

Digital Traffic-Control Documentation: A Low-Cost Path to Real-Time Work Zone Data

A 50-state review confirmed that every state DOT requires a daily traffic-control record from contractors operating in public rights-of-way. The names differ — diary, daily inspection report, work-zone checklist, device record, project diary, logbook, daily work report — but the requirement is the same. This brief summarizes the finding, the implementation gap, and a low-cost path to closing it.

KEY FINDING

Every State DOT Already Requires the Same Thing

Across all 50 state DOTs, a date-stamped, contemporaneous record of traffic-control activity is required of contractors and utility operators working in public rights-of-way. This requirement is documented through state construction manuals, standard specifications, special provisions, project special provisions, and standard forms. It exists today. It is enforced today. It is, almost universally, recorded today on paper or in fragmented digital tools that cannot feed connected-vehicle infrastructure.

Examples of state-named instruments include:

Caltrans	Form CEM-2210 — Traffic Control Daily Report
PennDOT	Form CS-901 — Work Zone Traffic Control Compliance Checklist
WSDOT	Daily Traffic Control Diary (each day TC is performed)
Iowa DOT	Project Traffic Control Daily Diary (Section 2528)
VDOT	Project Work Zone Traffic Control Diary in a bound book
ALDOT	Form C-25 — Daily Inspection of Traffic Control Devices
WYDOT	Form E-101 — Daily Traffic Control Device Record
ConnDOT	DWR (signing patterns, lane closures, begin/end times, open/close)

The defensible coverage statement: All 50 states have public evidence of explicit or functionally equivalent traffic-control documentation requirements. Sources are linked at purposebuilt-marketing.web.app/standards/ with per-state primary-source citations.

IMPLEMENTATION GAP

From Required Record to Real-Time Data

The required contractor records are typically delivered as paper, scanned PDFs, or fragmented spreadsheets. As inputs to connected-vehicle infrastructure, work zone data exchange (WZDx) feeds, 511 systems, traffic management center dashboards, or corridor-coordination platforms, these formats require manual transcription, are delivered too late to influence operations, and lose almost all of their photo / GPS / device / personnel evidence in transit.

The gap is structural, not technological. The information already flows from the field to the inspector. The opportunity is to capture it in a structured form at the moment of creation, then make it available to consumers (511, TMC, CV/V2X partners, dashboards) as a real-time feed — without changing what the contractor has to do.

SOLUTION

DTCD: One Mobile Workflow, Standards-Compliant Output

Digital Traffic Control Diary (DTCD) is a field-grade iOS, Android, and web application that captures the same traffic-control documentation contractors are already required to produce — and outputs it in formats agencies, federal partners, and connected-vehicle platforms can ingest in real time.

Inputs (captured by the contractor in the field):

- Closure type, road, direction, lane configuration
- Start / end times (verified) and projected end
- GPS-tagged photos of advance warning signs, tapers, devices, attenuators, flagging stations
- AI-assisted MUTCD code identification on each photo (decision-support only — verify all output)
- Personnel (flaggers, pilot cars, inspectors) and connected devices (arrowboards, PCMS)
- Daily inspection notes, deficiencies, and corrective actions

Outputs (generated automatically):

PDF Daily Diary	State-specific spec citation on every page (Caltrans CEM-2210, PennDOT CS-901, WSDOT diary, etc.). Suitable for direct submission to inspectors.
WZDx v4.2 Feed	Work Zone Data Exchange specification — ingestible by 511 systems, navigation providers, and TMC platforms.
CWZ v1.0 Feed	ITE/AASHTO/NEMA Connected Work Zone standard — for connected-vehicle and corridor-coordination consumers.
CIFS Feed	Closure & Incident Feed Specification — Waze, Google Maps, Apple Maps.
KML / GeoJSON / DATEX II	Geographic and European-format outputs for additional consumer ecosystems.
Tamper-Evident Audit Trail	sha-256 chained log of every legally-significant action (cert acceptance, exclusion event, refund). Available for compliance review.

FEDERAL ALIGNMENT

Aligned With FHWA Every Day Counts (EDC-8)

DTCD's structured field-data layer directly supports several FHWA EDC-8 priorities (2026–2027 cycle):

Advancing Nighttime Work Zone Safety	Timestamped photo and inspection evidence for setups when documentation challenges are highest. Deficiency tracking and corrective-action records support nighttime-specific oversight.
Connected Corridors	Field-level closure and traffic-control data feeds WZDx, 511, dashboards, and TMC platforms — providing the ingredient that multi-state corridor operations have lacked.
Integrated Digital Project Delivery	Diaries, inspections, photos, device records, and quantity verification become part of the digital project record from day one.
Beyond Bid-Build (alternative delivery)	Defensible field-condition records that support DB, CMGC, and P3 delivery methods, where the documentation burden is shifted to the contractor.

ADOPTION PATH

Three Ways for Agencies to Engage

1. Free Dashboard	Agency	Any state DOT, MPO, county, or municipality can use the DTCD agency dashboard for free in a single county. View live work zones, photos, inspections, and WZDx feeds from contractors who use DTCD in your jurisdiction.
2. Premium Tier	Agency	\$14.99–\$249.99/mo for expanded coverage (regional, statewide, nationwide), photo viewing, AI safety alerts, and API access. Suitable for traffic management centers, multi-county agencies, and federal partners with broader visibility needs.
3. Enterprise / Custom		State-DOT enterprise licenses, integration scoping, custom WZDx ingest pipelines, on-premise data residency, and federal procurement vehicles available under negotiated agreement. SDVOSB-eligible for federal set-asides.

Independence: PurposeBuilt Systems LLC is independent of and not affiliated with the Iowa Department of Transportation or any other governmental agency. DTCD is a commercial product of PurposeBuilt Systems LLC. No governmental agency endorses, certifies, warrants, or is responsible for DTCD or its outputs. References to state DOT specifications are for informational coverage purposes only and do not imply endorsement.

AI features are decision-support only. AI-assisted features, including MUTCD sign recognition and automated documentation review, do not constitute professional engineering advice, are not safety-critical systems, and must not be used as the sole basis for traffic-control decisions. Users must exercise independent professional judgment and verify all AI-assisted outputs.

Patent Pending. One or more United States patent applications covering subject matter incorporated in DTCD are pending. Digital Traffic Control Diary™ is a trademark of PurposeBuilt Systems LLC.

CONTACT

PurposeBuilt Systems LLC

Email matthew@purposebuilt.systems

Website purposebuilt-marketing.web.app

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