



For Petition to Amend Title 8

Pedestrian Proximity Protection Initiative (PPPI)

Founded by: **AVR Global Technologies**

Represented by: **Val Pontes – COO**

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Occupational Safety and Health Standards Board

2520 Venture Oaks Way, Suite 350

Sacramento, CA 95833

Email: oshsb@dir.ca.gov

Subject: Petition to Amend Title 8 – Proximity-Alert Systems for Mobile Equipment

Dear Standards Board Members,

The Pedestrian Proximity Protection Initiative (PPPI) respectfully submits the enclosed **Petition to Amend Title 8** to require proximity-alert systems on forklifts, loaders, and other mobile equipment operating in areas where workers or pedestrians may be present.

California continues to lead the nation in workplace safety innovation. Adopting a modern, technology-based standard for pedestrian detection would significantly reduce struck-by injuries and fatalities across the state's construction, warehousing, and logistics sectors.

We appreciate your consideration and welcome any opportunity to provide additional information or participate in future discussions.

Sincerely,



Val Pontes – COO, AVR Global Technologies Representative,
Pedestrian Proximity Protection Initiative (PPPI)

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An ISO 9001:2015 Certified Company



Cal/OSHA Standards Board Petition

Petition to Amend Title 8 to Require Proximity-Alert Systems

Pedestrian Proximity Protection Initiative (PPPI)

Founder: AVR Global Technologies, Inc. represented by: Val Pontes - COO

Email: valp@avrglobaltech.com

To: California Occupational Safety and Health Standards Board

Subject: Petition to Amend Title 8 to Require Pedestrian Proximity-Alert Systems on Mobile Equipment

Summary

PPPI petitions the Standards Board to amend Title 8 to require proximity-alert systems on forklifts, loaders, and other mobile equipment operating in areas where workers or pedestrians may be present.

Justification

1. California's Elevated Risk Profile

California's logistics, warehousing, and construction sectors experience high volumes of struck-by incidents. Blind-spot-related collisions remain a persistent hazard.

2. Availability of Mature Technology

Proximity-alert systems are:

- Widely available
- Field-tested
- Effective in reducing near-misses and collisions

3. Alignment with California's Leadership Role

California has historically led the nation in adopting forward-looking safety standards. This measure is consistent with that leadership.



Requested Regulatory Action

Amend Title 8 to include:

- A requirement for proximity-alert systems on mobile equipment
- Minimum performance specifications
- A retrofit schedule for existing fleets
- Training requirements for operators and pedestrians

Conclusion

California can significantly reduce struck-by injuries and fatalities by adopting a modern, technology-based standard.

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PETITION FOR NEW SAFETY ORDER – PEDESTRIAN PROXIMITY PROTECTION INITIATIVE (PPPI)

Submitted to: California Occupational Safety & Health Standards Board

Subject: Petition to Amend Title 8 Safety Orders to Require Pedestrian Proximity Protection Systems (PPPS)

1. Petition (Cal/OSHA)

I respectfully submit this petition requesting that the California Occupational Safety & Health Standards Board adopt a new or amended Safety Order requiring **Pedestrian Proximity Protection Systems (PPPS)** on powered industrial trucks, construction vehicles, and other mobile equipment operating in areas where workers or pedestrians may be present.

California workplaces — including warehouses, distribution centers, manufacturing facilities, and construction sites — continue to experience preventable struck-by, crushing, and pinning incidents involving mobile equipment. These incidents persist despite existing requirements for training, alarms, mirrors, and administrative controls.

California has long been a national leader in adopting engineering-based safety standards. With modern proximity-detection technology now widely available, affordable, and proven effective, the absence of a PPPS requirement in Title 8 leaves a critical gap in worker protection.

This petition seeks to modernize California's Safety Orders by incorporating PPPS as a required engineering control to prevent pedestrian-vehicle collisions and save lives.

2. Regulatory Gap Analysis (Title 8)

California's Title 8 Safety Orders contain multiple sections addressing powered industrial trucks and construction vehicles, including:

- **§3650–3668** (General Industry – Powered Industrial Trucks)
- **§3664** (Construction – Operating Rules)
- **§1590–1597** (Construction – Vehicle Operations)
- **§3203** (Injury and Illness Prevention Program)



However, none of these sections require **active pedestrian-detection technology**. The current regulatory framework relies on:

- Operator training
- Audible alarms
- Visual line-of-sight
- Mirrors
- Administrative controls

These measures are insufficient in modern California workplaces characterized by:

- Dense warehouse traffic
- High-velocity logistics operations
- Blind-spot-heavy equipment
- Mixed pedestrian-vehicle zones
- Noise and visibility limitations

Key California-specific gaps:

Gap 1 — No Title 8 requirement for active detection systems

No Safety Order mandates PPPS, despite their proven ability to prevent collisions.

Gap 2 — Reliance on human behavior

California FACE reports repeatedly show that struck-by fatalities occur even when workers follow training

Gap 3 — Outdated assumptions about workplace design

Title 8 sections were written before the rise of modern logistics, e-commerce warehouses, and high-density material-handling environments.

Gap 4 — Inconsistent voluntary adoption

Some California employers use advanced systems; others rely solely on training. This creates unequal protection across industries.

Gap 5 — No engineering-control requirement

California's hierarchy of controls prioritizes engineering controls, yet none are required for pedestrian-vehicle interaction hazards.

These gaps justify the need for a new or amended Safety Order mandating PPPS statewide.



3. Proposed Rule Language (Title 8 Amendment)

The petitioner requests that the Standards Board amend Title 8 (Sections §3650–3668 and §1590–1597) to include the following requirement:

Proposed Safety Order – Pedestrian Proximity Protection Systems (PPPS)

“All powered industrial trucks, construction vehicles, and mobile equipment operating in areas where pedestrians may be present shall be equipped with an active Pedestrian Proximity Protection System (PPPS). The system shall:

- 1. Continuously detect pedestrians within the vehicle’s hazard zone**
- 2. Provide audible and visual alerts to the operator**
- 3. Automatically engage braking or speed-reduction when a collision is imminent**
- 4. Provide 360-degree detection coverage, including reverse travel**
- 5. Be maintained in operable condition and tested per manufacturer specifications**
- 6. Be incorporated into the employer’s Injury and Illness Prevention Program (IIPP) under §3203”**

This language aligns with California’s emphasis on engineering controls and proactive hazard mitigation

4. Summary of Requested Action (Cal/OSHA)

The petitioner respectfully requests that the California Occupational Safety & Health Standards Board:

- 1. Accept this petition** and open a formal docket for review.
- 2. Assign the matter to Cal/OSHA’s Research & Standards Unit** for evaluation of feasibility, cost, and safety impact.
- 3. Convene an advisory committee** to develop specific PPPS requirements for Title 8.
- 4. Amend applicable Safety Orders** (including §§3650–3668, §3664, and §§1590–1597) to require PPPS on powered industrial trucks and construction vehicles.
- 5. Establish compliance timelines** for retrofitting existing fleets and ensuring new equipment is PPPS-equipped.
- 6. Issue a Notice of Proposed Modifications to Title 8** and proceed with formal rulemaking.

This action will significantly reduce preventable struck-by injuries and fatalities in California workplaces and align state standards with modern safety technology.



California-Specific Fatality & Injury Statistics

California continues to experience a significant number of preventable pedestrian-vehicle incidents in both workplace and public-roadway environments. These statistics demonstrate the urgency for Cal/OSHA to adopt engineering-based controls such as Pedestrian Proximity Protection Systems (PPPS).

1. Workplace Fatalities in California (BLS – CFOI)

According to the **U.S. Bureau of Labor Statistics**, California recorded:

- **439 workplace fatalities in 2023**
- **Transportation incidents were the leading cause**, accounting for **108 deaths** (25% of all workplace fatalities)
- The **transportation & material-moving sector** had the highest number of fatalities: **105 deaths** in 2023
- Motor-vehicle operators accounted for **63 fatalities**, including **40 truck drivers**

These categories include many of the same vehicle-pedestrian interactions PPPS is designed to prevent.

2. Construction-Related Fatalities in California

Within the 2023 California fatality data:

- The **construction sector** recorded **78 fatalities**
- A significant portion involved **vehicle movement, backing, and equipment operation**
- Specialty trade contractors accounted for **52 of the 78 deaths**

Construction sites are among the highest-risk environments for pedestrian-vehicle collisions.

3. California Pedestrian Fatalities (Public Roadways – OTS)

Although roadway data is not workplace-specific, it reflects the broader hazard environment California workers move through daily.



According to the **California Office of Traffic Safety (OTS)**:

- **1,106 pedestrians were killed in California in 2023**, an 8.8% decrease from 2022 (1,213 deaths)
- California consistently ranks among the **highest pedestrian fatality states** in the nation
- These numbers reflect high pedestrian exposure and the need for enhanced detection technologies

This reinforces the need for PPPS in workplaces where pedestrian-vehicle interactions mirror roadway risks.

4. California Injury Data (SWITRS / TIMS)

The **Transportation Injury Mapping System (TIMS)**, using SWITRS data, reports:

- California records **thousands of pedestrian injury cases annually** across all counties
- Data includes **fatalities, serious injuries, and all injury levels**
- The system confirms persistent patterns of pedestrian exposure to moving vehicles statewide

While SWITRS is not workplace-specific, it demonstrates the scale of pedestrian-vehicle hazards in California's built environment.

5. Why These Statistics Matter for Cal/OSHA Rulemaking

These California-specific findings show:

1. Transportation incidents are the #1 cause of workplace death in California

PPPS directly targets this category.

2. Construction and material-handling sectors show high fatality counts

These are the exact environments where PPPS is most effective.

3. California's pedestrian fatality rate is among the highest in the U.S.

Workers are exposed to the same risk factors inside industrial facilities.

4. Existing Title 8 Safety Orders do not require active detection systems

Despite clear evidence that human-dependent controls are insufficient.



Conclusion

California's fatality and injury data clearly demonstrate a **persistent, preventable hazard** involving pedestrian-vehicle interactions.

The adoption of **Pedestrian Proximity Protection Systems (PPPS)** under Title 8 would directly address the leading causes of workplace fatalities in the state and align California with modern, engineering-based safety practices.

Sincerely,



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Technology Feasibility Documentation

Pedestrian Proximity Protection Initiative (PPPI)

Submitted to the California Occupational Safety & Health Standards Board

1. Overview of Available Technologies

California employers already use a wide range of Pedestrian Proximity Protection Systems (PPPS) in warehouses, ports, distribution centers, and construction sites. These systems are commercially available, field-tested, and compatible with most powered industrial trucks and construction vehicles regulated under Title 8 §§3650–3668 and §§1590–1597.

1. Overview of Available Technologies

California employers already use a wide range of **Pedestrian Proximity Protection Systems (PPPS)** in warehouses, ports, distribution centers, and construction sites. These systems are commercially available, field-tested, and compatible with most powered industrial trucks and construction vehicles regulated under **Title 8 §§3650–3668 and §§1590–1597**.

1.1 RFID / Wearable Tag Systems

- Workers wear RFID or UWB tags.
- Vehicle-mounted receivers detect proximity and trigger alerts or automatic braking.
- Highly effective in blind-spot and low-visibility environments.
- Already used in California mining, logistics, and port operations.

1.2 Ultra-Wideband (UWB) Precision Detection

- Provides high-accuracy pedestrian detection within inches.
- Resistant to interference from metal racking, machinery, and concrete structures.
- Supports multi-zone detection (warning, danger, stop).

1.3 360-Degree Camera + AI Vision Systems

- Uses AI to identify pedestrians in real time.
- Provides visual overlays and operator alerts.
- Effective in dynamic, mixed-traffic environments common in California warehouses.



1.4 LiDAR and Radar-Based Systems

- Detect pedestrians through dust, fog, low light, and obstructions.
- Ideal for outdoor construction sites and California's varied climate conditions.

1.5 Automatic Braking & Speed-Reduction Systems

- Automatically slow or stop the vehicle when a pedestrian enters the hazard zone.
- Reduces reliance on operator reaction time.
- Mirrors technology already standard in consumer vehicles sold in California.

2. Evidence of Reliability and Performance

PPPS technologies have been validated across multiple industries, including those heavily represented in California's economy.

2.1 California Warehousing & Logistics

- Large distribution centers in the Inland Empire and Central Valley already use PPPS to reduce near-miss events.
- Systems remain effective in narrow aisles, high-traffic zones, and low-light conditions.

2.2 California Construction Sector

- Heavy equipment manufacturers serving California contractors offer factory-installed detection systems.
- Field deployments show fewer backing-related incidents and improved operator awareness.

2.3 Mining & Industrial Operations (NIOSH Research)

- Proximity detection systems reduce struck-by incidents by up to **90%** in mining environments.
- These findings apply directly to California's quarry, aggregate, and industrial sectors.

2.4 Automotive Industry Benchmark

- Automatic emergency braking (AEB) and pedestrian detection are now standard in most vehicles sold in California.
- Demonstrates technological maturity, affordability, and reliability.



3. Cost Feasibility for California Employers

PPPS technology is cost-effective relative to the severity of struck-by hazards and aligns with California's emphasis on engineering controls.

3.1 Typical Cost Ranges

- **\$1,200–\$5,000 per vehicle** for retrofit systems
- **\$50–\$150 per worker** for wearable tag systems
- **\$3,000–\$8,000** for advanced camera or LiDAR systems

3.2 Economic Impact

- A single serious struck-by injury can exceed **\$120,000** in direct and indirect costs.
- Fatalities can exceed **\$1.3 million** in total economic impact.
- PPPS typically pays for itself after preventing **one near-miss escalation**.

3.3 Scalability Across California Industries

- Compatible with forklifts, loaders, telehandlers, yard trucks, and construction vehicles.
- Retrofit kits are widely available and can be installed with minimal downtime.
- Systems integrate easily into **IIPP programs under Title 8 §3203**.

4. Operational Feasibility in California Work Environments

PPPS systems are designed for the environmental and operational conditions common in California workplaces.

4.1 Environmental Robustness

- Operate in dust, heat, low light, and high-noise environments.
- Suitable for indoor warehouses and outdoor construction sites.
- Resistant to electromagnetic interference from industrial equipment.

4.2 Maintenance Requirements

- Routine calibration similar to existing safety devices.
- Minimal downtime for installation (often under 2 hours per vehicle).
- Software updates can be applied remotely.



4.3 Human Factors Compatibility

- Alerts are intuitive and standardized (visual, audible, haptic).
- Automatic braking reduces reliance on operator reaction time.
- Enhances, rather than burdens, operator situational awareness.

5. Industry Adoption & Precedent

PPPS technology is already widely used in:

- California ports and intermodal terminals
- Large distribution centers in the Inland Empire
- Northern California manufacturing plants
- Southern California construction sites
- Mining and aggregate operations
- Robotics and autonomous vehicle sectors

This demonstrates that PPPS is **not experimental** — it is established, proven, and ready for statewide regulatory adoption.

6. Conclusion: Feasibility for Cal/OSHA Rulemaking

The evidence clearly shows that:

- PPPS technology is **commercially available**
- It is **affordable** for California employers
- It is **operationally reliable** in California's diverse environments
- It is **already in use** across multiple California industries
- It provides **immediate, measurable risk reduction**

Given the severity of pedestrian-vehicle hazards and the maturity of available technology, Cal/OSHA can confidently adopt PPPS as a required engineering control under the Pedestrian Proximity Protection Initiative (PPPI).