

AudibleCone Safety Products LLC - Highway Workzone Intrusion Alert System

User Manual

Model: AudibleCone™ System **Version:** 1.3 **Revision Date:** November 29, 2025

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IMPORTANT NOTICE: This manual shall be thoroughly reviewed and comprehended in its entirety prior to any installation, operation, or maintenance of the AudibleCone™ System. Non-compliance with the directives contained herein may precipitate system malfunction, personal injury, property damage, or invalidation of any applicable warranty provisions. Users are mandated to affirm their comprehension of this manual through execution of the User Acknowledgment Form (Appendix A) antecedent to system deployment. Periodic revisions to this manual may be promulgated; users are obligated to consult www.audiblecone.com for the most contemporaneous iteration.

Patent Pending: The AudibleCone™ System incorporates proprietary technology that is patent pending.

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1. Introduction

The AudibleCone™ System is a wireless alert tool designed to enhance awareness in roadside and work zone environments. It includes transmitting units (“Cone Sensors”) that attach to standard traffic safety cones and receiving units (“Wearable Sensors”) that provide audio and vibration alerts to personnel when movement or impact is detected on a cone.

This manual provides guidance on setup, general operation, and maintenance. It is intended to support proper use of the product and includes safety information and compliance considerations. While developed with attention to quality and reliability, the AudibleCone™ System does not eliminate all risks and should be used as part of a broader safety program. Audible Cone Safety Products, LLC (“the Company”) makes no guarantee or claim regarding the prevention of accidents or injuries.

DANGER ⚠: The AudibleCone™ System functions solely as an ancillary mechanism and shall under no circumstances supplant mandated work zone safeguards, fortifications, or vehicular regulation modalities. Exclusive dependence upon this apparatus may culminate in grievous bodily harm or fatality.

Multilingual renditions (e.g., Español, Français) are procurable upon solicitation via www.audiblecone.com, contingent upon jurisdictional or market imperatives.

2. Product Specifications

System Components

- **Cone Sensor (Transmitter):** Affixes to standard triangular-shaped traffic safety cones through a Cone Adapter. Incorporates an embedded accelerometer for motion or impact detection, subsequently propagating alerts via wireless transmission.
- **Wearable Sensor (Receiver):** Ergonomic module donned by workers, offering auditory (siren) and haptic notifications upon signal reception from Cone Sensors. Configurable for multiple ways to attach to the users person, with the onus on the user to choose a method and/or location of placement that mitigates auditory impairment risk.
- **Cone Adapter:** Interlocking apparatus for anchoring the Cone Sensor to triangular cones featuring a 1.6” internal diameter aperture.
- **Charging Accessories:** USB-C interfaces for rechargeable power cells (furnished).

Operating Range

- Maximum: 300 feet line-of-sight under normative operational parameters. Efficacy may attenuate attributable to topographic, meteorological, or electromagnetic perturbations.

Battery Specifications, Life, and Replacement Procedures

 **Type:** Rechargeable lithium-ion cell (3.7V, 2000mAh per receiver module, and 3.7V, 2600mAh per transmitter module).  **Life:** Minimum 36 hours uninterrupted, active transmission and alert functionality; 21 days active, low power monitoring mode.  **Indicator:** Green LED (optimal charge, >80%), Yellow LED (replenishment advisable, 30-80%), Red/No Illumination (immediate replenishment imperative, <30%). Battery integrity verification is required prior to each deployment.  **Operating Conditions:** Pursuant to lithium-ion cell fabricators' directives (e.g., Samsung, LG), operational ambit shall be confined to -20°C to 60°C (-4°F to 140°F) for discharge; charging constrained to 0°C to 45°C (32°F to 113°F) to preclude electrochemical degradation, capacity diminution, or thermal runaway. In extreme cold (<0°F), avoid charging until the device has warmed up to the recommended charging range above. Humidity parameters: 0-95% non-condensing; prolonged exposure to moisture may corrode terminals or instigate dendrite formation. Deviation from these thresholds may precipitate irreversible damage  **Storage Conditions:** Store in a cool, dry locale at 15°C to 25°C (59°F to 77°F)  **Shipping and Travel Warnings:** For shipping, conform to U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations under 49 CFR 173.185, including UN 3480/3481 classifications; package in non-conductive, cushioning materials within rigid outer containers, labeled with Class 9 hazard diamonds, and limit quantities per package. For air travel, per Federal Aviation Administration (FAA) stipulations, spare batteries (<100 Wh) must be in carry-on luggage, insulated against short-circuits, and not exceed two per passenger; installed batteries permissible in checked baggage if devices are powered off. Notify carriers of overheating or damage immediately.  **Replacement:** Contact Audible Cone Safety Products, LLC for replacement protocol.

Technical Specifications

- **Frequency:** 2.4 GHz ISM band (2.400–2.4835 GHz), FCC Part 15 compliant. Uses Wi-Fi-based ESP-NOW peer-to-peer communication. Narrowband behavior is handled by the Wi-Fi PHY.
- **Power Output:** Typical **+8 dBm TX power**, which corresponds to ~6 mW isotropic radiated power (can be configured from 0–9 dBm). Within FCC Part 15 limits for unlicensed 2.4 GHz devices.
- **Modulation / Encryption:** Wi-Fi 802.11b/g/n OFDM; payload-level **AES-128 encryption** using your configured “magic key” ensures integrity and confidentiality.
-
- **Alert Volume:** 100 dB SPL at 2 feet (auditory siren on Wearable Sensor).
- **Vibration:** Haptic actuator with modifiable amplitude.

Environmental Operating Conditions

- **Temperature:** -20°C to 60°C (-4°F to 140°F), with optimal efficacy within 0°C to 45°C (32°F to 113°F) for charging operations. Exposure to extremes may induce battery degradation, signal attenuation, or component failure; e.g., sub-zero conditions may crystallize electrolytes, while heat may volatilize them, both elevating fire hazards.
- **Humidity:** 0-95% non-condensing; elevated moisture may engender corrosion or short-circuits.

- **Weather Resistance:** IP67 classification (impervious to particulate ingress and submersion to 1m for 30 minutes). Apt for exterior deployment amid precipitation, snowfall, or particulate matter, albeit protracted immersion proscribed.
 - **Durability and Impact Resistance:** Engineered from impact-resistant polyamide and electronic enclosures rated to withstand incidental impacts commensurate with MUTCD-compliant traffic control devices, including forces up to typical work zone vehicular glancing blows (e.g., analogous to NCHRP 350 crashworthiness criteria for channelizing devices). No assurance of survival post direct high-velocity collision.
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3. Intended Use

The AudibleCone™ System is engineered as an auxiliary protective instrumentality for highway construction enclaves, purposed to apprise workers of prospective incursions via cone dislocation discernment.

- It shall be employed conjunctively with extant National Traffic Safety Administration Protocols (NTSAP) and vehicular safety edicts, encompassing the Manual on Uniform Traffic Control Devices (MUTCD). For MUTCD particulars, consult <https://mutcd.fhwa.dot.gov/>.
- The apparatus must be integrated within overarching barricade architectures per normative safety doctrines, such as MUTCD Part 6 delineations for transitory traffic governance zones, including typical applications (TAs) for duration, location, work type, and highway classification. Supplementary devices like the AudibleCone™ System shall complement, not supplant, primary controls such as signage, channelizing devices, and barriers, ensuring crashworthiness per NCHRP 350 or MASH criteria.
- Workers shall adhere to the occupational safety benchmarks and methodologies prescribed by their employer and pertinent sovereignties, inclusive of OSHA 1926.200 stipulations for indicia, signals, and impediments, as well as 1926 Subpart G for signs, signals, and barricades in construction zones. Integration shall encompass internal traffic control plans (ITCPs) per OSHA directives, delineating vehicle/pedestrian separation, flagging procedures, and hazard abatement. For U.S. Department of Transportation (DOT) requirements, consult FHWA guidelines at <https://ops.fhwa.dot.gov/wz/>, ensuring supplementary devices align with 23 CFR 630 Subpart J for work zone safety and mobility.

WARNING ⚠: This apparatus does not supersede flag personnel, indicia, barricades, or other compulsory controls. Aberrant utilization may infringe federal, state, or municipal ordinances.

4. Legal Disclaimers & Liability Limitations

COMPREHENSIVE DISCLAIMER OF LIABILITY: AUDIBLE CONE SAFETY PRODUCTS, LLC (THE "COMPANY") TENDERS THE AUDIBLECONE SYSTEM EXCLUSIVELY AS AN ADJUNCTIVE IMPLEMENT. THE COMPANY EXPRESSLY REPUDIATES ANY REPRESENTATIONS, WARRANTIES, OR ASSURANCES—EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE—THAT THE SYSTEM SHALL AVERT MISHAPS, TRAUMAS, PECUNIARY LOSSES, OR FATALITIES.

DEPLOYMENT OF THE PRODUCT SIGNIFIES THE USER'S UNEQUIVOCAL ACQUIESCENCE TO ALL INHERENT PERILS, WITH THE USER ASSUMING COMPLETE ACCOUNTABILITY FOR ANY SEQUELAE THEREFROM. This disclaimer is informed by precedential product liability adjudications, such as those wherein manufacturers were absolved for ancillary device failures when users neglected primary safeguards (e.g., analogous to optional safety adjuncts in industrial machinery cases).

The system is not a surrogate for normative construction zone safeguards, inclusive of fortifications, indicia, flag workers, and conformance with MUTCD, OSHA, and jurisdictional mandates. The Company disavows any culpability for non-adherence to these protocols, drawing from jurisprudence where liability attached to failure-to-warn defects or design inadequacies notwithstanding disclaimers.

SPECIFIC DISCLAIMER REGARDING IMPACT AND PROJECTILE RISKS: THE AUDIBLECONE SYSTEM, WHEN AFFIXED TO TRAFFIC DELINEATION CONES, MAY SUSTAIN VEHICULAR OR ENVIRONMENTAL IMPACTS. THE COMPANY EXPRESSLY DISCLAIMS ANY LIABILITY FOR DAMAGES, INJURIES, OR LOSSES ARISING FROM THE DEVICE OR ITS COMPONENTS BECOMING PROJECTILES UPON IMPACT, FRAGMENTATION, OR DISLODGEEMENT. No warranties are proffered that the apparatus shall endure strikes, collisions, or exogenous forces without structural compromise, informed by product liability precedents involving safety apparatuses wherein manufacturers were not held liable for post-impact sequelae absent inherent defects. Users assume all risks associated with deployment in high-velocity traffic environs.

INCIDENT RESPONSE AND REPLACEMENT PROTOCOL: In the event a Cone Sensor (transmitter) activates attributable to impact or strike, the module shall be forthwith sequestered from service to preclude latent malfunctions or hazards. An incident report- shall be lodged with the Company via www.audiblecone.com, encompassing particulars of the occurrence. Pursuant to directives received, remit the affected apparatus for forensic analysis and reconstruction facilitation. The Company shall furnish a replacement module gratis, contingent upon verification, for a term not exceeding five (5) years from the original procurement date, subject to warranty stipulations herein.

LIMITATION OF DAMAGES: TO THE UTMOST EXTENT PERMISSIBLE UNDER APPLICABLE JURISPRUDENCE, THE COMPANY SHALL INCUR NO LIABILITY FOR CONSEQUENTIAL, INCIDENTAL, INDIRECT, SPECIAL, PUNITIVE, OR EXEMPLARY DAMAGES EMANATING FROM UTILIZATION OR INCAPACITY TO UTILIZE THE PRODUCT, IRRESPECTIVE OF ANTECEDENT ADVISEMENT OF

SUCH POTENTIALITY. This encompasses, inter alia, forfeitures of revenue, operational disruptions, corporeal harm, or demise.

ASSUMPTION OF RISK: THROUGH UTILIZATION OF THE AUDIBLECONE SYSTEM, THE USER ACKNOWLEDGES AND ASSUMES ALL PERILS ENDEMIC TO HIGHWAY CONSTRUCTION ZONES, INCLUDING VEHICULAR INCURSIONS, METEOROLOGICAL ADVERSITIES, AND SYSTEMIC CONSTRAINTS (E.G., RANGE ATTENUATIONS FROM INTERFERENCE).

INDEMNIFICATION: WHERE JURISDICTIONALLY ALLOWABLE, THE USER COVENANTS TO INDEMNIFY, DEFEND, AND ABSOLVE THE COMPANY, ITS PRINCIPALS, DIRECTORS, PERSONNEL, AND PROXIES FROM ANY ASSERTIONS, LIABILITIES, INDEMNITIES, OR DISBURSEMENTS ARISING FROM THE USER'S MISUSE, ALTERATION, OR DERELICTION IN CONFORMING TO THIS MANUAL OR PERTINENT STATUTES.

GOVERNING LAW AND JURISDICTION: This manual and any contentions arising from the product shall be adjudicated pursuant to the statutes of the State of Wyoming, eschewing conflicts of law tenets. Exclusive venue resides in Wyoming tribunals.

SEVERABILITY: Should any clause herein be adjudged null or unenforceable, the residual clauses shall persist unabated.

FORCE MAJEURE: The Company shall be exonerated from latencies or derelictions attributable to circumstances beyond its dominion, encompassing divine acts, belligerence, labor disputes, or logistical impediments.

NO WARRANTY OF RISK REDUCTION OR IMPACT SURVIVAL: THE COMPANY TENDERS NO WARRANTY, EXPRESS OR IMPLIED, THAT THE PRODUCT SHALL MITIGATE OR CIRCUMSCRIBE PERILS OF TRAUMA, DETRIMENT, OR FORFEITURE, NOR THAT IT SHALL PERSIST INTACT POST-IMPACT. UTILIZATION TRANSPIRES AT THE USER'S EXCLUSIVE PERIL.

5. Safety Warnings & Precautions

GENERAL SAFETY WARNINGS ⚠: In accordance with ANSI Z535.6 standards for product safety information in collateral materials, the following safety messages are delineated with signal words (DANGER, WARNING, CAUTION) to convey hazard severity, probability, and consequences.

DANGER ⚠: This apparatus serves as a supplementary adjunct to, and shall not supplant, normative safeguards such as fortifications, indicia, and flag personnel per MUTCD Part 6. Non-integration with extant architectures may engender fatality or severe trauma from vehicular incursions. This system is not a replacement for vigilance or proper work zone protocol. Always

follow DOT and OSHA regulations when using AudibleCone devices. Foreseeable misuse, such as improper installation (e.g., lax affixation precipitating dislodgement) or exclusive reliance as a primary safety device sans mandated barriers, may culminate in systemic failure and grievous harm.

WARNING ⚠: Do not attempt to repair the unit unless authorized by Audible Cone Safety Products, LLC. Unauthorized tampering may void warranty and lead to malfunction or injury. AudibleCone is not responsible for misuse, failure to follow instructions, or use outside of designated environmental conditions. Operation in extreme weather (e.g., sub-zero inducing capacity loss or heat provoking thermal runaway) or amid electromagnetic interference (e.g., from proximate power lines or radios) may attenuate signals, delay alerts, or instigate failures.

CAUTION ⚠: Failure to securely fasten transmitter units to cones may result in malfunction or failure to alert personnel.

NOTICE: AudibleCone Safety Products, LLC disclaims all liability for personal injury, property damage, or loss resulting from improper installation, misuse, modification, or failure to follow instructions. Use of this device indicates user acceptance of these terms. This product is not intended for use as a primary safety system and must be used in conjunction with industry-standard PPE and procedures.

Placement Requirements: Cone Sensors shall be employed within MUTCD-conformant barricade schemas. For tapers: Commence 300' upstream of the operational precinct for velocities ≤ 45 mph; employ minimal 18" altitude cones interspersed at 20-40 ft within tapers. Equip alternate cones, minimally, with sensors; optimal envelopment entails all cones in dynamic zones. Jurisdictional variances pertain (e.g., Texas mandates augmented indicia); consult indigenous DOT.

Range Limitations and Dead Zones: Efficacious ambit ≤ 300 ft; assess for null zones induced by topography or edifices. Interference from transceivers or electrical conduits may depreciate functionality.

Environmental Limitations: Operation proscribed beyond -20°C to 60°C or amid extreme meteorology sans corroboration. IP67 rating confers resistance to precipitation, yet avoid protracted immersion in water. Exposure to severe weather (e.g., hurricanes, floods) may accelerate degradation via moisture ingress or thermal stress, precipitating failures.

Battery Maintenance Safety: Before each deployment, scrutinize battery status: Green (proceed), Yellow (charging recommended), Red/No Illumination (charge immediately). Failure to charge may precipitate systemic lapse amid critical junctures. Observe manufacturer caveats: avoid puncturing, crushing, or exposure to fire; monitor for swelling, odor, or heat, which signal impending failure.

Proper Disposal: Dispose of electronic parts and batteries according to your local e-waste rules. **Do not burn them.**

FCC Compliance Warnings:

Supplier's Declaration of Conformity

47 CFR § 2.1077 Compliance Information

Product Name: Cone Sensor

Product Model: CSNRRENG001

Manufacturer:

Audible Cone Safety Products

Modular Components Used:

NAME: Wi-Fi & Bluetooth Internet of Things Module

MODEL: ESP32-C3-MINI-1U

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Product Name: Wearable Sensor

Product Model: WSNRRENG001

Manufacturer:

Audible Cone Safety Products

FCC Compliance Statement

Contains FCC ID: 2AC7Z-ESPC3MINII

CAUTION: The manufacturer is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Consult the company for help.

RF exposure statement

Cone Sensor: This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.

Decibel Warnings: The auditory notification functions at 110 dB SPL at 2 ft, potentially precipitating auditory detriment with protracted proximal exposure.

WARNING ⚠: Place AudibleCone™ Wearable Sensors at least 1 foot away from your ears, pointing away from your body, unless using hearing protection. If the alarm continues for more than 1 minute, turn the device off to reset it. Sound levels at or above 120 decibels (dB) can cause immediate discomfort and possibly permanent hearing damage. If you wear hearing aids or cochlear implants, be extra cautious. Sounds above 132 dB Sound Pressure Level (SPL) could damage your remaining hearing or your device. It is your responsibility to position the Wearable Sensor in a way that prevents hearing damage. Make sure the device is attached in a way that keeps noise exposure within safe limits.

CAUTION ⚠: Check the device before each use; weather conditions may affect its performance.

6. Warranties & Limitations

Limited Warranty Period: The Company warrants the AudibleCone System against defects in materials and workmanship under normal use for a period of 6 months (120 days) from the date of purchase for circuitry components. This warranty does not cover misuse, unauthorized modifications, or environmental damage. Consult www.audiblecone.com for warranty adjudication.

What is Covered: Repair or replacement of defective components when used under normal conditions and installed according to this manual.

What is Not Covered: Damage caused by misuse, modifications, accidents, or exposure to environmental conditions beyond design specifications. Repairs made without authorization are not covered.

Specifically excluded: Any guarantee of product durability following impact or strike.

Warranty Void Conditions: Warranty is void if the product is misused (for example, struck into position), altered, exposed to extreme conditions, field repaired, or used with non-approved battery cells.

Return/Repair Procedures: Solicit support@audiblecone.com or navigate www.audiblecone.com for Return Merchandise Authorization (RMA). Remit product prepaid; Company shall rectify/supplant at discretion. Provide proof of purchase and detailed description of defect.

Exclusion of Implied Warranties: WHERE JURISDICTIONALLY FEASIBLE, ALL IMPLIED WARRANTIES, ENCOMPASSING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE REJECTED.

7. Technical Installation & Operation

Step-by-Step Installation on Standard Traffic Cones

1. Use cones that conform to MUTCD benchmarks: $\geq 18''$ altitude for slower speeds velocities, $\geq 28''$ for higher speeds. Cones shall be normal triangular traffic delineators incorporating weighted bases to withstand vehicle drafts or wind gusts typical to the area; if deficient in weighted bases, add aftermarket weighted bases for traffic cones to ensure stability and mitigate accidental tipping due to wind or environmental conditions.
2. Insert Cone Adapter into 1.6" internal diameter opening; exert firm pressure downward to seat Cone Adapter fully (avoid hammering into place). Verify the Cone Adapter is fully seated, is not loose, and allows for the Adapter legs to expand inside the cone. Inspect cone condition before use to ensure there are no splits, tears, or cracks around the top opening.
3. Align Cone Sensor locking mechanisms with Adapter; insert into the Cone Adapter, press down and rotate $\frac{1}{4}$ clockwise to engage. Check that the sensor is securely affixed within the Cone Adapter and locked into position, without rotational or vertical play. (Vide Appendix B: Diagram 1 - Cone Connection & Setup). Pull up on the Cone Adapter ring to ensure proper fit and lock within the cone.
4. For removal: Rotate $\frac{1}{4}$ counter-clockwise and extract the Cone Sensor then the Cone Adapter.

Proper Positioning Within Work Zones

Follow all MUTCD taper requirements. For areas with a 45 mph speed limit, calculate the taper length by multiplying the speed (in mph) by the width of the lane (in feet). Place AudibleCone™ sensors at the beginning of the taper (300 feet upstream), at the center of the closed lane, at cone placement corners, and on alternating cones in active work zones.

The AudibleCone™ System should be set up to give workers the most time possible to react to an alert. This depends on traffic speed, volume, and the layout of the work zone. Be sure to also include sensors in the exit taper area for zones with two-way traffic flow.

Before each use, inspect all Cone Adapters and Sensors for wear, damage, or signs of weakening that could cause the system to fail or increase the risk of harm.

For compliance with OSHA regulations, make sure vehicles and pedestrians are separated inside the work zone using physical barriers or designated flaggers.

System Pairing Procedures

1. Turn on all Cone Sensors, sequentially prior to installing into each Cone Anchor and cone; verify each one is on via the battery status LED pulse upon power-up.
2. Turn on all Wearable Sensors sequentially to pair with Cone Sensors. Verify each one is on via the battery status LED pulse upon power up.

Testing Protocols Before Each Use

- Trigger each Cone Sensor by knocking over a cone, or shaking the device; affirm all wearables notify.
- Check battery indicators upon power-up of each device to determine charge levels.
- Test the system's range while walking in real-world conditions, including potential environmental interference such as nearby radios or weather changes.

Pre-Use Checklist

- Inspect transmitter and receiver for visible damage, secure housing, battery status, and alert sound.
- Verify cone condition and secure fastening.
- Confirm that the job site cone barrier configuration is aligned with MUTCD TA diagrams and OSHA ITCP.

Troubleshooting Guide

- **No Connection:** Verify the unit has sufficient power via the battery status LED blink upon powering up. Recharge if necessary. Verify any affected devices are on at the same time and test again. Plug any affected devices into charge-power and retest. If issue is persistent, contact support.
- **Poor Fit:** Relocate to alternate cone; fabrication variances may exist between cone suppliers
- **False Alarms:** Assess for interference; reposition. Turn off the triggered Wearable Sensor(s). Allow for the 15 second alert window to end on the Cone Sensor(s). Power back on the Wearable Sensor(s) and continue.
- **No Alert:** Review battery indicator; ensure within operational range. Check suspect device(s) with known-working one(s) for confirmation of issue. If the issue cannot be

resolved using the steps above, discontinue use and contact AudibleCone support. Do not continue use with a damaged or malfunctioning unit.

Charging & Battery Safety

Charge only with the approved USB-C cable provided. Do not expose unit to open flame or high heat. Charging shall be performed indoors or under dry conditions only, within 0°C to 45°C (32°F to 113°F). Monitor for overheating; cease if detected. If charging case has been purchased, do not charge off of a battery pack or similar device, in a hot, closed vehicle. This may cause the charge case to overheat. Where possible, charge with the case open to aid in ventilation.

Maintenance Schedules and Procedures

- Daily: Battery level review, visual inspection for damage or wear.
- Weekly: complete system assessment, including range and alert verification under simulated conditions.
- Monthly: Clean components; inspect for corrosion or potential ingress of liquid.
- Annually: Detailed inspection mandated to detect latent defects or attrition.

Storage Requirements

Store the device in its provided case in a dry environment, within a temperature range of 0–40°C (32–104°F).

If storing for an extended period, recharge the batteries to approximately 50% capacity before placing the device in storage.

(For initial setup instructions and installation images, refer to Appendix B.)

8. Regulatory Compliance

FCC Certification: FCC ID: 2BSNX-CSN001

Accords with Part 15; proscribed from engendering interference and obligated to endure ingress.

DOT/NTSAP Compliance: Ancillary to MUTCD; unaltered DOT imperatives.

State-Specific Regulations: Variances subsist (e.g., California augmented incursion notifications); consult state DOT.

International Compliance: Inapplicable; U.S. deployment exclusively without certification.

Electromagnetic Compatibility (EMC): Assessed per FCC benchmarks; minimal emanations.

ANSI Z535 Compliance: Caveats deploy DANGER (imminent peril), WARNING (potential peril), CAUTION (minor peril) per ANSI Z535.4-2023 and Z535.6-2023 for safety information in manuals.

OSHA Compliance: Conforms to 29 CFR 1926 Subpart G; integrate with work zone hazard controls.

9. User Responsibilities

Training Requirements: Workers shall complete all instruction within this manual and MUTCD protocols. Certification is mandated for MUTCD comprehension, attainable via accredited programs to ensure doctrinal adherence and mitigate liability exposures. This manual does not cover those certifications or training details.

Daily Inspection Checklists:

- Battery status: Green/Yellow/Red.
- Check that the sensor shows no signs of damage before each use. Do not use if any cracks, breaks, or other defects are visible, as these may affect performance and safety.
- Range assessment: Affirm notifications at 300 feet range.

Proper Use Protocols in Various Work Zone Configurations: Place AudibleCone sensors to cover your entire work area. Put sensors on all the taper cones you need for full safety coverage, based on your specific work zone setup. Consider these factors when deciding where to place equipment: where your equipment and machinery will be; how much traffic is coming through and how fast it's moving; working near active traffic lanes; how traffic flow changes throughout your work zone; and where to position safety equipment.

System Verification Testing: Testing should only be conducted in a safe, controlled environment away from traffic.

Record Keeping Recommendations: Preserve records of inspections, assessments, and incidents for five (5) years.

Incident Reporting Procedures: MANDATORY REPORTING: TO MITIGATE RISKS AND FACILITATE REPLACEMENTS, ALL INCIDENTS SHALL BE REPORTED PROMPTLY VIA APPENDIX C PROTOCOLS; DERELICTION MAY VOID WARRANTY AND EXPOSE USERS TO LIABILITY. Notify www.audiblecone.com; remit implicated products for datum extraction (facilitates mishap reconstitution). Replacement tendered.

Maintenance Responsibilities: User shall execute all timetabled upkeep; dereliction nullifies warranty.

10. Quick Reference Cards

Quick Startup Card:

1. Replenish all apparatuses.
2. Energize wearables (green pulsation).
3. Energize cones; agitate to synchronize.
4. Assess notifications.

Quick Safety Card:

- ☐  **WARNING:** Only use within a dedicated, approved cone barrier taper
- ☐ **Inspect batteries daily** to ensure charge integrity.
- ☐ **110 dB Alert:** Use appropriate hearing protection at all times when active.
- ☐ **Operational Range:** Maximum effective distance is 300 feet.

(Laminate for terrain utilization).

11. Appendix B: Diagrams and Illustrations

- Diagram 1: Cone Connection & Setup (from annexed: Images 5-8).
 - Diagram 2: Work Zone Taper Exemplar (Delineate: Taper with cones interspersed 20 ft, sensors annotated).
 - Warning Icons: ANSI-conformant DANGER , WARNING  (amber triangle).
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12. Appendix C: Incident Reporting Protocol and Form

IMPORTANT NOTICE : Pursuant to the warranties, limitations, and user responsibilities delineated in Sections 6 and 9 of this manual, workers and employers shall promptly report any incidents involving the AudibleCone System to facilitate forensic analysis, product enhancement, and compliance with regulatory imperatives. Incident reporting constitutes a contractual obligation under the terms of use, and failure to adhere may invalidate warranty entitlements or precipitate liability exposures. This appendix furnishes a standardized Incident Report Form for submission via www.audiblecone.com, accompanied by procedural directives for completion. All submissions shall be treated as confidential proprietary data, subject to data protection statutes including but not limited to the Wyoming Data Security Act and federal privacy regulations. **EMPHASIS ON IMPORTANCE: TIMELY REPORTING MITIGATES**

POST-INCIDENT RISKS, ENABLES ROOT CAUSE ANALYSES, AND EXPEDITES REPLACEMENTS; IT IS IMPERATIVE FOR SAFETY AND LEGAL COMPLIANCE.

DANGER ⚠: In the event of an incident resulting in personal injury, fatality, or property damage, immediately cease utilization of implicated devices, secure the site per OSHA 1910.38 emergency action protocols, and notify pertinent authorities (e.g., local law enforcement, DOT incident response teams) antecedent to form submission. Do not tamper with or dispose of affected components, as this may constitute evidence spoliation under legal precedents (e.g., analogous to product liability cases involving preservation duties).

Patent Pending: The AudibleCone System incorporates proprietary technology that is patent pending

C.1 Purpose and Scope

The Incident Report Form collects detailed information about any event involving the AudibleCone System. This includes activations from vehicle impacts, weather conditions, system malfunctions, or failures to activate when something enters the work zone. This information helps us improve the product design, develop better safety measures, and analyze liability issues. Your reports allow Audible Cone Safety Products, LLC to investigate what caused the incident, download data from the sensors, and reconstruct what happened so we can make engineering improvements.

Scope Limitations: This form does not replace mandatory regulatory filings (e.g., OSHA Form 301 for occupational injuries) and shall be utilized in addition to those filings. The Company disclaims any liability for outcomes stemming from incomplete or inaccurate submissions.

C.2 Incident Report Form Template

The following template is the requested Incident Report Form as found at www.audiblecone.com. For digital submission, scan the QR code on the Quick Start Manual provided in your Audible Cone carry case. Manual submissions via mail is acceptable, however digital is preferred for quicker processing.

AudibleCone System Incident Report Form; Form ID: AC-IRF-2025-v1 Submission Date:
[MM/DD/YYYY] **Reporter Information:**

- Full Name: _____
- Position/Title: _____
- Employer/Organization: _____
- Contact Telephone: _____
- Contact Email: _____
- Mailing Address: _____

Device Information:

- Unit Serial Number(s) (Cone Sensor and Wearable Sensor, if applicable): _____
- Date of Purchase: _____ (MM/DD/YYYY)
- Proof of Purchase Attachment: [File Upload or Checkbox: ☐ Attached]
- Pre-Deployment Battery Indicator Light (per device): ☐ Green (>80% charge) ☐ Yellow (20-80% charge; replenishment recommended) ☐ Red/No Illumination (<20% charge; immediate replenishment required)
- Length of Time Between Deployment and Incident: _____ (hours/minutes)

Incident Details:

- Date of Incident: _____ (MM/DD/YYYY)
- Time of Incident: _____ (HH:MM AM/PM; specify time zone)
- Location of Incident: _____ (Full address, including highway designation, mile marker, GPS coordinates if available, e.g., latitude/longitude)
- Weather Conditions at Time of Incident (select all applicable; provide quantitative data where feasible): ☐ Clear/Sunny ☐ Overcast ☐ Rain (Intensity: ☐ Light ☐ Moderate ☐ Heavy; Precipitation Rate: _____ mm/hr) ☐ Snow/Ice (Accumulation: _____ cm; Temperature: _____ °C/°F) ☐ Fog/Mist (Visibility: _____ meters) ☐ Wind (Speed: _____ km/h or mph; Direction: _____) ☐ Extreme Heat/Cold (Temperature: _____ °C/°F; Humidity: _____ %) Other: _____
- Work Zone Configuration:
 - Number of Workers at Site: _____
 - Placement of Cone(s) Relative to Workers (describe in detail; include distances, e.g., "Cone Sensor positioned 300 ft upstream of active work area in taper initiation"): _____
 - Diagram Attachment: [File Upload or Checkbox: ☐ Attached] (Provide schematic illustrating cone positions, worker locations, traffic lanes, taper geometry, and intrusion vector; utilize grid or scaled representation for precision)
- Detailed Description of Event (provide chronological narrative, including antecedent conditions, precipitating factors, and sequelae; incorporate kinematic details such as trajectories, accelerations, and impacts): _____
- Vehicular Involvement:
 - Number of Vehicles Involved: _____
 - Types of Vehicles (e.g., sedan, commercial truck, motorcycle; include make/model if known): _____
 - Approximate Speed(s) of Vehicle(s) Involved: _____ (km/h or mph; specify estimation methodology, e.g., eyewitness accounts, traffic data)
- System Performance:

- Did the Transmitter (Cone Sensor) Detect and Send Transmission? ☐ Yes ☐ No
☐ Uncertain (Explain: _____)
- Did the Receiver (Wearable Sensor) Receive and Activate Alert? ☐ Yes ☐ No ☐ Uncertain (Explain: _____)
- Post-Incident Device Status: ☐ Device Remained Securely Affixed in Traffic Cone ☐ Device Dislodged/Fragmented (Describe: _____) ☐ Other Anomalies (e.g., LED malfunctions, haptic failures): _____
- Human Impact:
 - Personal Injuries or Fatalities: ☐ Yes ☐ No If Yes: Number Affected: _____ Nature of Injuries/Fatalities (describe severity per OSHA classifications, e.g., recordable, lost-time): _____ Medical Reports Attachment: [File Upload or Checkbox: ☐ Attached] (Redact sensitive PHI per HIPAA)
- Witnesses:
 - Number of Witnesses: _____
 - Witness Details (provide for each; consent for contact required): Witness 1: Name _____ Contact Telephone _____ Email _____
☐ Consent to Contact Witness 2: Name _____ Contact Telephone _____ Email _____
_____ ☐ Consent to Contact [Add additional fields as necessary]
- Ancillary Documentation:
 - Photographs/Videos of Site Pre/Post-Incident: [File Upload or Checkbox: ☐ Attached]
 - Police/Incident Reports: [File Upload or Checkbox: ☐ Attached]
 - Environmental Data Logs (e.g., weather station reports): [File Upload or Checkbox: ☐ Attached]
 - Other Relevant Evidence (e.g., traffic camera footage, sensor data dumps if user-extractable): [File Upload or Checkbox: ☐ Attached]

Request for Return and Replacement:

- Request Pre-Paid Shipping Box and Label: ☐ Yes ☐ No If Yes: Shipping Address: _____ (The Company shall furnish a pre-paid, insured shipping container and label via carrier [e.g., UPS/FedEx] within 5 business days of form approval, pursuant to Section 4 incident response protocols. Remittance of implicated devices facilitates datum extraction for accident reconstruction and gratis replacement within 5 years of purchase, subject to verification.)

Certification and Signature: I, the undersigned, certify that the foregoing information is accurate and complete to the best of my knowledge. I acknowledge that submission constitutes consent for the Company to utilize anonymized data for product amelioration and that false

statements may void warranty or incur legal repercussions. Signature:

Date: _____

Submission Instructions: Submit via www.audiblecone.com/incident-report or mail to 24333 Highway 395 S, Canyon City, OR 97820 Processing timeframe: 7-10 business days.

C.3 Step-by-Step Instructions for Completing the Incident Report Form - Forensic Analysis

To help us collect complete and accurate information for product analysis, please follow these steps carefully. Providing thorough information helps us investigate incidents properly and process warranty claims.

1. **Preparation and Documentation Assembly:** Before initiating form, collect all pertinent information, including photographs, diagrams, reports, and witness consents. Secure the incident site to preserve physical evidence (e.g., implicated devices, cone fragments) per chain-of-custody protocols. If injuries are involved, prioritize medical response and regulatory notifications (e.g., OSHA within 8 hours for fatalities).
2. **Access the Form:** Navigate to www.audiblecone.com/incident-report for digital submission or download the printable PDF template. Digital forms auto-validate mandatory fields to preclude incomplete submissions.
3. **Enter Reporter Information:** Provide complete personal and organizational particulars. This enables quicker follow-up and verification, essential for liability processing and/or coverage.
4. **Input Device Information:** Reference unit serial numbers (attached on device housings) and purchase records. Document pre-deployment battery indicators meticulously, as this informs potential electrical failures. Specify elapsed time from deployment to incident to correlate with operational life cycles.
5. **Detail Incident Parameters:** Chronologically describe the event, incorporating environmental variables. For cone placement, attach a scaled diagram (e.g., via software like AutoCAD or hand-sketched with annotations) illustrating spatial relationships, traffic routes, and worker proximities, facilitating kinematic reconstructions.
6. **Describe Vehicular and System Elements:** Describe vehicles with specificity (e.g., GVWR classifications for trucks) and speed estimations (cross-reference with traffic engineering data if available). Affirm or negate transmission/reception to pinpoint wireless fidelity issues. Note device post-incident integrity to evaluate impact resistance.
7. **Document Human and Witness Factors:** Describe injuries and attach redacted reports. Procure explicit consents from witnesses prior to disclosure, compliant with data privacy edicts.
8. **Attach Ancillary Evidence:** Upload high-resolution files (e.g., JPEG for images, MP4 for videos) substantiating narratives. Ensure metadata (e.g., timestamps) remains intact for authenticity verification.
9. **Request Return Logistics:** If electing device remittance, select the pre-paid option and provide accurate shipping information. This triggers Company issuance of a tamper-evident container and traceable label, ensuring preservation of evidence during transit. Follow battery shipping caveats in Section 2.

10. **Certify and Submit:** Execute the certification clause digitally or manually. Submit forthwith; retain a copy for records. Upon receipt, the Company shall acknowledge within 48 hours and initiate analysis, potentially soliciting supplementary clarifications.

CAUTION ⚠: Incomplete forms may delay processing or replacement entitlements. All data shall be utilized solely for internal engineering and legal defenses, sans dissemination absent subpoena.

This protocol underscores the Company's commitment to due diligence in product stewardship while delimiting liabilities through evidentiary rigor. For inquiries, contact support@audiblecone.com.

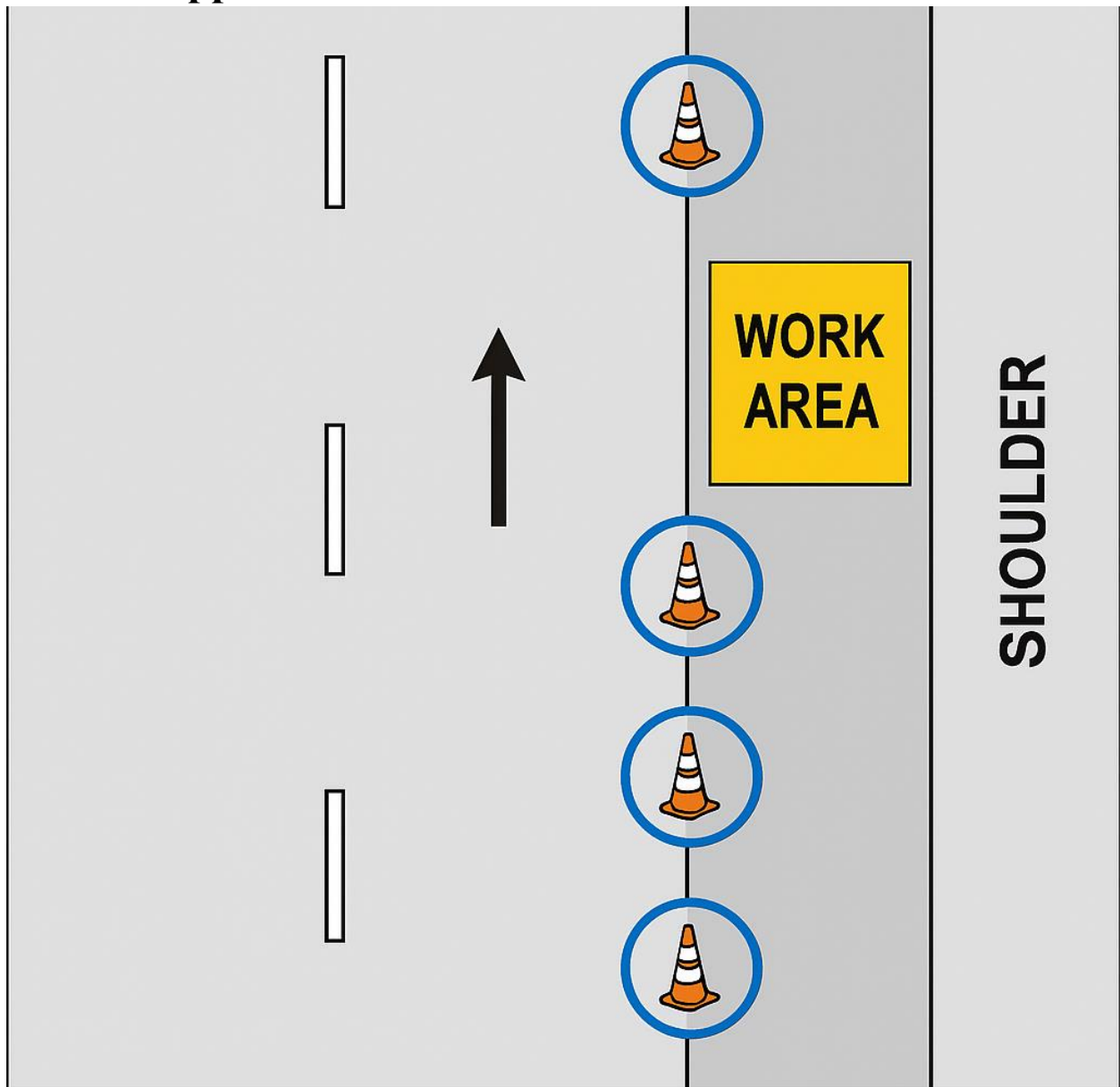
13. Index

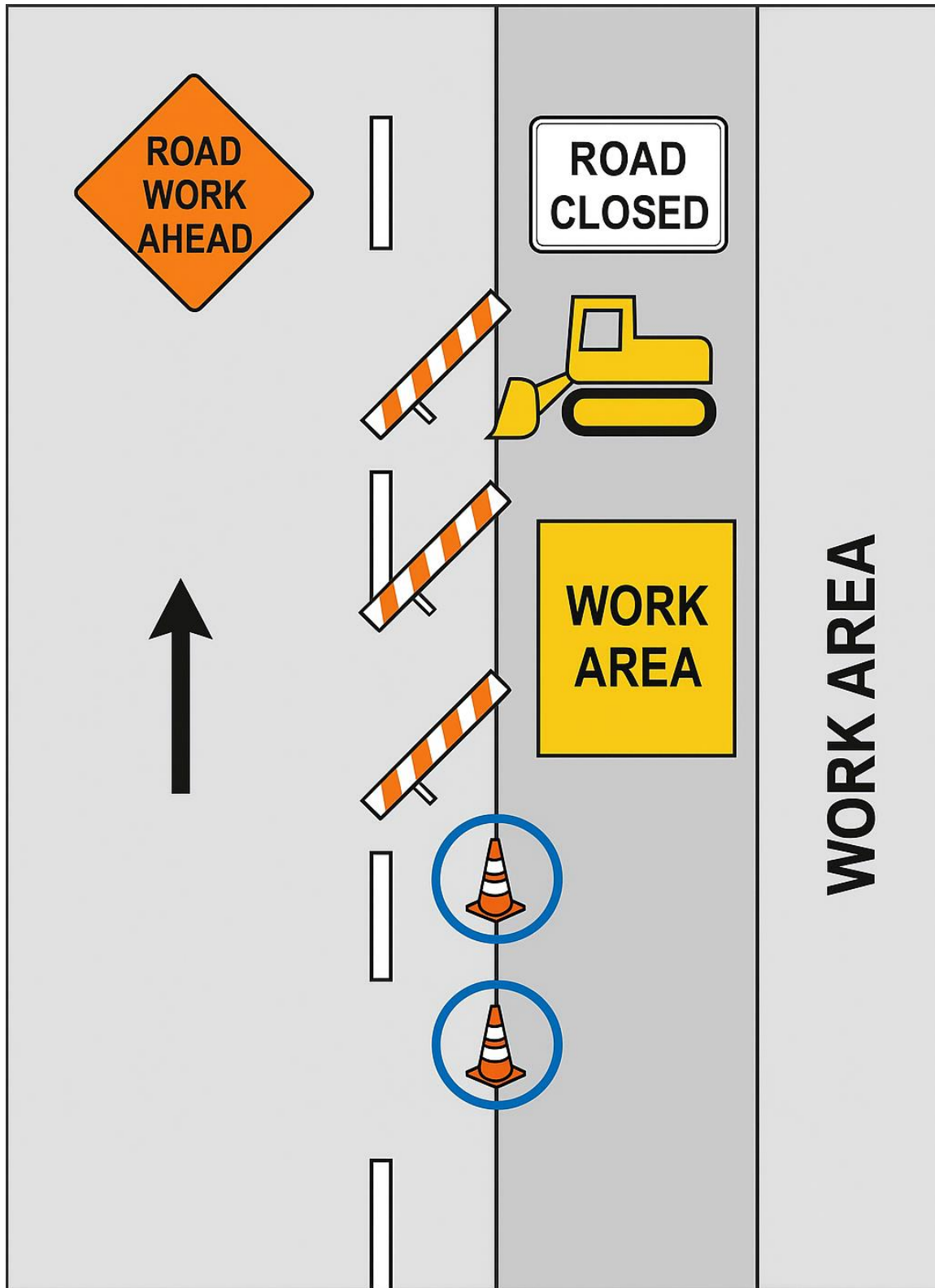
- Battery: 3, 7, 14
- Compliance: 13, 14
- Disclaimers: 6, 7
- Installation: 11, 12
- MUTCD: 5, 7, 11
- Warranty: 10
- Warnings: 7, 8

Intellectual Property & Trademark Notices

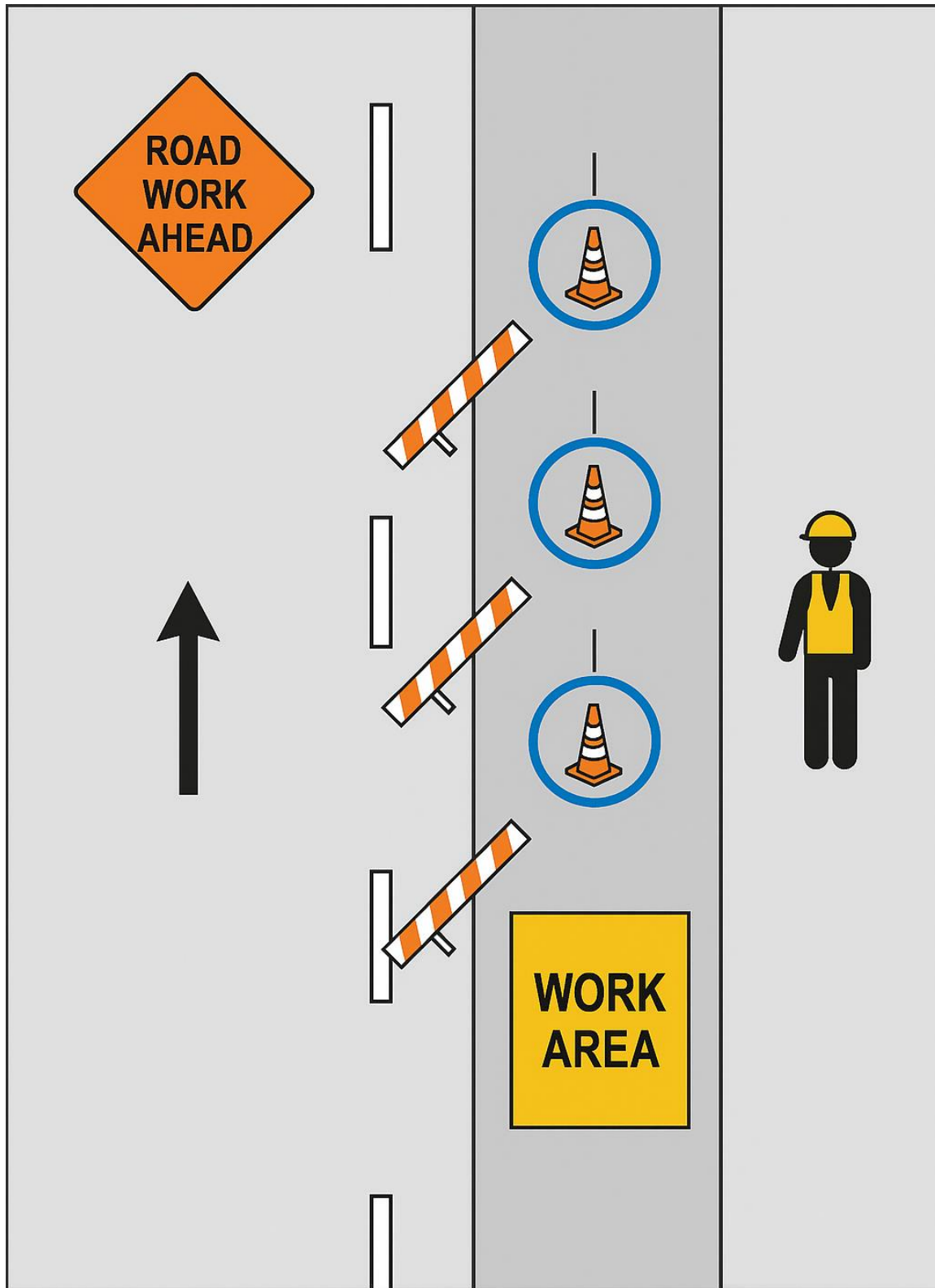
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14. Appendix B





MUTCD TA-10



MUTCD TA-1

