

**State of Minnesota**  
**Emergency Medical Services Regulatory Board**  
**EMSRB Ambulance Standards Ad-Hoc Work Group Meeting**

*Tuesday October 18, 2016 – 10:00am*  
*EMSRB Offices – 3<sup>rd</sup> Floor – Suite 310*  
[Directions & Parking](#)

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**Agenda**

1. **Call to Order – (10:00 a.m.)** – Jeff Czyson, Ad-Hoc Work Group Co Vice Chair
2. **Approve Agenda** – Jeff Czyson, Work Group Co Vice Chair  
[Motion: To approve the agenda for the October 18, 2016 Ambulance Standards Ad-Hoc Work Group meeting]
3. **Approve Meeting Notes from August 30, 2016 meeting** – *Attachment 1*  
[Motion: To approve meeting notes from August 30, 2016 Work Group meeting]
4. **Chairs Comments** – Jeff Czyson, Work Group Co Vice Chair
5. **Review Recommendation to Board** – *Attachment 2*
  - Work Group will discuss, edit and finalize this document
6. **Discussion on Cost for Implementing CAAS-GVS Standards in Minnesota**
  - Information to be added to *Attachment 2*
7. **Other Work Group Business**
8. **Next Meeting**
9. **Adjourn Meeting**  
Motion: To adjourn

**Note:** *Some work group members may be attending this meeting through an on-line meeting tool called LYNC or by conference call. In accordance with Minn. Stat. § 13D.015, subdivision 4, the public portion of this meeting, therefore, may be monitored by the public remotely. If you wish to attend by LYNC or conference call, please contact Robert Norlen by email at [robert.norlen@state.mn.us](mailto:robert.norlen@state.mn.us) for connection information. Please make contact for LYNC or conference call information no later than **2:00 p.m. on Monday, October 17, 2016** to ensure a response in time to connect to the meeting.*

*The public may also attend this meeting in person at the location identified at the top of the agenda.*

*If you plan to attend the meeting and need accommodations for a disability, please contact Melody Nagy at (651) 201-2802 or [melody.nagy@state.mn.us](mailto:melody.nagy@state.mn.us). In accordance with the Minnesota Open Meeting Law and the Internal Operating Procedures of the Emergency Medical Services Regulatory Board, this meeting notice was posted at: <http://www.emsrb.state.mn.us>*

**State of Minnesota**  
**Emergency Medical Services Regulatory Board**  
**Board Ambulance Standards Ad-Hoc Work Group Meeting**

*Tuesday August 30, 2016 – 10:00am*

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**Meeting Notes**

Attendance: Pat Coyne, Chad Dotzler, Kjelsey Polzin, Jeff Czysen, Fred Pawelk, Tom Frost (Phone), Bob Norlen

**1. Call to Order**

Pat Coyne, Work Group Chair called the meeting to order at 10:06am and began the meeting with introductions.

**2. Approve Agenda**

Agenda was approved by consensus of the Work Group members.

**3. Approve Meeting Notes from May 16, 2016 Meeting**

Meeting notes from May 16, 2016 meeting where approved by consensus of the Work Group members.

**4. Chairs Comments**

None

**5. Review of Responses to Work Group Questions Directed to CAAS-GVS**

The work group reviewed responses to questions sent to CAAS-GVS standards liaison Mark Van Arnam. The work group had a short discussion related to the response on payload requirements in the CAAS-GVS standard and how this would be regulated. The work group discussed the importance of services knowing vehicle weight limitations with equipment and crews and suggested services should have ambulances weighed to determine if payload requirements are being met. The consensus was that more discussion by the work group would be needed related to specifics on how to regulate payload within a standard.

**6. Discussion on Cost Comparison for Implementing CAAS-GVS Standards in Minnesota**

It was noted by the work group that cost related to the implementation of a new ambulance manufacturing standard in Minnesota would be important to determine for both the Board and the industry. It was noted that a lot of numbers related to cost with implementation of safety standards such as the cot retentions systems. It will be important to ensure the Board and industry have some accurate cost implementation projections. Work group members Fred Pawelk and Chad Dotzler will do some research on this and provide more information related to cost comparisons at the next meeting.

**7. CAAS-GVS Implementation Process in Minnesota**

The current land ambulance standards requirements are in Minnesota Rule chapter 4690. The EMSRB staff feels that any changes to land ambulance requirements should remain in rule. This gives the Board more flexibility in addressing rule requirements and issuing waivers to rules in an event that is needed. This will ultimately be a Board decision on keeping ambulance standards requirements in rule or moving them to statute.

The work group discussed language that could be proposed for implementation of the work groups recommended [CAAS-GVS standard](#). After discussion by the work group the following recommended language was drafted which includes exemptions to the standard.

*Draft Rule Language:*

GROUND AMBULANCES.

Subpart 1. Ground ambulances manufactured and purchased after *<Insert Date>*: All ground ambulances manufactured and purchased for providing “ambulance service” [[Minn. Stat. § 144E.001, subd. 3](#)] after *<Insert Date>* must comply, at minimum, with CAAS-GVS standards in effect on the date the ground ambulance is under contract for manufacturing:

- a. **Exemptions from regulation.** Notwithstanding any other law, ground ambulances manufactured and purchased after <Insert Date> for providing “ambulance service” [[Minn. Stat. § 144E.001, subd. 3](#)] are exempt from the following CAAS-GVS standards sections: C.7.4.2 [only if idle management system is installed]; C.9.6 [as it pertains to the OEM standard chrome bumper]; C.10.6 [as it pertains to drip rails]; ~~C.11.3.9~~; C.11.7; C.14.3 [as it pertains to centerline requirement].
- b. Ground ambulances manufactured and purchased after <Insert Date> by a licensee must comply with <Insert DPS Minnesota Statutes> related to minimum lighting requirements and displaying of lights and sirens on ground ambulances.

Note after further discussion on the standards exemptions, the work group recommended to strike C.11.3.9 from the draft language.

### Exceptions Clarification:

C.7.4.2 VOLTMETER AND VOLTAGE MONITOR - [only if idle management system is installed]  
A voltmeter illuminated for nighttime operation shall be furnished. The electrical system shall be monitored by a system that provides an audible and visual warning in case of low voltage to persons’ in the ambulance of an impending electrical system failure caused by the excessive discharge of the batteries. The charge status of the battery shall be determined by direct measurement of the battery voltage. The alarm shall sound if the system voltage at the battery drops below 11.8 V for 12 V electrical systems for more than 120 seconds.

C.9.6 BUMPERS AND STEPS - [as it pertains to the OEM standard chrome bumper]  
OEM’s standard chrome bumper shall be furnished in the front of the chassis. The rear of the ambulance shall be furnished with a sturdy, full-width, rear bumper, with step secured to the vehicle’s chassis- frame. The bumper-step shall be designed to prevent the accumulation of mud, ice, or snow and made of antiskid open grating metal. These steps shall not be located or exposed to the interior of the ambulance when the door(s) are closed. All necessary steps shall be at least the width of the door opening for which they are provided. The step’s tread shall have a minimum depth of 5" and a maximum depth of 10". If the step protrudes more than 7" from the rear of the vehicle, a fold up step shall be furnished. The rear bumper and step shall be adequate to support a test weight of 500 lbs and shall conform to AMD Standard 018 (Rear Step and Bumper Static Load Test). The height of the rear step shall not exceed 22".

C.10.6 AMBULANCE BODY STRUCTURE - [as it pertains to drip rails]  
Drip rail(s) shall be provided around the entire modular body and have drain points at each corner.  
Drip rails shall also be furnished over each entry and compartment door.

C.11.7 IV HOLDER FOR INTRAVENOUS FLUID CONTAINERS  
One IV mount specifically designed for holding IV containers shall be provided, including Velcro type straps to adequately secure an IV bag/bottle. The device shall not protrude more than 1", and shall be located adjacent to, or on the cabinetry near the head of the primary patient. Swing down IV hangers with rigid support arms shall not be specified or furnished.

C.14.3 ANTENNA CABLE AND ACCESS - [as it pertains to centerline requirement]  
The FSAM shall provide each ambulance with a ground plane, and coaxial lead-in wire from the ventilated radio storage area/compartment to the centerline of the patient compartment roof. An antenna wiring access/port shall be provided in the patient’s compartment directly under the coaxial leads. The port shall provide a least a 16 sq. in. clear access. All nonmetallic roofs will be equipped with at least a 40" x 40" metal ground plane molded into the roof. The ground plane then shall be properly grounded to the chassis ground. The antenna cable (lead-in) shall be provided and clearly labeled with

RG/58U or equal cable. Approximately 18" of extra cable shall be provided at the roof and approximately 36" at/in the radio area/compartment.

**Recommended to strike from exemptions:**

C.11.3 STORAGE COMPARTMENTS AND CABINETS DESIGN

9. The oxygen storage area shall be configured and used only for the oxygen cylinder and associated plumbing.

**8. Clarify other Work Group Charges from the Board**

Mr. Coyne will seek clarification on other work group charges and report back at the next meeting.

**9. Other Work Group Business**

None

**10. Next Meeting**

Tuesday October 18, 2016 – 10:00am EMSRB Offices

**11. Adjourn Meeting**

Meeting adjourned by Work Group consensus at 11:58am

## **EMSRB Ambulance Standards Ad Hoc Work Group**

### **Recommendation to the Board**

#### **Background:**

On November 19, 2015 the Board approved the forming of the EMSRB Ambulance Standards Ad Hoc Work Group (ASWG). The charge to the ASWG included: Review past, current and proposed ambulance manufacturing standards for ground ambulances and current Minnesota Statutes and Rules regulating ground ambulance design and requirements. Make recommendation to the Board on updating ground ambulance standards and any regulatory changes that may need to be made to ensure crew and public safety and health.

The last time regulatory requirements for ambulance standards were addressed in Minnesota was in the late 1970's to early 1980's when the current Minnesota Rules for land ambulances were implemented ([Minn. Rule part 4690.1500](#)). It is recognized that many changes and advancements within ambulance manufacturing have occurred since the current rules were implemented for regulation. Therefore, with new ambulance manufacturing standards available that include newly designed, tested and implemented safety features for both patients and crews, it is time for Minnesota to make updates to what would be considered outdated rules to regulate and ensure public and industry safety with regards to transportation by ground ambulances.

#### **Work Group Members:**

- Patrick Coyne – Board Member – **Board Appointed Work Group Chair**
- Aarron Reinert – Lakes Region EMS – **Work Group Appointed Co Vice Chair**
- Chad Dotzler – HCMC EMS
- Jeff Czyson – Allina Health – **Work Group Appointed Co Vice-Chair**
- Matt Will – Gold Cross Ambulance Service
- Fred Pawelk – North Central Ambulance Sales
- Joe Kounkel – Ninety-Four Services, Inc.
- Kjelsey Polzin – EMS for Children
- Tom Frost - EMSRB
- Bob Norlen – EMSRB

#### **Work Group Meetings:**

The work Group has met seven (7) times in 2016 (February 8; February 22; March 21; April 25; May 16; August 30 and October 18) to discuss and develop this recommendation to the Board for updating current ground ambulance standards in Minnesota.

## Process:

The work group reviewed current nationally recognized ambulance manufacturing standards either in effect or in development. These standard documents included: The NFPA (National Fire Protection Agency) 1917 Standard; The GSA (Government Services Administration)-KKK-1882 F Standard; The CAAS-GVS (Commission on Accreditation of Ambulance Services - Ground Vehicle Standard) and the European – Norsk NS-EN 1789 Standard.

During the standards review process by the work group input was received from nationally recognized experts in ambulance safety testing and standards development. The work group was also fortunate to have members that participated with national standards development committees for both the NFPA 1917 Standards and the CAAS-GVS, as well as members that have done extensive research into the design of ambulances to increase patient (adult and pediatric) and crew safety. The work group also received excellent input from members involved in ambulance manufacturing and sales.

The work group received input and information from representatives from NIOSH (National Institute for Occupational Safety and Health; NASEMSO (National Association of State EMS Officials) as part of the standards review process.

## The focus:

The safety of patients and crews being transported and working in ambulances a cross Minnesota was one of the driving forces for the work group. This recommendation for changes to Minnesota ground ambulance standards is generally focused on the development and implementation of safety standards and testing requirements for ambulance manufactures. The safety and testing standards are being brought forward by the Society of Automotive Engineers (SAE) and fall into three (3) specific areas related to ground ambulances. The SAE J standards include:

### **J3027—Ambulance Litter Integrity, Retention, and Patient Restraint:**

This SAE Recommended Practice describes the testing procedures required to evaluate the integrity of a ground ambulance-based patient litter, litter retention system, and patient restraint when exposed to a frontal or side impact. Its purpose is to provide litter manufacturers, ambulance builders, and end-users with testing procedures and, where appropriate, acceptance criteria that, to a great extent ensures the patient litter, litter retention system, and patient restraint utilizes a similar dynamic performance test methodology to that which is applied to other vehicle seating and occupant restraint systems. Read more...[http://standards.sae.org/j3027\\_201407/](http://standards.sae.org/j3027_201407/);

### **J3043—Ambulance Equipment Mount Device or Systems:**

This SAE Recommended Practice describes the dynamic and static testing procedures required to evaluate the integrity of an equipment mount device or system when exposed to a frontal or side impact (i.e. a crash impact). Its purpose is to provide equipment manufacturers, ambulance builders, and end-users with testing procedures and, where appropriate, acceptance criteria that, to a great extent, ensure equipment mount devices or systems meet the same performance criteria across the industry. Read more...[http://standards.sae.org/j3043\\_201407/](http://standards.sae.org/j3043_201407/);

### **J3026—Ambulance Patient Compartment Seating Integrity and Occupant Restraint:**

This SAE Recommended Practice describes the testing procedures that may be used to evaluate the integrity of ground ambulance-based occupant seating and occupant restraint systems for workers and civilians transported in the patient compartment of an ambulance when exposed to a frontal or side impact. This Recommended Practice was based on ambulance patient compartment dynamics and is not applicable to other vehicle applications or seating positions. This Recommended Practice is structured to

accommodate seating systems installed in multiple attitudes including but not limited to side-facing, rear-facing, and forward-facing. Its purpose is to provide ambulance seating manufacturers, ambulance occupant restraint manufacturers, ambulance builders, and end-users with testing procedures and, where appropriate, acceptance criteria that, to a great extent ensures the occupant seating and occupant restraint system meet similar performance criteria as FMVSS 208 requires for seat belted passengers in light vehicles. Read more... <http://standards.sae.org/wip/j3026/>

The work group was focused on ensuring any standard being recommended would address the above three safety testing standards in new ambulances in Minnesota and rule requirements to ensure these standards were met by all ambulance manufactures that have Minnesota customers.

Please see photos and testing videos at: [http://www.safeambulances.org/resources/videos-and-photos/#Test3\\_Cam2](http://www.safeambulances.org/resources/videos-and-photos/#Test3_Cam2)

### Recommendation from Work Group to the Board:

After careful deliberation, research and input from various experts in ambulance safety testing and standards development, the Ambulance Standards Ad-hoc Work Group of the Board is recommending, for consideration by the Board, to moving to the CAAS-GVS Standards v.1.0, with identified exemptions, to be implemented into Minnesota Rule to replace current rule language for land ambulances. The CAAS-GVS standards can be reviewed at: [GVS Ground Vehicle Standard for Ambulances v.1.0](#)

The work group is making this recommendation to ensure Minnesota is meeting industry recognized standards that include requirements for clear regulation of ambulance requirements and incorporation of safety features that will better protect and improve public safety.

### Recommended Exemptions to the CAAS-GVS Standard:

The work group is making the following recommendation for exemptions to the CAAS-GVS standard in Minnesota.

#### **C.7.4.2 VOLTMETER AND VOLTAGE MONITOR** - [*exempt only if idle management system is installed*]

A voltmeter illuminated for nighttime operation shall be furnished. The electrical system shall be monitored by a system that provides an audible and visual warning in case of low voltage to persons' in the ambulance of an impending electrical system failure caused by the excessive discharge of the batteries. The charge status of the battery shall be determined by direct measurement of the battery voltage. The alarm shall sound if the system voltage at the battery drops below 11.8 V for 12 V electrical systems for more than 120 seconds.

#### **Work Group Rationale:**

#### **C.9.6 BUMPERS AND STEPS** - [*as it pertains to the OEM standard chrome bumper*]

OEM's standard chrome bumper shall be furnished in the front of the chassis. The rear of the ambulance shall be furnished with a sturdy, full-width, rear bumper, with step secured to the vehicle's chassis- frame. The bumper-step shall be designed to prevent the accumulation of mud, ice, or snow and made of antiskid open grating metal. These steps shall not be located or exposed to the interior of the ambulance when the door(s) are closed. All necessary steps shall be at least the width of the door opening for which they are provided. The step's tread shall have a minimum depth of 5" and a maximum depth of 10". If the step protrudes more than 7" from the rear of the vehicle, a fold up step shall be furnished. The rear bumper and step shall be adequate to support a test weight of 500 lbs and shall conform to AMD Standard 018 (Rear Step and Bumper Static Load Test). The height of the rear step shall not exceed 22".

**Work Group Rationale:** Work group did not want to limit services from installing after-market bumpers that include grill guards and other crash damage protection devices.

**C.10.6 AMBULANCE BODY STRUCTURE** - [as it pertains to drip rails]

Drip rail(s) shall be provided around the entire modular body and have drain points at each corner.  
Drip rails shall also be furnished over each entry and compartment door.

**Work Group Rationale:** Work group felt this should be a purchase decision and not a standard requirement. No know safety concerns related to drip rail configuration.

**C.11.7 IV HOLDER FOR INTRAVENOUS FLUID CONTAINERS**

One IV mount specifically designed for holding IV containers shall be provided, including Velcro type straps to adequately secure an IV bag/bottle. The device shall not protrude more than 1", and shall be located adjacent to, or on the cabinetry near the head of the primary patient. Swing down IV hangers with rigid support arms shall not be specified or furnished.

**Work Group Rationale:**

**C.14.3 ANTENNA CABLE AND ACCESS** - [as it pertains to centerline requirement]

The FSAM shall provide each ambulance with a ground plane, and coaxial lead-in wire from the ventilated radio storage area/compartment to the centerline of the patient compartment roof. An antenna wiring access/port shall be provided in the patient's compartment directly under the coaxial leads. The port shall provide a least a 16 sq. in. clear access. All nonmetallic roofs will be equipped with at least a 40" x 40" metal ground plane molded into the roof. The ground plane then shall be properly grounded to the chassis ground. The antenna cable (lead-in) shall be provided and clearly labeled with RG/58U or equal cable. Approximately 18" of extra cable shall be provided at the roof and approximately 36" at/in the radio area/compartment.

**Work Group Rationale:**

## Work Group Proposed Rule Language Change:

### GROUND AMBULANCES.

Subpart 1. Ground ambulances manufactured and purchased after <Insert Date>: All ground ambulances manufactured and purchased for providing "ambulance service" [[Minn. Stat. § 144E.001, subd. 3](#)] after <Insert Date> must comply, at minimum, with CAAS-GVS standards in effect on the date the ground ambulance is under contract for manufacturing:

- a. **Exemptions from regulation.** Notwithstanding any other law, ground ambulances manufactured and purchased after <Insert Date> for providing "ambulance service" [[Minn. Stat. § 144E.001, subd. 3](#)] are exempt from the following CAAS-GVS standards sections: C.7.4.2 [only if idle management system is installed]; C.9.6 [as it pertains to the OEM standard chrome bumper]; C.10.6 [as it pertains to drip rails]; C.11.7; C.14.3 [as it pertains to centerline requirement].
- b. All ground ambulances must comply with Minn. Stats § [169.17](#); [169.64, subd 4 \(b\)](#) and [169.68 \(d\)](#) related to minimum lighting requirements and displaying of lights and sirens on ground ambulances.

## Projected Cost Implications for Ambulance Services:

To be discussed by work group on October 18<sup>th</sup>.