incoming units on several rudimentary maps, all of which is coordinated by OEM.

When the Fire Department responds to a vehicle accident involving a liquid propane gas (LPG) tanker, OEM staff respond as well. Following an on-scene evaluation, it is decided if the local gas company needs to be contacted to handle the situation. It is unclear, however, if the same procedure is followed for an accident involving a gasoline tanker. Firefighters have no Fluor protein foam, and it's unknown whether foam is carried by the local gas company or is simply unavailable. It appears as if the Fire Department (and possibly others) are unequipped to use a foam educator to handle such emergencies, which is an issue that merits further discussion.

Wildland Fires

Given their proximity to Calvillo, we asked how the Fire Department responds to wildland fires, and were told that CONAFOR (Comisión Nacional Forestal, a state agency) and PROFEPA (La Procuraduría Federal de Protección al Ambiente, a federal agency) are automatically notified. With overlapping responsibilities and training, it is our understanding that CONAFOR has 16 to 18 members, PROFEPA has 12 members, and both play a role in the prevention and control of wildland fires.

For the most part however, Calvillo's firefighters, supplemented by local volunteers, respond to wildland fires. In cases where wildland fires have the potential to get out of control, Protección Civil, CONAFOR and PROFEPA are notified, and depending on the size of the fire, some or all of these agencies are activated, as is mutual aid from neighboring communities.

Calvillo reportedly experienced two major wildland fires in the recent past, one of which destroyed 739 acres of forest and two homes. One fire was to the north near the city of Zacates, and the other was to the south near the city of Jalisco.

Calvillo's tallest structure is three floors, and in recent years, emphasis has been placed on arson investigation, although Calvillo's expertise in determining cause and origin is limited, relying instead on eyewitness accounts and testimony for convictions. We were told that in one instance, when the owner of an adjacent property was confirmed to have deliberately set a fire, a fine was imposed but no prison time was served.

Like many others with whom we met during this visit, the people of Calvillo share an extraordinary commitment to their community and to each other, and the visit was most informative.

Delicias, estado de Chihuahua



Our next visit was to Delicias, where upon arrival at the airport, we were met by a delegation led by Martin Siller. Located southeast of the state capital of Chihuahua, Delicias is a large city with a population of 140,000. We were then greeted at the hotel by officials from several of the municipalities we would visit over the next few days, all of whom are working in collaboration for the common good of the state and its many residents. The visit began with the collective signing of what we saw as a historical document, the "Convenio de Colaboración Intermunicipal para el Fortalecimiento de los Departamentos de Bomberos" (Appendix B), which we were privileged to sign.

Local Industry

Delicias is an industrial city and major agricultural center in the Conchos River Valley. The city's river has three dams spanning 200 km in three different communities, namely Sierra, Talamar and Rio Bravo, with the river relied upon for most agricultural irrigation. Among the major industries in Delicias is one of the largest dairy companies in México, producing over a million liters of milk each day. This company poses a fire risk both in the size of its pastures and its storage silos, which don't have a sprinkler system. A recent fire at this facility took four days to contain and required mutual aid from several surrounding communities.

Another major industry is growers of pecans, with México's largest grower located in Delicias. The pecan industry is so well guarded that if someone is caught stealing a kilo of pecans, they're assured of jail time.

Delicias is also well-known for its manufacturing of furniture and wooden cabinetry, much of which is located in an industrial park that houses 47 large manufacturing plants and countless smaller factories in the surrounding communities. We visited one of the largest furniture factories, thanks to the municipality and George Chavez, owner of "Muebles Chavez." The factory employs 200 workers, and is housed in a rambling single-story unsprinklered building. Hose cabinets (supplied with standard 1-1/2", single-jacketed cotton hose lines) and portable fire extinguishers were located throughout the factory, but no SCBA was visible. Lacquers, thinners and other combustible materials were in heavy use, sometimes stored in isolated and well ventilated areas, and sometimes not. Surprisingly, even with all of the paints, thinners and solvents in use, none of the employees wore respirators. In addition, even with the constant noise produced by the heavy machinery, no one was wearing hearing protection. When asked about this, the factory management acknowledged the risks involved, indicated that respirators and hearing protection are available, but the workers prefer not to wear them.

Attached to the top exposure of the factory and uncomfortably close to live power lines are LPG containers. In any fire at one of these factories, firefighters should approach this as an outside operation, since the roofs are wooden, their stability is questionable and they should be avoided since they present a collapse risk and possible LPG explosion.

Delicias has a major railway that dissects the city, passing through its center. Up to twelve freight trains per day travel through Delicias, transporting furniture, cattle, vehicles, grain and fuel oil. Although no one was aware of other types of hazardous materials being transported on these trains, we couldn't help but wonder if that was wishful thinking. Reference was made to the fact that during the 1960's, a train accident resulted in an explosion in nearby Jimenez, and two train derailments occurred in nearby Saucillo. Train safety and preparedness for a derailment, explosion or other major event involving a freight train was, for us, a topic of considerable concern, and on a future visit we'd like to tour loading and unloading facilities, and discuss this concern in greater detail.

Another major industry that we visited was the IGP Jeans Factory, a huge finishing factory with thousands of employees where jeans are stone washed, dyed and stitched, with the factory operating 24 hours per day. Similar to the Koos Factory in Calvillo, the working conditions were impressive, with a full-time physician and two nurses on staff. Among the staff was also a full-time chemical engineer in charge of the distribution and safeguarding of all chemicals used in the factory, one of which is heavily regulated by the Mexican government because of security concerns. Safety appeared paramount in this facility with frequent inspections and numerous exits required by law and clearly marked. Unlike the Koos Factory, however, this building was fully sprinklered, and their fire brigades were equipped with PPE.

This facility offers an ideal opportunity for tabletop scenarios/multi-unit drills on MCI's, etc., and like the Koos factory, a disaster of any magnitude at this factory has the potential for significant loss of life, would have an enormously detrimental impact on the local economy, and should be avoided at all cost.

Firehouses

The Fire Department was founded in 1986. Delicias now has three firehouses, the newest of which (its main headquarters) was opened in 2010. The main headquarters is an impressive two-story building equipped with several apparatus bays, an Engine and a Ladder truck (both of which appeared to be in good condition), a dormitory, kitchen and large open areas, ideal for many different types of training. The second and third stations were older and smaller in size, but equally capable of being used for a variety of training.

Personnel and Training

Delicias has 22 paid and 6 volunteer firefighters, all of whom work an established tour schedule (24 hours on, 24 hours off, with rotating days off). The training they receive varies between 10 and 40 hours, depending on the course being taught. Our understanding is that individuals who want to become firefighters must first apply to Seguridad Publica to become either a firefighter or a police officer, then receive training "in-house." This is unlike EMS, where one can obtain training either through an accredited school or by the Red Cross.

In conducting an impromptu drill involving how to carry a person in distress down a portable ladder, it was quickly evident that help was needed in this area since the firefighters demonstrating their technique were using the ladder backwards, the effect of which is to compromise the safety of both the firefighter and the victim. When told that this was the way firefighters were taught, a different and safer technique was demonstrated, which the firefighters present immediately adopted. As stated, the main station offers a unique opportunity to provide diverse training given its size. Ladder operations, for example, could be practiced from both inside and outside, given the height of the building, and many other skills could be taught.

Although we were told that firefighters received ICS training, they added that ICS isn't followed. The firefighters with whom we spoke expressed great interest in the need for additional training, including ICS training, training in fire ground accountability, basic fire suppression utilizing hand lines, master stream use in large fires, wildland firefighting, greater familiarization with MCI's, etc.

Tools and Equipment

Delicias has a range of basic tools that include shovels and picks, portable ladders, a set of extrication tools, PPE and some SCBA. The tools and equipment we saw were generally aged and in usable but deteriorated condition. Beyond that, however, only roughly half of the firefighters had PPE, helmets, boots, hoods or gloves, which was clearly an immediate need. Lastly, although

the Fire Department has a dedicated radio channel, there seems to be a serious shortage of working radios.

Delicias needs additional tools and equipment, especially when considering the hundreds of structural fires, gas leaks, automatic alarms, medical runs and other calls to which they respond on an annual basis.

Apparatus

Of the approximately twelve vehicles assigned to the Fire Department (including a ladder truck, a tanker, an ambulance, three pumpers and a number of support vehicles), we were unable to determine how many of these vehicles were fully operational. The pumpers that we saw needed additional fire hose to connect to hydrants to ensure continuous water flow, especially when considering the risks posed by the furniture factories. Of all the communities we visited, however, Delicias clearly had the most apparatus, and the municipality seemed quite supportive of the Fire Department.

Water Supply

Delicias has 175 working hydrants (mostly in the newer parts of the city), with an average pressure of 40 pounds per square inch (psi). A folding tank was identified at one of the stations, but fire trucks were not equipped with enough hose to utilize "laying" to one or more hydrants. In addition, much of the fire hose we saw looked to be in questionable condition, and well beyond their useful life.

Miscellaneous Notes

Among the items discussed was the possibility of building a Fire Department Training Academy in Delicias. We'd be delighted to participate in further discussions on this topic in hopes of providing support to Delicias to make this a reality.

We were please to learn that Delicias operates a single phone number for emergencies, similar to our 9-1-1 system, and units are dispatched through a computerized dispatch system. Mutual aid is also available by calling neighboring communities, and a helicopter is occasionally available from the police when and as needed.

We were also told that Delicias has a Fire Cadet program for teenagers 15 years of age and above, and on the day of our visit, Seguridad Publica was donating two surplus police cars to Meoqui, which was a source of pride and enthusiasm for everyone involved.

Addendum

An addendum to the above needs to be added. On the last night of our trip, Stan Aviles from FDNY spent several hours at a firehouse in Delicias and responded with the firefighters to a report of a fire. Roughly one hour from the firehouse, the rapid response unit arrived to find a fire in progress in a large abandoned lot with overgrown grass that was being used as a dumping ground. The chauffer remained with the vehicle while the other member walked with the hose line, aiming it at the sky and operating the nozzle. Although a fair volume of water remained, the firefighters then attacked the fire at ground level with shovels. Their operation at this brush fire was the subject of considerable discussion, and perhaps of greatest importance was the fact that the members prevailed, and the operation went well and without incident. This was an important learning experience and will serve as a great operational aid as we provide training in the near future.

Meoqui, estado de Chihuahua



Densely populated with 44,000 residents in an area of 370 square kilometers, the main source of livelihood in Meoqui is agriculture. In addition to its production of vegetables, fruit trees, cereals, cottons and beans, the cattle industry is also thriving, as is tourism due to its many historic Spanish churches and the San Pedro River. Meoqui was also the subject of unfortunate international attention in 2010 when its female police was killed.

Firehouse, Apparatus, Training, Tools and Equipment

Meoqui has one firehouse with a second under construction, scheduled for completion Spring 2012. This is significant in that the municipal government, working with private citizens and local firefighters embarked upon an intensive fund-raising campaign in response to the growing needs within the community.

The Meoqui Fire Department has 16 firefighters (11 paid and 5 volunteers), 15 sets of PPE, limited fire hose, almost no SCBA and very few tools and equipment. Even with these limitations, between October 2010 and October 2011, they responded to over 1,300 structural and brush fires, emergencies involving livestock, gas leaks, vehicular accidents, etc., making this among the busiest departments we've seen.

The Fire Department has two pumper trucks (both with 600 gallon tanks) and a 1997 pickup/brush truck with a 250 gallon tank. One of the pumpers appeared to be in decent condition, while the second was in poor condition with an inoperable pump. It's our belief that the truck that's in poor condition should be converted to a water tanker, which is the best use for it at this time. The brush truck was equipped with an auxiliary pump and motor, but no SCBA was in evidence.

The risks taken, training provided, staff, tools and equipment in Meoqui are similar to the other departments we visited. With 35 hydrants that range from 25-50 psi depending on their usage (mostly located in newer parts of the city), the water supply is an often-unknown variable, thereby inhibiting fire suppression when firefighters are called upon. In addition, it didn't appear as if any of the apparatus were equipped with enough hose to utilize laying to a fire hydrant, with hydrants used primarily as water fill points.

Meoqui has neither the apparatus, tools, equipment nor training needed to manage a large event, and additional apparatus, fire hose and SCBA are clearly needed. It's essential that additional training is needed in firefighting basics, and on several other topics.

Addendum

During July 2011 it was Meoqui that first contacted the 911 FUND in search of assistance for themselves and their neighboring communities. Having then met with representatives from Meoqui during August in Cd. Juárez, we were convinced of their commitment to enhance firefighter safety and the public they serve, which led to our initial donation of two 53' truckloads of firefighting equipment and medical supplies, both of which are currently in El Paso, TX being processed for arrival in México and distribution between Calvillo, Meoqui, Delicias, Julimes, Parral, Rosales and Saucillo.

In mid-November, the 911 FUND began the process of donating an ambulance to Meoqui. The ambulance is scheduled for shipment to El Paso within a matter of days, in anticipation of it being brought to Meoqui. (As with all of our donations to this area, the 911 FUND defers to Calvillo, Delicias, Julimes, Meoqui, Parral, Rosales and Saucillo to decide where these donations can best be used.)

By mid-December, we will be donating a third 53' truckload of firefighting equipment, medical supplies and medical equipment (for local hospitals), and we're in discussion with Martin Siller (on behalf of the six municipalities who are signatories to the Convenio) about an initial training for firefighters and EMS personnel during February 2012.

The correspondence that began a few short months ago is blossoming into a full-blown relationship between the 911 FUND, Meoqui and the surrounding municipalities, and we thank Martin Enrique Siller Hermosillo from Meoqui, and Salvador de Anda from Cd. Juárez, for their efforts. We in the 911 FUND are inspired by your vision and commitment, and it's we who feel enriched by the opportunity to be of assistance.

Parral, estado de Chihuahua



Our next visit was to Hidalgo del Parral, nearly three hours to the south of Delicias. Rich in history and with a population of 107,000, Parral includes numerous small outlying communities adjacent to the city. Often associated with several historical figures, most famous of who is the Mexican revolutionary leader General Francisco "Pancho" Villa (killed on July 20, 1923), the city stands at an elevation of 5,500 feet above sea level.

An important mining town in the 16th century (and still processing and exporting lead, zinc, silver, copper and gold), 350 years of silver mining contributed to making Parral a bustling center in southwestern Chihuahua. Among its main industries are furniture manufacturing, PEMEX, and an ice factory that uses large amounts of ammonia (a potentially hazardous material). The September 2008 flood in Parral, the largest since September 1944 that killed dozens of people, raised concerns about the integrity of a local dam, forced schools to close, necessitated a national response, claimed the lives of several citizens, and some believe caused the rechanneling of the Parral River. The flooding was so severe that Parral's "sister city," Sante Fe, New Mexico, donated an ambulance and other equipment to help in response to this disaster.

After a warm welcome by the Fire Department at the entrance to the city, we visited the Parral Fire Department, the General Francisco Villa Museum, and the main abandoned silver mine atop the cities highest mountain. Although large portions of the mine are flooded, we were told that consideration is being given to using the water in the flooded mine as a reservoir, with gravity to direct the water for use in any major fire that the town might experience.

Firehouses, Personnel, Training, Apparatus, Tools and Equipment

Parral covers a large area with 41 firefighters, 31 of who are paid and ten of who are volunteers. Like elsewhere, all personnel work an established tour schedule of 24 hours on, 24 hours off, with rotating days off.

The training provided to Fire Department personnel was reportedly systematic but limited, with more being requested. We were told that Parral holds training drills on a monthly basis, and includes in these drills representatives from local industries. Parral expressed great pride in its fire prevention program in schools and industry, which includes emergency evacuation planning, instituted following the recent flood. Parral also utilizes mutual aid with surrounding communities, which includes an active role for the police department in response to both small and large-scale emergencies.

Parral has two Engines (both of which appeared to be in decent condition), and one water tanker (in poor condition), all of which are heavily used. The apparatus carries limited tools and equipment, no SCBA and few ladders, with the fire hose in generally poor condition. Most interesting was a makeshift grappling hook for drowning victims when the operation becomes a recovery. No extrication equipment was present, and when needed we were told it must be requested from the Red Cross, who are always cooperative and responsive.

The members of the Parral Fire Department all seemed highly motivated and dedicated to their work. While they acknowledged shortages in many areas, like the other firefighters we met in different communities, we were impressed by their commitment to improving the Fire Department, receiving additional training and serving Parral as effectively as possible.

Given its distance from other major communities, Parral has historically been self-sufficient, given the time and distance involved in their responding to emergencies in other communities, or vice-versa. That said, the help needed by the Parral Fire Department is unique since they are largely unable to share personnel, resources or training with the other parties to this report.

Water Supply

Parral has between 45 and 50 hydrants, seven of which are located in the main commercial district with an average water pressure of 60 psi.

Dispatch and Communications

066 is the dedicated emergency telephone number, akin to our 9-1-1 emergency system. When dispatch receives a call, the operator elicits as much information as possible, then contacts the Fire Department via radio to activate their response.

Saucillo, estado de Chihuahua



With a population of roughly 15,000 residents, Saucillo covers an area of over 2,100 square kilometers. The location of the Naica mines, Mexico's largest lead producer, little additional information was provided about Saucillo's demographics. We did, however, visit its only firehouse, where we were welcomed most warmly.

Risks, Training, Personnel, Apparatus, Tools and Equipment

Saucillo has nine paid and four volunteer firefighters. Their forty hours of training are provided by the Seguridad Publica, and while everyone spoke enthusiastically about the training they received, the general sense is that it's inadequate given their many and diverse responsibilities. The need for additional training was raised in virtually all conversations.

Saucillo's firefighters, like others, have no extrication tools, a limited supply of hand tools and equipment with which to do their job, and are reliant upon the Red Cross for assistance in medical, extrication and other emergencies, with a 30-minute estimated arrival time for Red Cross personnel who come from the neighboring cities of Camargo or Delicias.

Sharing their firehouse with Civil Defense personnel, Saucillo has a minimally equipped 2003 Ford F-350 rapid response vehicle with a capacity of 600 gallons of water. Other vintage 1960's and 1970's vehicles in Saucillo don't have operating pumps, can't generate any water pressure, and are, therefore, no longer in use.

Following their standard operating procedures (SOP), we observed their practice of stretching a 2-1/2" fire hose. Several problems with hose lays were observed and discussed, with the problems emanating in part from a lack of water pressure, which

adversely affects operations at any working fire. This was but one of many training-related topics we discussed.

Workload

Over the past year, the Fire Department responded to 328 fires, vehicle accidents and Haz-Mat events, and several hundred EMS emergencies. We were pleased to learn that Saucillo has a system in place in the event of a missing or injured firefighter, much like the "Mayday" system in use in the US. When a specific signal is transmitted, all incoming units, police, EMS or fire, are alerted to this emergency.

Saucillo is also beginning to enforce a "two-in two-out" policy, which impressed us greatly.

Section Two Communities Not Visited

Julimes, estado de Chihuahua

Smaller communities such as Julimes, with a population of fewer than 5,000, also have large industries, including a cacaotera processing plant for nuts and a chilera for the processing of chili. Situated along the Rio Conchos River, discussion took place about the potential dangers they face, including the fact that the chilera uses LPG for processing, which poses a clear and immediate danger to personnel and the facility itself in case of an accident.

The Julimes Fire Department reportedly has six volunteer firefighters who work closely with the police department and cover an area of 2,700 square kilometers. With no hydrants, SCBA or program of building inspection, virtually no training, limited tools and equipment and a single mini-pumper, we applaud the recognition in Julimes that there are challenges to be met, and hope to be able to support Julimes with training and equipment in the days ahead.

Madera, estado de Chihuahua

Madera is a community of approximately 30,000, located in the mountains. We gathered information about Madera during an interview with city leaders on November 1st while visiting Delicias.

A somewhat isolated community because it's located in forested lands, Madera faces a great threat from wildland fires. Firefighters operate from one station staffed entirely by volunteer firefighters. The Madera Fire Department has a brush truck and a 1/2 ton pickup truck. Madera also has three ambulances, one of which is staffed at all times with a driver and a paramedic who are often called upon to transfer patients some 200 km to a larger hospital. It is unknown whether EMS personnel are available to staff a second ambulance when one is away from the community. It was further reported that the community has no access to helicopter support for EMS or for wildland fires.

Firefighters operate at wildland fires primarily with shovels and hoes, lacking more traditional wildland tools such as McLeod's, Pulaski's, back-pack suppression units, drip torches, fire shelters, etc.

Madera's needs are perhaps even more dire than those found in the other communities we visited given their isolation, limited apparatus, tools and equipment, lack of water support or weather forecasting tools, all of which is compounded by an ongoing risk of wildland fires.

Training should be provided on ICS, basic wildland firefighting (including weather forecasting, topography and fire dynamics), water supply and wildland firefighter safety (anchor points, escape paths, use of fire shelters, etc.) to name but a few of the subjects discussed.

Rosales, estado de Chihuahua

Rosales is another small community of approximately 6,000 residents. We were provided with written information about Rosales and its needs in advance of our trip.

Rosales has eight firefighters, three of who are paid and five of whom are volunteers. The community has no hydrants and one pickup/brush truck that's not in service due to an inoperable water pump. Even without use of a fire truck, the Rosales Fire Department responded to roughly 200 fires last year, and like many of the other departments we visited, has virtually no tools or equipment, PPE, SCBA, or usable fire hose. Additional training, apparatus, and all types of tools and equipment are desperately needed.

Unlike other Fire Departments however, Rosales has (from photos) a modern ambulance that last year responded to 1,200 medical calls. Rosales also uses 066 as their emergency call number, relies heavily on mutual aid, and clearly is a community with many immediate needs.

Conclusion

While each of the Fire Departments we visited, as well as those that we didn't visit but are discussed herein, operate according to the training they have received, along with the personnel, apparatus, tools and equipment that they have, we observed several procedures (use of portable ladders, stretching a hose line, etc.) where training needs to be provided to safeguard firefighters and maximize their effectiveness.

All told, however, the visit was an extraordinary learning experience, and the recommendations that follow flow from our observations and discussions during the visit.

Section Three **Problems, Recommendations an Topics for Further Discussion**

Identification and Quantification of Risk



The municipalities we visited have much to be proud of in their efforts to train and equip firefighters, enhance pre-hospital care, expand fire prevention and response capacities, and lay a foundation for future training in these and related areas.

While current staffing patterns, personnel responsibilities and protocols followed emanate from a blend of perceived need and historical experience, they are impacted by complex political and economic factors. In the current configuration, each of these communities:

- Is largely self-reliant in terms of paid and/or volunteer personnel to fight fires, provide training, and procure tools, equipment and apparatus for firefighters who respond to fires and other emergencies in their communities and the surrounding areas.
- Provides basic medical supplies and pre-hospital care by paid and/or volunteer firefighters and/or medical staff employed by local clinics or the Red Cross. Limited training, compounded by an acute shortage of ambulances, inhibits these personnel in their efforts to perform even more and increasingly diverse tasks, not the least of which is the full range of EMS, first aid, pre-hospital care at MCI's, etc.
- Appears to have excellent relationships with local industries, though little formal collaboration was noted in terms of joint training (in ICS, in response to MCI's, in conducting tabletop exercises, etc.) and/or access to acquiring standardized equipment and/or apparatus.

While this configuration has historically resulted in positive relationships and open communication, we see the execution of the "Convenio de colaboración Intermunicipal para el fortalecimiento de los Departamentos de Bomberos" as a monumental achievement. In furtherance of this effort, we also see this Convenio as the conceptual framework and structural foundation through which local and Regional needs can be met, with resources distributed where and as needed in a democratic and proportional way.

Given the historic frequency of natural and man-made disasters in these communities, we believe that additional discussion of multi-hazard emergency and response planning must occur. Such a discussion must include pre-disaster mitigation (PDM) planning, which must be incorporated into future discussions. As it relates to any type of disaster, while it may be difficult to calculate "damages avoided," PDM planning results in significant net benefits to everyone involved by reducing future losses and hazard-related expenditures.

While excellent work is underway in coordinating emergency response to disasters that previously occurred and will undoubtedly occur in the future, we see the need to formalize these activities by developing a plan to prevent (where possible) and cope with the effect of large scale disasters, and to coordinate actions in public institutions, municipalities and the private sector to enhance prevention, mitigation, response and rehabilitation within those communities potentially affected by any such emergency.

While it's impossible to create an exhaustive list of everything that could be done to prepare for a disaster, preparing to the best of one's abilities makes virtually any disaster far less devastating. We believe, therefore, that it's imperative that each community continue building its capacity to preserve, maintain and reconstitute its ability to function under the threat or occurrence of *any* disaster that has the ability to disrupt life as it is known.

Recognizing that leadership is never put more strongly to the test than in a crisis situation where the objectives are immediate and so are the results, we applaud the recognition that complacency is not an option, and that denial could be deadly. That said, local municipalities need to think about emergency management, and the cascading effects resulting there from by focusing their combined efforts on strengthening their mitigation, preparedness, response and recovery abilities, while becoming sensitive to the subsequent chain reaction that occurs post-event.

We recommend, therefore, that a full-blown risk-based review of the hazards facing the Region be undertaken. Once completed, such a review would form the basis for long-term all-hazards strategic planning. By identifying current and potential risks within the Region, the parties to this report, and the surrounding communities, would be better able to develop a continuity of operations plan that should include:

- Evaluation of the effectiveness of current prevention programs and response capabilities, and the development of standards, policies and procedures to address both prevention and intervention.
- Determination of resource requirements to meet current and prospective needs.
- Initiation of multi-year planning whereby emergency and response planning on the local level works seamlessly with national response protocols, with the society-at-large being educated in disaster prevention, response and recovery.
- Affirmation that these are living protocols to be periodically updated as need and experience dictate.

As the aforementioned Convenio evolves to enhance general preparedness, so too must it expand and diversify the skills of all firefighters, be they paid or volunteer. Advancing public safety through fire prevention, investigation and education, skills enhancements are needed in the following areas:

- Firefighting (both wildland and structural)
- Medical emergencies

- Fire prevention (inspection, education, enforcement and evacuation)
- Fire investigation (arson, cause/origin, intelligence, law enforcement and site security)
- Transportation incidents (land, air, rail and water)
- Catastrophic weather events (floods, severe climate changes, etc.)
- Special events planning and response (especially where large numbers of people are in attendance, with the added threat of mass casualties, which makes these events take on a whole new dimension and makes them no longer routine)

In addition, we recommend that these municipalities look to:

- *Improve Emergency Response Operations by*
 - Enhancing their overall preparedness to respond to fires, emergencies and disasters.
 - Implementing initiatives to improve overall system performance, operational coordination, resource deployment and service delivery of pre-hospital emergency medical care.
 - Developing a system to provide incident command (IC) with on-scene critical information, enhance emergency response and provide a safer operational environment.
 - Extending and enhancing training for new recruits, while developing training initiatives to ensure the maintenance and sustainability of core competencies, along with newly acquired increasingly specialized skills for all firefighters.
 - Developing a continuity of operations plan that in the event of an emergency or threat of an emergency, ensures the continuation and uninterrupted delivery of critical services to the public as well as to other agencies and local organizations.
- *Strengthen Management and Organizational Development by*
 - Implementing a performance management system for mission-critical functions.
 - Developing rank-specific training for officers.
 - Developing a Region-wide communication strategy utilizing available and relatively inexpensive technologies.
- *Improve Fire Prevention and Fire Safety Education by*
 - Enhancing and developing additional fire prevention and educational outreach programs to make communities safer.
 - Implementing new safety requirements and evacuation plans in case of major emergencies.
 - Integrating fire prevention with community safety education programs and expanding the message to include other safety topics.

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Training

It's our understanding that while firefighters in these communities participate in a formal (albeit limited) forty hour training program, we see it as urgent that expanded training be introduced to reinforce current and build new skills. Didactic and hands-on instruction in fire prevention, firefighting, dealing with hazardous materials, in special operations, leadership training, instructor development, pre-hospital care, etc., all need to be expanded.

As it relates to leadership training, increased familiarity is needed with ICS, defined as a standardized on-scene emergency management protocol that allows its users to adopt an integrated organizational structure equal to the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries.

We suggest therefore, that a program of expanded training be introduced through:

In-Service Training

Repeatedly told that additional basic training was needed, we see pre-service training, in-service training, multi-unit drills (cross-brigade and cross-municipality) and large-scale exercises as a critical need that must be addressed.

Skills must be maintained through a combination of practical experience, classroom, hands-on and refresher training. Firefighters must be proficient at assessing a situation, formulating an intervention plan and implementing that plan within minutes, if not seconds. If a plan is less effective than hoped for, and/or if other variables are introduced (for example, embers ignite ancillary fires in less accessible locations), firefighters must quickly know it, change direction and return to work. These skills can only be learned by training and practical experience, or it will cost people their lives.

All firefighters should be required to participate in mandatory in-service training on a periodic basis on topics to include size-up, fire attack, search and rescue, ICS, etc. This is especially true for firefighters who respond to fires on an infrequent basis, as well as for those who (for medical or other reasons) have been "off-line" for an extended period.

Training must be ongoing, repetitious and as realistic as possible, without compromising safety. Since firefighting is often chaotic, especially when working in an unfamiliar environment, skills must be second nature. Important also is the need for brutally honest company-based reviews of each incident to assess the "lessons-learned" from interventions, then to adapt accordingly.

We encourage the parties to this report and every firefighter on an individual basis to adopt the credo of the Fire Department of the City of New York (FDNY), displayed in large letters above the entranceway of the FDNY Training Academy, which states with irrevocable conviction: ***"Let No Man's Ghost Return To Say His Training Let Him Down!"***

Basic and Specialized Training

While the ultimate goal of Fire Departments worldwide is largely the same, it appears as if some of the methods used in the municipalities we visited differ from those used by other firefighters to achieve these goals. We recommend, therefore, that standardized training be given in the following areas:

- **Basic Skills:** Communication on the fire ground, hose lays, monitoring of firefighters during operations, ropes and knots, search techniques, MCI's, SCBA procedures, physical fitness, etc. All of these require minimal equipment and must be mastered before any emphasis can be placed on advanced training.
- **Firefighter Removal:** Firefighter safety is an extremely important topic. Removal techniques for injured firefighters are an essential area to be stressed since a "down firefighter" may be the result of a medical condition, and/or a fire-related injury.

Officer Training

Officer training is needed for newly promoted officers. Training in officers' roles and responsibilities, in administrative and operational matters, decision-making, problem solving, company-based training, etc., are required of officers everywhere, and should be introduced as an ongoing part of the training they receive.

An important component of officer training and responsibility is the need for an in-depth understanding of ICS, since the accountability system and ICS currently in place is vague at best. The first step in accountability and the use of ICS is to ensure that everyone speaks a common language and understands the command structure. Second should be a simple rostering of fire companies and volunteers with this information provided to incident commanders at the fire scene.

Incident Command and safety coordination, particularly during an emergency, coupled with the strategies and tactics required to successfully manage a dynamic fire or other type of emergency must be developed. Understanding and comfortably working with the IC and ICS is critical if all parties are to have appropriately trained officers capable of meeting the ever-increasing operational demands placed upon them. Effective role-related training is essential when maintaining operational capability and ensuring the health and safety of firefighters and other emergency service personnel.

Officer training at all levels is critical to the maintenance of effective risk assessment, decision-making, planning, objective setting, prioritizing and reviewing the practical outcomes of emergency interventions. Officers must have a clear understanding of their roles and responsibilities at incidents, together with an understanding of ICS principles and how to safely maximize personnel and other resources during a major emergency. It is *strongly* recommended, therefore, that additional training be introduced to improve operational leadership at all levels.

Instructor Development

Akin to the logic that a good teacher doesn't necessarily make a good principal, a good firefighter doesn't necessarily make a good instructor. That said, instructor development should be introduced. How to teach the adult learner, developing questioning techniques, giving lectures, demonstrating skills, encouraging interactive activities, etc., are important skills to be learned, and correlate directly with instructional outcomes.

Excellent training is nothing without an excellent trainer. Trainers must be confident in their skills, words and body language, the effect of which is to help persuade participants to trust both the instructor and the material being presented. Instructor development designed to teach training skills is especially important for those who are called upon to develop and conduct training on an occasional basis.

To maximize the number of firefighters who participate in future training, we suggest that future training be delivered in a train-the-trainer format, thereby increasing the instructional pool while enhancing the skills of firefighters to "hand down" the skills they are taught to different fire companies and/or municipalities.

Instructor and Course Evaluations

Instructor and course evaluations (completed anonymously and submitted for review and follow-up) should be introduced to ensure that instructors are performing well, materials are being effectively taught, and courses provide meaningful information in response to ongoing needs and priorities (see Appendix C for a sample Course/Instructor Evaluation).

It is the responsibility of municipal leadership to ensure that performance evaluations are conducted in a fair and dispassionate manner, and become one of several factors when considering an individual for promotion.

Apparatus, Tools and Equipment

We see the acquisition of additional newer apparatus as essential, which is an area where we hope we can help. It's our belief that apparatus procurement should be collaborative and proactive. That said, the types of incidents and emergency scenarios that firefighters are trained to deal with must correlate with the type of apparatus available to them.

A study should be undertaken to determine the recommended number and types of apparatus needed, as well as what their specific functions should be. Pumpers, brush trucks, water tankers, pick-up trucks or ATVs equipped with Skid Units (see Appendix D for a description of Skid Units and their many uses) should be considered. We also recommend that a tracking system be instituted to ensure that all municipalities know the location and availability of apparatus at all times, with spare apparatus strategically placed in areas known to have the greatest workload.

Based on our own observations and many discussions with firefighters and municipal representatives, it is clear that firefighters have minimal firefighting equipment, few hand tools (axes, rounded point shovels, brush rakes, etc.), limited PPE, eye protection, radios for communication on the fire ground, Indian or other wildland fire packs to carry water and safety gear, even less first aid equipment, etc.

Another concern is the limited ability to hydrate firefighters on the fire ground, given the general unavailability of backpack hydration systems. To stay healthy, the human body must be adequately hydrated. While the optimum quantity of fluid to be consumed by firefighters varies based on an individual's physical condition, the local weather, terrain, equipment being used, etc., a good rule of thumb is that firefighters should drink 1 to 2 cups (240 to 480 ml) of water, juice or sport drink before beginning work, take regular fluid breaks while on duty, and consume at least 1 quart (0.95 liters) of fluid per hour.

We see the acquisition of additional tools and equipment, the need to constantly hydrate firefighters and the lack of water on the fire line as major concerns, which are areas where we hope to be of help.

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Operations

Among the notable strengths that we observed include a culture of working in close collaboration with the different municipalities and community organizations, an established system of both paid and volunteer firefighters, and of greatest significance are the many dedicated, competent and experienced people with whom we met.

From an operational standpoint, however, there are also challenges facing these communities that must be discussed. Some of these challenges are created by a seeming general lack of accountability on the fire ground, others are organizational in nature in terms of the informality with which communities respond to fires, and some reflect the age-old fire service tradition that "this is the way we've always done it."

Specific weaknesses that we observed include:

- Limited training in ICS, firefighter safety, survival training, strategy and tactics, equipment maintenance, engine and pump operations, use of water as a firefighting tool, emergency first aid, etc.
- Basic fire control.
- Command and control.

- Fire investigation.

The overriding operational emphasis for municipalities and Fire Departments should be to provide firefighters with as safe and effective a work environment as is humanly possible.

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Water Supply

In addition to a general lack of drinking water for firefighters, a concern we noted was a limited water supply on the fire line. That said, we see the need to develop procedures regarding how best to utilize water in whatever quantity is available.

Water is an important tool for firefighters, and firefighters need additional training in effective engine and hose lay operations. Limited access to a dedicated water supply for firefighters is a serious problem. From a Regional growth perspective, this problem will not get better on its own, and if left untreated, has great potential for civilian and firefighter loss of life.

On the fire ground, a strategically located water supply can be provided by rain water collection systems, portable or prepositioned Rotoplas-type water storage tanks, water tankers brought to an area near the fire ground, etc., to help address this problem. Other inexpensive options include portable water tanks, above ground pools, fixed storage tanks including fuel tanks buried in high fire danger areas, folding water tanks or flexible framing arrangements that can quickly create temporary water containment systems. Folding water tanks and flexible framing systems are easy to assemble, don't require extensive grading or surface preparation, and provide water storage for hundreds or thousands of gallons for firefighting operations.

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Dispatch, Communications and the need for an EOC

A number of challenges are prevalent in this area, and further clarification is needed on the availability of redundant or fallback control facilities that could be activated during a major emergency. This being the case, we recommend:

Dispatch and Communications

We encourage the universal adoption of a Region-wide 066 number dedicated exclusively for emergency calls, with the same number accessible from either a landline or a cell phone. Operators receiving these calls should:

- Be able to quickly ascertain the nature of the emergency.
- Route the call to the appropriate municipality and/or agency (fire, police or EMS).
- Stay on the line with the caller (for example, if a child is calling) until help arrives.
- Be trained in emergency management protocols and be able to coach callers in basic first aid, CPR or related procedures.
- Have access to mapping and topographic information.

While we acknowledge that creating a system such as this brings new responsibilities and creates training, management and administrative issues, we believe that the benefits of such a system far outweigh these concerns.

Emergency Operations Center (EOC)

No Regional EOC is operational or envisioned. As a result, the communication infrastructure in local municipalities and their personnel are at severe risk from an unexpected event such as a fire, larger-scale natural disaster or act of terrorism, which when combined, make the current resources a very soft target.

If local dispatch facilities were incapacitated, emergency services throughout the Region would suffer a massive disruption. Accordingly and as a matter of some urgency, it is strongly recommended that an effort be undertaken to activate secondary facilities to serve in a redundant fashion as fallback communication, command and control centers.

Once established, these facilities should be tested and exercised on a regular basis to ensure that clear lines of communication and control can be quickly re-established, and that all personnel understand why, when and how the activation of the fallback facility will take place.

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Mutual Aid and Interagency Operations

The relationship between the parties to this report, local hospitals, medical clinics, utility companies, etc., while good, need to be expanded, the goal of which, in any emergency during which many of the above play a role, would be to enhance firefighter and public safety. The mutual aid system should be one of seamless interoperability. To the extent that such a system doesn't fully exist, a mutual aid agreement must be developed, periodically reviewed and updated to ensure its accuracy. Developing reliable mutual aid programs is a complex and ongoing challenge, and should (at a minimum) reflect each participant's capabilities in the following areas:

- Animal health emergency support
- CBRNE detection
- Citizen preparedness and participation
- Citizen protection and evacuation
- Critical infrastructure protection
- Economic and community recovery
- Emergency public information
- Environmental health
- EOC management and operation
- Facility management
- Firefighter health and safety
- Firefighting operations and support
- Information gathering and recognition of indicators and warnings
- Interoperable communications
- Isolation and quarantine
- Mass care/prophylaxis
- Medical supplies management and distribution
- Onsite incident management
- Risk management
- Structural damage and mitigation assessment
- Triage and pre-hospital care
- Volunteer management

Formal mutual aid arrangements enable participants at all levels to coordinate preparedness activities more effectively, spread costs, pool resources, distribute risk, and thereby increase the overall return on investment. We also recommend that an ongoing program of expanded joint

training, drills, large-scale exercises and strategic personnel exchange be introduced, and that familiarity with and training at major commercial sites also be initiated to enhance communication and collective preparedness. *Practice makes perfect!*

In furtherance of these efforts, ongoing coordination must also be maintained with all relevant organizations throughout the Region to develop an all-hazards preparedness policy that will define the responsibilities and resources to be brought to bear in any type of emergency. A standardized set of concepts would allow for effective, efficient and collaborative incident management at all levels and at any emergency.

A unified command system should also be developed when multiple agencies are involved and incident jurisdiction has the potential of coming into play (for example, during a major event involving police, fire and medical personnel), or when incidents cross political or geographic jurisdictions.

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Community Fire Safety

An important program that should be introduced is fire safety education, the goal of which is community well being.

Building on some of the existing efforts to teach basic fire safety education in schools and through other activities, we cannot overstate the importance of introducing the concepts of risk reduction and basic preparedness into the everyday lives of large portions of the population. Children and adults alike should be taught about fire safety, which is an invaluable tool in fire prevention.

Community fire safety activities should be a core responsibility for each firefighter, and form an important part of their daily work routine. *Every opportunity must be taken to promote fire safety education.*

We encourage the parties to this report to expand their efforts in this area by establishing local Fire Councils as another tool through which they can enhance public safety, help manage resources, sustain environmental quality, create a forum to address issues of concern and serve as a focal point for sharing ideas. The relationships and cooperation that already exist between the local municipalities is an excellent foundation, and we suggest that in concert with local organizations and industry representatives, you actively seek other partners (such as farmer and environmental organizations, the church, concerned citizens, etc.) to form the basis of local Fire Councils, which could then be formalized with regularly scheduled meetings.

A continuing investment of time and resources in fire safety is among the best investments that could be made to reduce losses from fire and other emergencies.

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Fire Cadets



Among the issues discussed was the need to develop a program for Fire Cadets, and we strongly encourage this discussion to continue.

Aimed at boys and girls between 12 and 18 years of age, Cadet activities should be supervised by Fire Department personnel, with Cadets required to adhere to published standards of good conduct, while developing character and leadership qualities in a friendly and professional setting. Instructors must be supportive, enforce the rules, and insist that all participants work and learn.

The policies and procedures of the Fire Cadet program should provide youth with positive adult and peer role models in a safe and supervised environment. Uniforms should be provided, with Cadets coming together on weekends to work and train in an organized format where discipline and the essential work of firefighters are emphasized.

Providing training in fire prevention and fire safety education, as well as hands-on familiarity training with the equipment and apparatus used, Fire Cadets are provided with a unique first-hand look at the essential role that firefighters play in the community, and when old enough, Cadets should have the opportunity become volunteer firefighters in their communities, or paid firefighters if the opportunity was to present itself.

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The Need for Expanded Dialogue with Government and Industry

Fire protection has historically been a local responsibility. While each community has both static and dynamic conditions that are unique, a system of fire protection that works well in one community cannot be assumed to work equally well in another. *Fire prevention is the key*, and without intensive and ongoing local-level planning, any system of fire protection is apt to be ill suited to local needs.

Each community must balance acceptable risks with the need for adequate fire protection and reasonable financial costs. While major emergencies could easily overwhelm the capabilities of local communities, as a result, detailed cooperative plans for coping with major emergencies should be developed. Effectiveness can only be improved through pre-planning, joint training, familiarity with each other's day-to-day operations and some standardization of tools, equipment and response protocols.

Even with joint planning, however, expanded coordination should involve the national and state governments, as well as local industry. While fire prevention, fire suppression and fire safety education should remain a local responsibility, the national and state governments, in collaboration with local municipalities, should work to expand regulatory responsibilities in these areas, as well as code enforcement and financial support for the invaluable services that firefighters perform.

We recognize that government alone cannot satisfy all requirements and that industry must fulfill its responsibility when it is the beneficiary of services provided by firefighters who are called upon in time of need. Firefighters are a basic form of insurance. No one likes paying the cost for this insurance, but they deeply appreciate having it in times of emergency. ***In prevention we have cure***, and our hope is to strengthen industries awareness of the risks from fire, natural disasters and/or potential acts of terrorism.

By sharing information, identifying risks, performing vulnerability assessments, developing emergency response and business continuity plans, enhancing overall readiness, implementing appropriate prevention and protection programs, and by providing increased financial support for local municipalities, industry can dramatically assist their community both by being an employer, and in helping respond to and recover from an emergency.

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Topics for Further Discussion / Short-Term Timetable of Proposed Activities

We begin this section by stating what hopefully is obvious, namely, that we are prepared to elaborate on any of the information provided in this report, and/or to provide additional material on the topics discussed or other topics of interest.

As we move to expand the relationship between the parties to this report and the 911 FUND, a component of our future discussions must include the need to develop collateral relationships with:

- Airlines (such as Aero Mexicana, Interjet, Volaris and others), who could be called upon to support joint training efforts by providing transportation for 911 FUND subject matter experts (SME's) who are prepared to donate their time and expertise to provide training on the topics discussed in Calvillo, Delicias, Julimes, Meoqui, Parral, Rosales, Saucillo and/or surrounding communities.
- Domestic and international shipping companies who could be called upon to provide transportation of donated apparatus and/or equipment.
- Hotels to provide accommodations for 911 FUND personnel who come to México to provide training.

We welcome your thoughts in all of the above areas. In addition and as it relates to a specific timetable for 911 FUND activities over the next few months in furtherance of this report and in support of those with whom we met, the following is proposed:

- +/- 1 December 2011: The ambulance being donated by the 911 FUND to Meoqui will be transported from Ohio to El Paso, TX, in anticipation of it being brought to into México.
- +/- 10 December 2011: The 911 FUND will ship a third 53' truckload of firefighting equipment, medical supplies and medical equipment (for local hospitals) to El Paso, TX, where it will be processed for shipment to México for distribution between Calvillo, Delicias, Julimes, Meoqui, Parral, Rosales, Saucillo and possibly other communities.
- +/- 15 January 2012: That recipients of this report will provide the 911 FUND with a detailed response to this report, to include an identification of their future priorities and suggestions how the 911 FUND can be of assistance in your efforts to achieve these goals.
- +/- 15 February 2012: A maximum of six senior firefighters and/or EMS personnel (all of whom are SME's, many of whom would be Spanish-speaking, with the actual number to be determined by the subjects and number of personnel to be taught) from the US to visit México to provide approximately one week of training for firefighters and medical staff from Calvillo, Delicias, Julimes, Meoqui, Parral, Rosales, Saucillo and possibly other communities.

The instructional model we recommend is a train-the-trainer format. Instruction and instructors alike will be evaluated for their effectiveness and depending on their success, future-training activities will be modified accordingly.

The training we propose during February 2012 and thereafter, would include some or all of the following topics:

- Practical/operational skills and tool usage for firefighters, including progressive hose lays, mobile attack, use of and access to water (drafting, tankers, etc.), pump operations, tools and specialized equipment, mop-up, live fire training, etc.
- Emergency first aid, victim stabilization, tagging and packaging patients, trauma, dealing with crush injuries, MCI's, etc.
- Creating Community Emergency Response Teams (CERT), the purpose of which is to educate community residents who are *not* firefighters about disaster preparedness for hazards that may impact their community. CERT provides training in basic disaster response skills including fire safety, light search and rescue, team organization and disaster medical operations. Using the training learned in classroom settings and during exercises, CERT members support emergency response agencies by taking a more active role in emergency preparedness projects in their community by assisting within their community following an event until such time as fire, police, medical personnel and other responders become available to help.

- Leadership training for officers and supervisory personnel, to include fire behavior, fire ground risks and decision-making, situational awareness, firefighter survival and accountability on the fire ground, ICS, size-up, weighing the benefits of a chosen strategy and tactics prior to committing personnel to operate in dangerous environments, etc., and a large-scale full-day simulation for senior officers from multiple agencies.
- Instructor development as we move to implement a train-the-trainer model throughout the Region.

While these activities are underway, the 911 FUND and the parties to this report can discuss future training and timelines for additional donations as we implement the Convenio and further develop an ongoing relationship between our respective organizations.

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Conclusion

Much like emergency first responders the world over, the core values of the firefighters we met and the municipalities of Calvillo, Delicias, Julimes, Madera, Meoqui, Parral, Rosales and Saucillo include:

- **Service:** An unwavering call to protect and serve.
- **Bravery:** The ability to overcome fear through fortitude, instinct, compassion for others and training.
- **Safety:** To keep citizens free from danger by providing the best equipment and training to reduce risk to the public and its members at fires and other emergencies.
- **Honor:** The enormous commitment necessary to perform tasks that require excellence of character, inspire each other through pride, and acknowledge that every action reflects on each firefighter and each of the related organizations, both past and present.
- **Dedication:** A commitment to the objectives of the mission of the Convenio that was signed 3 November 2011 as part of their codes of conduct in the faithful observance of duty, and which calls upon everyone to fulfill their obligations professionally and honestly.
- **Preparedness:** By combining all of the components of their core values, Calvillo, Delicias, Julimes, Madera, Meoqui, Parral, Rosales, Saucillo and others, with help from the 911 FUND, can maintain a constant state of readiness to meet all threats and challenges, traditional and new.

The single greatest asset of the Republic of México continues to be its uncommonly dedicated men and women, both uniformed and civilian. We applaud your efforts to reduce firefighter risk, enhance civilian health and safety, and minimize property loss from fires and other emergencies. The 911 FUND is privileged to be of assistance.

Appendix A

Acronyms

ALS	Advanced Life Support
ATV	All-Terrain Vehicle
BLS	Basic Life Support
CBRNE	Chemical, Biological, Radiological, Nuclear and Explosive
CERT	Community Emergency Response Team
CONAFOR	Comisión Nacional Forestal
CPR	Cardio-Pulmonary Resuscitation
ProFePA	Protección Federal Para el Medio Ambiente
EMS	Emergency Medical Services
EOC	Emergency Operations Center
FDNY	Fire Department of the City of New York
GPM	Gallons Per Minute
Haz-Mat	Hazardous Materials
IC	Incident Command(er)
ICS	Incident Command System
IDLH	Immediately Dangerous to Life or Health
IV	Intravenous
LPG	Liquid Propane Gas
MCI	Multiple Casualty Incident
OEM	Office of Emergency Management
PDM	Pre-Disaster Mitigation
PPE	Personal Protective Equipment
PROFEPA	La Procuraduria Federal de Protección al Ambiente
PSI	Pounds Per Square Inch
SCBA	Self-Contained Breathing Apparatus
SME	Subject Matter Expert
SOP	Standard Operating Procedures
US	United States
UTV	Utility Terrain Vehicle

Appendix B

Convenio de colaboración Intermunicipal para el fortalecimiento de los Departamentos de Bomberos

Convenio de colaboración Intermunicipal para el fortalecimiento de los Departamentos de Bomberos.

El presente convenio intermunicipal tiene como objetivo la colaboración conjunta de los municipios para fortalecer los departamentos de bomberos de los municipios de: Julimes, Rosales, Saucillo Meoqui, Delicias y H. de Parral.

Los propósitos de este convenio son:

1. Establecer estrategias generales que permitan elevar la capacidad de respuesta regional de los cuerpos de bomberos de los municipios en mención. Siempre teniendo presente la protección de la sociedad en lo general y la seguridad de los elementos de los cuerpos de bomberos en lo particular.
2. Se harán las actividades necesarias para adquirir y gestionar equipos y materiales que faciliten el desempeño del trabajo de los cuerpos de bomberos municipales.
3. Para los términos de colaboración y beneficio se tomará en cuenta la población de cada municipio y sus características de tipo urbano y rural.
4. En situaciones de emergencia se trabajara en conjunto según sea el incidente a tratar, facilitándose apoyo y medios entre unos y otros municipios tal y como se hace desde siempre.
5. Todas las decisiones pertinentes serán acordadas por unanimidad entre los suscritos.

Marco Legal:

El presente convenio de colaboración municipal se celebra según las facultades expresadas para las entidades municipales en el artículo 115 constitucional.

Firman de Los Presidentes Municipales:

 Municipio de Julimes C. Ramon Porras Valencia	 Municipio de Rosales C. Martin Fuentes	 Municipio de Saucillo C. J. Cesar Muñoz Reyes
 Municipio de Meoqui C. J. Salvador Garcia Esquivel	 Municipio de Delicias C. Mario Mata Carrasco	 Municipio de H. de Parral C. Cesar Dajjala Amaya

Testigos de Honor

Fundación 911

 Dr. Stephan Hittmann	 Dennis Hass	 Stan Aviles
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Firmado el día 3 de Noviembre de año 2011.

Appendix C
Sample Course/Instructor Evaluation

EVALUACIÓN

(A todos los estudiantes se les pide que complete un formulario de evaluación al final de cada clase y lo devuelva al instructor)

Curso Tomado: _____

Nombre del Instructor: _____

Su Rango: _____ Departamento de Bomberos: _____

Formato de Curso: Practica: _____ Sal: _____ Fuego en Vivo: _____

	<u>SI</u>	<u>NEUTRAL</u>	<u>NO</u>						
1. Estuvieron los objetivos del curso indica claramente: Were the course objectives clearly stated:	___	___	___						
2. El curso contribuirá a su conocimiento y habilidades? Did the course contribute to your knowledge and skills?	___	___	___						
3. En general el curso se reunió mis expectativas: Overall the course met my expectations:	___	___	___						
4. La duracion del curso fue adecuada: The course length was adequate:	___	___	___						
5. El instructor estaba bien preparado: The instructor was well-prepared:	___	___	___						
6. El instructor me hizo sentir comodo para hacer preguntas: The instructor made me feel free to ask questions:	___	___	___						
7. El instructor respondió a las preguntas delos estudiantes: The instructor responded to student questions:	___	___	___						
8. El instructor dio ejemplos claros: The instructor's examples were clear:	___	___	___						
9. El instructor pudo dar otras explicaciones cuando fue necesario: The instructor was able to give alternative explanations when needed:	___	___	___						
10. El instructor motivo a los estudiantes a participar: The instructor encouraged students to participate:	___	___	___						
11. El instructor hizo uso del tiempo eficazmente durante la clase: The instructor managed class time effectively:	___	___	___						
12. El curso fue lo que usted esperaba: Was the course what you expected it to be:	___	___	___						
13. Cree usted que este curso aumentará la capacidad de su departamento: Do you think this course will increase your department's capabilities:	___	___	___						
14. ¿Cómo calificaría el nivel técnico de todo el material presentado: How would you rate the overall technical level of the material presented?	___	___	___						
1	2	3	4	5	6	7	8	9	10
demasiado simple too simple									demasiado complicado too complex
15. ¿Cómo calificaría el instructor en las siguientes areas: How would you rate the instructor in the following areas?									

Conocimientos Técnicos

Technical Knowledge

1	2	3	4	5	6	7	8	9	10
demasiado simple									con mucho conocimiento
too simple									very knowledgeable

Estilo Educativo

Instructional Style

1	2	3	4	5	6	7	8	9	10
pobre									excelente
poor									excellent

16. ¿Qué te gusto más acerca del curso:

What did you like most about the course?

17. ¿Qué te gusto menos acerca del curso:

What did you like least about the course?

18. ¿Cómo podrías mejorar el curso para cumplir con tus necesidades:

How could the course be improved to better meet your need?:

19. ¿Qué sugerencias tienes para los próximos cursos:

What suggestions would you make for future courses?

Appendix D

Skid Units

A Skid Unit is the common name used to refer to a light weight self-contained slip-on firefighting platform, designed for installation on vehicles such as pick-up trucks, flatbed trucks, off-road vehicles, trailers, All-Terrain Vehicles (ATV's) or Utility Terrain Vehicles (UTV's), any of which can easily be fitted with a proper size skid unit for a variety of firefighting and/or medical operations. Skids units are approximately 90" long, 48" wide, on welded steel beams and connected to the vehicle's electrical system.

Among the ATV/UTV off-road vehicles designed to carry a skid unit are the Polaris Ranger 4x4 or 6x6, Kawasaki Mule 4010, Kubota RTV 900, John Deere Gator 4x4 or 6x6, Buffalo 6x6 and many others.

There is virtually no limit to the size or performance capability of a skid unit. What is important, however, is to match the overall weight carrying capacity of the vehicle on which the skid unit is mounted for its rated cargo capacity. Fire operations can include rural field operations, forest fires and other situations in which a small, highly mobile vehicle is needed to reach the fire ground in rough or otherwise inaccessible terrain.

In their simplest form, skid units consist of a water tank and hose mounted on a self-contained platform. Skid units can be configured to hold as little as 50 gallons (200 liters) to over 200 gallons (800 liters) of water in an aluminum, steel, polypropylene or fiberglass tank. For wildland forest fighting applications, skid units can be configured to hold axes, backpacks, bolt cutters, electric booster reels with up to 250' of 1" hose, fire extinguishers, PPE, fuel cans, gas-driven waterous pumps, gear bags, knives, lights, nozzles, radios, shovels, tool boxes, etc. For specialized applications, foam cells of various capacities can be included, as well as integrated foam injection systems to deliver Class "A" and/or "B" foam concentrates.

Skid units can perform the double duty of fighting fires and allowing rescuers to transport a medical victim out of the woods, or be configured exclusively for medical transport, like a mini-ambulance, carrying a full complement of medical gear and other fixtures like O2 holders, intravenous (IV) poles and designed to carry a medical attendant to accompany a patient being transported in a stokes basket or on a long board.

Given their compact and self-contained design, skid units are a versatile and cost effective tool that would be very well suited for the needs and terrain of many of the communities we visited. Pictured below are several examples of commercially available relatively inexpensive slip-on skid units. Given the skills of many of the people with whom we met, we see no reason why a locally-produced customized skid unit couldn't be built for use by the local municipalities.





