Construction & Infrastructure

INDUSTRY CONTEXT

Construction and infrastructure environments are temporary, fast-changing, and inherently hazardous. Crews work alongside heavy equipment, moving vehicles, and the public—often in areas with limited visibility, high noise levels, and evolving site layouts. Communication failures around equipment movement, work zones, and traffic control remain a leading cause of struck-by incidents, the top cause of construction-related fatalities.

Scenario

A roadway or infrastructure project requires frequent changes to traffic flow, equipment zones, and crew access points. Static signage becomes outdated within hours, and flaggers cannot cover every approach. Workers and motorists receive inconsistent or delayed instructions, increasing the risk of incidents.

BotIQ Solution

BotIQ delivers a jobsite-ready communication system designed for dynamic construction environments:

- Solar-powered Dynamic Digital Displays deploy quickly at site entrances, staging areas, and roadside locations—no trenching, permits, or wiring required.
- Precision Sensing LiDAR detects equipment movement, vehicle approach, and entry into active work zones.
- The LiDAR Controller evaluates real-time conditions and triggers automated messaging.
- Optional audio alerts reinforce warnings in high-noise environments.

Messaging updates automatically as conditions change, improving visibility, protecting crews, and enhancing public safety.

CONSTRUCTION & INFRASTRUCTURE USE CASES

Use Case 1: Struck-By Equipment Hazard Prevention

Description
Detect and warn workers and motorists when heavy equipment enters active work zones or swing areas.

Example Display Messages
- "HEAVY EQUIPMENT OPERATING — STAY CLEAR"
- "EXCAVATOR ACTIVE — DO NOT ENTER"
- "WORK ZONE AHEAD — PROCEED WITH CAUTION"

- **"EQUIPMENT MOVING — KEEP DISTANCE"**

Value
- Reduced struck-by incidents
- Improved worker awareness
- Stronger safety compliance

Use Case 2: Temporary Traffic Control & Lane Guidance

Description
Provide real-time lane, detour, and speed guidance for motorists around construction zones.

Example Display Messages
- "LANE CLOSED — MERGE LEFT"
- "ROAD WORK AHEAD — REDUCE SPEED"
- "DETOUR ACTIVE — FOLLOW SIGNS"
- "FLAGGER AHEAD — PREPARE TO STOP"

Value
- Improved driver compliance
- Safer work zones

- Reduced congestion and confusion

Use Case 3: Jobsite Access Control & Crew Safety

Description
Restrict access to active construction areas and guide authorized personnel safely through the site.

Example Display Messages
- "AUTHORIZED CREW ONLY BEYOND THIS POINT"
- "PPE REQUIRED — HARD HATS & VESTS"
- "CHECK IN WITH SITE SUPERVISOR"
- "NO PUBLIC ACCESS"

Value
- Reduced unauthorized entry
- Improved crew safety
- Clear access control

Use Case 4: Daily Work Plans & Hazard Awareness

Description
Communicate daily work activities, hazards, and equipment schedules to all personnel on site.

Example Display Messages
- "TODAY'S WORK — ZONE B EXCAVATION"
- "CRANE OPERATIONS • 10 AM–2 PM"
- "CONCRETE POUR IN PROGRESS"
- "WEATHER ALERT — HIGH WINDS"

Value
- Better-informed crews
- Reduced rework and delays
- Improved jobsite coordination

Use Case 5: Emergency & Evacuation Messaging

Description
Deliver immediate instructions during emergencies such as equipment failures, utility strikes, or severe weather.

Example Display Messages
- "EMERGENCY — EVACUATE IMMEDIATELY"
- "SEEK SHELTER — WEATHER ALERT"
- "GAS LINE STRIKE — CLEAR AREA"
- "EMERGENCY DRILL IN PROGRESS"

Value
- Faster emergency response
- Reduced confusion and panic
- Improved safety outcomes
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OPTIONAL ENHANCEMENTS FOR CONSTRUCTION & INFRASTRUCTURE

- AI Cameras: Detect unsafe behavior and restricted-area entry
- Audio Alerts: Audible warnings near active equipment
- Solar Power: Off-grid deployment for temporary sites
- Cellular Connectivity: Remote updates without local networks

WHY BOTIQ SYSTEMS FOR CONSTRUCTION & INFRASTRUCTURE

- Designed for temporary, evolving jobsites
- Rapid deployment without infrastructure
- Automated hazard detection and communication
- Improves worker and public safety without slowing progress