



## **How could simple, static, non-distracting ads for points of interest like fuel, food, lodging, emergency services etc. displayed on IMAMS Intelligent Motorist Alert Messaging System mounted on the top rear doors of semi-trailers improve driver safety without being distracting**

Displaying simple, static, non-distracting “point of interest” ads (fuel, food, lodging, emergency services, etc.) on an IMAMS-type high-mount rear sign can improve driver safety mainly by reducing uncertainty and last-second maneuvers, while still staying within the visual load drivers already manage from standard road signage.

### **How this can improve safety**

- Reduces last-second decisions and sudden lane changes.**

When motorists know several miles ahead where the next fuel, food, or lodging options are, they can plan lane changes and exits earlier instead of making abrupt, high-risk moves near an off-ramp. This is the same principal DOTs use with advance service signs on highways, but delivered from the truck they are already following in their lane.

- Supports fatigue and drowsiness management.**

Simple “Next Rest Area / Truck Stop X mi” style messages help tired drivers decide to stop sooner, rather than pushing on because they are unsure where the next safe stopping point is. Earlier, planned stops reduce fatigue-related crashes, which are a major contributor to rear-end and lane-departure collisions.

- Improves route confidence in low-visibility or unfamiliar areas.**

In rain, fog, at night, or on unfamiliar routes, overhead service signs may be harder to

see or can be missed. A bright, high-mount, short-text message at eye level with the lead vehicle keeps essential wayfinding information in the driver's direct line of sight without requiring additional scanning of roadside infrastructure.

- **Encourages safer following behavior when combined with safety messaging.**  
IMAMS can prioritize “SLOW DOWN / INCREASE FOLLOWING DISTANCE” or hazard alerts and use POI ads only in normal driving conditions. Done right, the commercial content piggybacks on a safety-first device that already reinforces good following distance and lane discipline, rather than competing with it.

### **Why it need not be distracting**

- **Static, low-complexity content vs. moving or animated ads.**  
Research on driver distraction consistently shows that dynamic or rapidly changing visual stimuli (flashing, scrolling, animation) are far more distracting than static, high-contrast text with minimal graphics. Limiting IMAMS to one static message with large, simple typography and no animation keeps glance time comparable to reading a standard highway service sign.
- **Strict limits on information density and update frequency.**  
Safety-oriented design can cap each message to a few words (for example: “FUEL / FOOD 5 MI – EXIT 32”) and restrict how often it changes (for example, no more frequent than every 30–60 seconds in free-flow conditions. This avoids the “information overload” problem associated with urban digital billboards.
- **Context-aware priority for safety over commerce.**  
The system can be logic-driven so that any abnormal event (hard braking, hazard lights, stopped/disabled vehicle, bad weather detected, school zone, work zone) forces the display into a pure safety mode: “SLOW DOWN,” “MOVE OVER,” or hazard icons only. Commercial/POI content is suppressed when risk is elevated, preventing distraction when attention is most critical.
- **Consistent placement and standardized visual language.**  
Mounting on the top rear doors of trailers keeps the display within a predictable,

consistent region of the visual field where drivers already look to judge closure rate and lane position. Using standardized colors and icons like MUTCD-style signs (for example, white/blue for services, amber for caution) reduces cognitive effort because drivers do not have to “decode” a new design language.

- **Brightness and contrast tuned for night use.**

Auto-dimming and luminance limits prevent glare and light “bloom” at night, which are known contributors to discomfort and visual distraction from some roadside digital boards. A high-mount but properly dimmed static message is less visually intrusive than lower, uncontrolled point sources in the direct line of sight.

### **Design principles that keep it safety-first**

To maximize safety benefits while minimizing distraction, IMAMS-style POI ads should follow principles like:

- Safety and regulatory messages always override commercial content.
- Static text only; no video, animation, or rapid cycling.
- Very short messages, large fonts, high contrast, simple clear logos.
- Slower update cadence and geofenced logic (for example, only show “EXIT 32 – 5 MI” while between mile 27–31).
- Nighttime and poor-weather dimming, with conservative color choices.

With these controls, the system functions more like a mobile extension of DOT wayfinding and service signage than like a roadside billboard, helping drivers plan earlier, avoid sudden maneuvers, not being distracted by fumbling with cell phones to find POIs, and manage fatigue—without adding a new source of visual clutter.