
Synthesis of Rolling Roadblock Practices



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**RESEARCH &
DEVELOPMENT**

Synthesis of Rolling Roadblock Practices

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16. Abstract Rolling roadblocks (RRBs) are a temporary traffic control strategy used to create short, controlled gaps in traffic flow to support construction and maintenance activities that require brief, full-width access to a roadway. These operations are commonly applied on limited-access highways for activities such as overhead construction, traffic control setup and removal, equipment movement, and emergency operations. While RRBs are widely used in practice, there is no nationally standardized approach governing their definition, authorization, duration, or implementation. As a result, RRB practices are governed through a diverse set of state-specific manuals, policies, permit programs, and operational procedures, often supplemented by coordination with law enforcement agencies. This Technical Assistance Research presents a Phase 1 document-based synthesis of formal rolling roadblock practices across the Federal Highway Administration (FHWA) and selected state departments of transportation. A structured and systematic review was conducted for 20 states to identify publicly available guidance addressing RRBs or closely related operational equivalents, such as traffic pacing, rolling slowdowns, and traffic breaks. Of these, eight states, including Alabama, California, Connecticut, Florida, Kentucky, Missouri, New York, and Tennessee, were found to have documented guidance suitable for comparative synthesis. FHWA guidance was included as the national conceptual reference. Agency practices were organized using a standardized comparison framework addressing terminology, definitions, typical applications, authorization mechanisms, duration controls, operational procedures, safety measures, enforcement roles, communication requirements, and supporting tools such as worksheets, standard drawings, and checklists. The synthesis reveals consistent functional intent across agencies—namely, facilitating short-duration work while managing traffic queues and secondary crash risk—but substantial institutional variation in governance models and operational prescriptiveness. Authorization approaches range from permit-based systems with explicit duration limits to project-specific Traffic Control Plans and law-enforcement-led discretionary operations. Similarly, implementation tools vary from analytical pacing worksheets to highly prescriptive staging diagrams or checklist-driven procedures. This report does not propose new standards or recommendations. Instead, it provides a transparent, comparative reference intended to support situational awareness, internal benchmarking, and informed discussion within the North Carolina Department of Transportation, regarding current national practices and potential future research directions related to RRBs.			
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EXECUTIVE SUMMARY

Rolling roadblocks (RRBs) are a temporary traffic control strategy used to create short gaps in traffic flow. RRBs are used to support construction and maintenance activities that require brief, full-width access to a roadway. While RRBs are widely used in practice, their documentation, authorization, and operational structure vary substantially across agencies. This Technical Assistance Research (TAR) was undertaken to identify and synthesize formal RRB guidance across FHWA and selected state departments of transportation (DOTs), with a focus on understanding how RRBs are conceptualized, governed, and implemented nationwide.

Study Scope and Approach

This TAR represents a Phase 1 document-based synthesis. A total of 20 states were screened to determine whether formal RRB-related guidance exists. Of these, eight states were found to have documented guidance addressing RRBs or closely related operational equivalents. These state DOTs, including Alabama Department of Transportation (ALDOT), California Department of Transportation (Caltrans), Connecticut Department of Transportation (CTDOT), Florida Department of Transportation (FDOT), Kentucky Transportation Cabinet (KYTC), Missouri Department of Transportation (MoDOT), New York State Department of Transportation (NYSDOT), and Tennessee Department of Transportation (TDOT), together with FHWA guidance, form the basis of the cross-agency comparison presented in Appendix B.1–B.9.

Appendix B organizes agency practices using a consistent set of categories, including terminology, definition, typical uses, duration, speed/distance, authorization, vehicles and personnel, safety measures, advance warning, communication, enforcement, contextual factors (timing and road type), implementation steps, training, and resources. Rather than serving as a prescriptive standard, Appendix B functions as a comparative reference, enabling systematic examination of similarities and differences across agencies. Chapter 3 interprets these findings by identifying common structural elements, key areas of institutional variation, and gaps in current practice.

Key Findings

Several overarching findings emerge from the synthesis:

Limited Formalization Nationwide. Only a minority of states maintain formal, documented RRB guidance, indicating that while RRBs are commonly used, they are often governed through informal or project-specific mechanisms.

Shared Functional Intent with Divergent Institutional Models. Across agencies, RRBs are consistently associated with short-duration activities requiring temporary full-width access on limited-access facilities. However, agencies differ markedly in terminology, authorization mechanisms, duration controls, and operational prescriptiveness.

Variation in Governance and Authorization. Authorization approaches range from permit-based systems with explicit duration limits, to project-specific Traffic Control Plans or district-level engineering approval, to law-enforcement-executed operations embedded within joint DOT–police frameworks.

Diverse Implementation Tools. Agencies rely on different supporting artifacts, including analytical worksheets, standard drawings, staging diagrams, checklists, or discretionary practices. These tools reflect whether RRBs are treated primarily as engineering calculations, procedural staging operations, or law-enforcement-controlled traffic interventions.

Universal Emphasis on Safety and Enforcement. Despite institutional differences, all agencies emphasize law enforcement involvement and queue management to mitigate secondary crash risk during temporary traffic stoppages or pacing operations.

Relevance to NCDOT

The primary intended user of this TAR is the North Carolina Department of Transportation (NCDOT) Work Zone Traffic Control Unit, which oversees statewide policies and documentation related to temporary traffic control and work zone operations. The findings of this report are intended to support situational awareness and internal benchmarking, allowing NCDOT to understand how peer agencies document and govern RRB practices, identify institutional models that align with NCDOT's operational context, and recognize where formal guidance exists nationally.

This TAR does not recommend the adoption of any specific state practice, nor does it propose new guidance or policy changes. Instead, it provides a transparent, comparative picture of current practice that NCDOT may reference in internal discussions, training context, or future research considerations.

Future Work

A potential follow-on effort involving informal outreach to peer DOTs and applied discussion of implementation considerations was identified as a possible future phase. However, such activities are not included within the scope of the current contract and would require a separate agreement to proceed. Given the expanded analytical depth achieved in Phase 1, initiation of any subsequent phase remains pending. Should NCDOT elect to pursue future work, the synthesis presented in Appendix B provides a strong foundation for targeted outreach and applied exploration.

TABLE OF CONTENTS

TABLE OF CONTENTS.....	vi
Chapter 1. Introduction.....	7
1.1 Background and Motivation.....	7
1.2 Aim and Objectives of the Study.....	7
1.3 Scope and Organization of the Report.....	7
Chapter 2. Methods.....	8
2.1 Peer State Selection.....	8
2.2 Document Search Strategy.....	8
2.2.1 Search Terminology.....	8
2.2.2 Document Types Reviewed.....	8
2.3 Data Extraction and Coding Framework.....	9
Chapter 3. Synthesis of Formal RRB Practices Across Agencies.....	10
3.1 FHWA as the Conceptual Reference Point.....	10
3.2 Common Elements Across State Practices.....	10
3.3 Institutional Variation in Governance and Operations.....	11
3.4 Worksheets, Drawings, and Supporting Artifacts.....	12
Chapter 4. Conclusion, Recommendations, and Future Work.....	13
4.1 Conclusions.....	13
4.2 Recommendations.....	13
4.3 Future Work.....	14
Chapter 5. Implementation and Technology Transfer Plan.....	15
5.1 Phase 1 Implementation Outputs.....	15
5.2 Technology Transfer and Use of Findings.....	15
5.3 Dissemination, Limitations, and Transition.....	15
REFERENCES.....	17
Appendix A. Reference Code.....	19
Appendix B. Cross-Agency Rolling Roadblock and Traffic Pacing Practices.....	21
Appendix B.1 FHWA Guidance.....	21
Appendix B.2 ALDOT.....	23
Appendix B.3 Caltrans.....	25
Appendix B.4 CTDOT.....	27
Appendix B.5 FDOT.....	28
Appendix B.6 KYTC.....	30
Appendix B.7 MoDOT.....	32
Appendix B.8 NYSDOT.....	33
Appendix B.9 TDOT.....	35

Chapter 1. Introduction

1.1 Background and Motivation

Rolling roadblocks (RRBs) are also referred to as rolling slowdowns. RRBs are increasingly used by state Departments of Transportation (DOTs) as an operational traffic control strategy to temporarily reduce traffic speeds or create controlled gaps in traffic flow. These operations are applied to support short-duration construction and maintenance activities, facilitate work zone setup or removal, enable safe movement of equipment or personnel, and enhance safety for both roadway users and workers. While numerous state DOTs have implemented RRBs, their definitions, authorization processes, operational protocols, and safety requirements may vary across jurisdictions. In several states, RRBs are governed by a combination of internal policies, work zone manuals, traffic operations guidelines, and interagency agreements. They're often supplemented by coordination with law enforcement and traffic management centers (TMCs). In some cases, guidance is formalized and standardized, while in others it remains decentralized or practice-based. Currently, the North Carolina Department of Transportation (NCDOT) does not have a unified, standardized set of guidance documents or policies governing the use of RRBs. As interest in and reliance on this traffic control strategy continues to grow, there is a need to better understand how peer agencies define, permit, and implement RRB, as well as what best practices or innovative approaches may be applicable to the NCDOT context. To address this need, the Work Zone Traffic Control Section has requested technical assistance to conduct a literature and state-of-the-industry synthesis of RRB practices nationwide. This effort will focus on documenting existing policies, procedures, and operational requirements used by other state DOTs, with particular attention to regional peers and nationally recognized leaders in traffic operations.

1.2 Aim and Objectives of the Study

The aim of this Technical Assistance Request (TAR) is to synthesize national practices for implementing RRB and identifying common approaches, emerging trends, and innovative strategies that can inform the potential development of NCDOT-specific guidance or policy updates. This Phase 1 TAR is designed as a foundational effort, focusing on information gathering, comparison, and synthesis rather than policy development or implementation. To achieve the stated aim, this TAR will pursue the following objectives:

1. Identify and document how RRBs are defined and authorized by peer state DOTs, including the terminology used, eligible use cases, and governing policies or manuals.
2. Examine permitting and approval processes associated with RRB operations, including required documentation, agency responsibilities, and coordination mechanisms.
3. Compile and compare operational protocols used by state DOTs, including vehicle configurations, personnel roles, safety measures, and enforcement involvement.
4. Assess how contextual factors influence RRB implementation, such as roadway classification, type of construction or maintenance activity, time of day, and environmental conditions.
5. Develop a structured comparison of agency practices that highlights similarities, differences, and notable innovations across jurisdictions.
6. Synthesize key themes, lessons learned, and promising practices that may be relevant to NCDOT's operational environment and institutional framework.

1.3 Scope and Organization of the Report

This TAR represents the first phase of a proposed two-phase technical assistance effort. Phase 1 focuses on synthesizing existing practices across approximately 20–25 state DOTs, with an emphasis on southeastern states and nationally recognized leaders in RRB implementation. The work relies primarily on publicly available documentation. The products of this phase include a comparison matrix of state practices, an annotated appendix of reviewed documents, and a summary of national findings.

Chapter 2. Methods

A structured, transparent, and replicable synthesis methodology was employed to document how peer state DOTs define, authorize, and implement RRBs. The approach combined targeted peer state selection, systematic document search and review, standardized data extraction, and cross-state comparison to support NCDOT's understanding of national practices and inform potential future guidance development. The methodology emphasizes publicly available, authoritative sources, and prioritizes consistency across states to enable meaningful comparison.

2.1 Peer State Selection

Peer state selection was finalized through coordination between the project team and the NCDOT project champion during a meeting held on August 1, 2025. The selection strategy prioritized both regional relevance and national leadership in traffic operations. The primary focus was on states within the American Association of State Highway and Transportation Officials (AASHTO) Region 2, or the Southern Association of State Highway and Transportation Officials (SASHTO) region. The following states were selected for review: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, South Carolina, Tennessee, Texas, Virginia, West Virginia, New Jersey, and Maryland. To complement regional peers, nationally recognized leaders in traffic operations and work zone management were included to capture innovative or well-established RRB practices beyond regional norms. These states included California, New York, Illinois, Ohio, Pennsylvania, and Michigan. In addition, national-level guidance and industry resources from the Federal Highway Administration (FHWA) and the American Traffic Safety Services Association (ATSSA) were reviewed to provide a broader context on RRB and temporary traffic control practices and to supplement state-level findings.

2.2 Document Search Strategy

A systematic document search was conducted for each selected state DOT, federal, or regional-level agency using a standardized set of keywords and search techniques. Searches were performed primarily through official DOT websites, online manual repositories, and document libraries to ensure the use of authoritative sources.

2.2.1 Search Terminology

The following primary and related search terms were used to account for terminology variation across states:

- Primary terms: “rolling roadblock”, “rolling slowdown”, “pacing operation”, “traffic pacing”, and “controlled traffic break”
- Related terms: “temporary traffic control (TTC)”, “moving traffic control”, “mobile operation”, “mobile lane closure”, “intermittent traffic stoppage”, “traffic control plan (TCP)”, and “work zone traffic pacing”

Advanced search techniques, including exact phrase matching, Boolean operators, and site- or file-type restrictions, were applied to improve search efficiency and coverage.

2.2.2 Document Types Reviewed

For each state, federal, or regional-level agency, the project team reviewed and catalogued relevant content from the following document categories, as available:

- State Manual on Uniform Traffic Control Devices (MUTCD) or MUTCD Adaptations: State supplements, official interpretations, or revisions related to moving operations or traffic pacing.
- Work Zone Safety and Temporary Traffic Control Manuals: Maintenance-of-traffic (MOT) manuals, work zone safety handbooks, and traffic operations guidance.

- Permit and Authorization Materials: Permit forms, approval workflows, special provisions, and guidance describing authorization authority and conditions.
- Work Zone Design Manuals and Standard Drawings: Work zone design manuals and standard drawings illustrating typical applications, vehicle placement, sequencing, or signing.
- Standard Specifications and Contract Documents: Standard specifications or bid-item language addressing traffic control operations, vehicle requirements, or law enforcement coordination.

2.3 Data Extraction and Coding Framework

To ensure consistency and comparability across states, the project team developed a standardized data extraction and documentation framework. A uniform template was used for each state DOT, federal, or regional-level agency, with extracted information organized under the following categories:

- Definitions and use case criteria
- Authorization and permitting processes
- Required vehicle types and personnel roles
- Safety measures
- Interagency coordination practices
- Integration with traffic management systems (e.g., TMCs)
- Contextual factors (road type, activity type, time of day, environmental conditions)
- Additional notes and observations
- Source links and references

A standardized reference coding and file-naming system was developed to support systematic document tracking, citation consistency, and transparency across the multi-agency synthesis presented in Appendix B. Each document was assigned a unique reference code reflecting the originating agency or state, document type, and publication year. This coding scheme enables direct traceability between cited materials, appendix tables, and source files. To further facilitate review and verification, all source documents were organized into state-specific folders using consistent file names that correspond to the reference codes. This approach ensures ease of navigation, reduces ambiguity in cross-referencing, and supports efficient review of the underlying documentation. See Appendix A for the complete reference code index and document list.

Chapter 3. Synthesis of Formal RRB Practices Across Agencies

Among the 20 states reviewed in Phase 1, only eight states were found to have formal documented guidance addressing RRBs or closely related operational equivalents. The primary outcome of Phase 1 is the cross-agency synthesis presented in Appendix B, which consolidates RRB-related guidance from FHWA and eight state transportation agencies: Alabama Department of Transportation (ALDOT), California Department of Transportation (Caltrans), Connecticut Department of Transportation (CTDOT), Florida Department of Transportation (FDOT), Kentucky Transportation Cabinet (KYTC), Missouri Department of Transportation (MoDOT), New York State Department of Transportation (NYSDOT), and Tennessee Department of Transportation (TDOT) (Appendix B.1–B.9).

Rather than serving as a descriptive inventory, Appendix B functions as a comparative framework, organizing agency practices using a consistent set of categories, including terminology, definition, authorization, duration, safety measures, and implementation steps, etc. This chapter interprets the synthesized findings in Appendix B by identifying common structural elements, key areas of institutional variation, and systematic gaps in how RRBs are governed and applied.

3.1 FHWA as the Conceptual Reference Point

FHWA guidance, summarized in Appendix B.1, provides the conceptual foundation for RRB practices nationwide. FHWA characterizes RRBs as a form of temporary traffic control used to create short gaps in traffic flow to support downstream work activities. Importantly, FHWA guidance is intentionally non-prescriptive, avoiding fixed requirements related to duration, pacing speed, vehicle configuration, or staging sequences. Instead, FHWA emphasizes documentation within Traffic Management Plans, coordination with law enforcement, and project-specific judgment.

This non-prescriptive posture positions FHWA as a conceptual reference point rather than an implementing authority, leaving states substantial discretion to define operational details. The diversity of state-level approaches, documented in Appendix B.2–B.9, reflects how agencies have independently operationalized this conceptual guidance within their own institutional contexts.

3.2 Common Elements Across State Practices

Despite wide variation in institutional design, several common elements emerge across the eight states summarized in Appendix B.2–B.9. First, RRBs are consistently associated with short-duration activities requiring temporary access across all travel lanes, particularly for overhead or over-lane work. Across agencies, RRBs are not used for extended closures, but rather for tightly bound work windows.

Second, RRBs are overwhelmingly applied to limited-access facilities, such as interstates and freeways. Controlled access is a recurring prerequisite, reflecting the need to manage entry points, traffic queues, and enforcement during temporary traffic stoppages or pacing operations.

Third, law enforcement involvement is a universal structural feature. Although the nature of that involvement varies, law enforcement plays a central role in traffic control, whether by pacing traffic, executing stoppages, managing ramps, or exercising exclusive authority to stop and release traffic.

Finally, safety considerations across agencies emphasize queue management and secondary crash risk, including advance warning, queue monitoring, clearance verification prior to traffic release, and the use of attenuator-equipped vehicles. While the specific tools and thresholds differ, the underlying safety concerns are consistent across jurisdictions.

3.3 Institutional Variation in Governance and Operations

While the functional intent of RRBs is broadly shared, Appendix B reveals substantial institutional variation in how agencies govern and implement these operations.

One key area of variation is terminology and conceptual framing. Several agencies explicitly use the term rolling roadblock, including NYSDOT, CTDOT, KYTC, ALDOT, and TDOT. In contrast, FDOT and MoDOT frame the practice as traffic pacing, emphasizing controlled speed reduction rather than complete traffic stoppage. Caltrans uniquely uses the term traffic break, reflecting an institutional model in which traffic control is executed directly by law enforcement rather than through DOT-led staging or pacing operations. These terminological distinctions reflect deeper differences in how agencies conceptualize RRBs, whether primarily as pacing operations, temporary full stoppages, or law-enforcement-controlled traffic interventions.

Authorization mechanisms also vary widely across agencies. KYTC employs a permit-based system, requiring advance notice, formal submittals, and explicit duration limits for RRB operations. In contrast, FDOT and MoDOT rely primarily on project-specific Traffic Control Plans (TCPs) and district-level engineering approval, with authorization embedded within standard work zone planning processes rather than a standalone permit. NYSDOT and CTDOT authorize RRBs through prescriptive procedures defined in agency manuals and directives, without a separate permit program. Caltrans embeds traffic breaks within joint DOT–law enforcement operations and does not use a standalone permit structure, while ALDOT distinguishes between construction rolling roadblocks authorized through project-specific TCP provisions and command-authorized emergency reverse-laning operations.

Operational prescriptiveness further differentiates agencies. NYSDOT, CTDOT, KYTC, and TDOT represent the highly prescriptive end of the spectrum, providing step-by-step procedures, staging diagrams, or standardized layouts that define vehicle positioning, ramp control, clearance verification, and traffic release sequences. In contrast, FDOT and MoDOT adopt analysis-driven approaches, relying on traffic pacing worksheets and engineering calculations to determine pacing speed, distance, queue length, and allowable work duration, with fewer fixed procedural steps specified in guidance. Caltrans occupies the principle-based, discretionary end of the spectrum, embedding traffic breaks within joint DOT–law enforcement operations, and relying on law enforcement judgment and real-time conditions rather than RRB-specific worksheets or staging diagrams. ALDOT combines both approaches, using project-specific TCP provisions for construction rolling roadblocks and highly prescriptive checklist-driven procedures for command-authorized emergency reverse-laning operations. These differences shape how consistently RRBs are applied, compliance is enforced, and how transferable practices may be across agencies.

Duration and timing controls represent another major point of divergence across agencies. NYSDOT specifies defined early-morning weekend windows, typically scheduling RRBs during daylight hours on Saturdays or Sundays (e.g., 6:00–8:00 AM) to minimize traffic disruption. CTDOT and KYTC emphasize off-peak and overnight operations, generally restricting RRBs to overnight or low-volume periods, without narrowly defined hourly windows beyond the duration caps. ALDOT imposes the most restrictive timing controls for construction rolling roadblocks, limiting operations to nighttime hours (approximately 11:00 PM–5:00 AM), while emergency reverse-laning RRBs are event-driven and not subject to fixed time windows. TDOT primarily conducts RRBs during nighttime or off-peak periods, but practice-based reports also document daytime morning windows for utility and short-duration maintenance activities. In contrast, FDOT, MoDOT, and Caltrans do not prescribe fixed time-of-day windows; instead, they rely on context-dependent scheduling, typically favoring off-peak conditions determined through traffic analysis, engineering judgment, or real-time law-enforcement discretion.

3.4 Worksheets, Drawings, and Supporting Artifacts

Appendix B highlights systematic differences in the tools and supporting artifacts used by agencies to plan, authorize, and execute RRBs. These artifacts reveal how agencies conceptualize RRBs as analytical engineering problems, standardized staging procedures, checklist-driven operations, or discretionary traffic control actions. The primary tools identified across agencies are summarized below.

Analytical Worksheets (Engineering-Based Tools)

- FDOT Traffic Pacing Worksheet – Excel-based worksheet used to calculate pacing speed, pacing distance, queue length, and allowable work duration for traffic pacing operations. (F_TPS10; F_TPD19)
- MoDOT Traffic Pacing Worksheet – Spreadsheet-based tool supporting calculation of pacing parameters and work duration under traffic pacing operations. (MO_TPW17; MO_TP26)

Standard Drawings and Staging Plans (Procedure-Based Tools)

- NYSDOT Rolling Road Block Staging Diagrams – Prescriptive diagrams defining shadow vehicles, ramp control, clearance vehicles, and traffic release sequencing. (NY_WZTCM15)
- CTDOT Rolling Road Block Staging Diagrams – Step-by-step layouts embedded within Construction Directive CD-2016-2, including vehicle positioning and duration limits. (CT_PRA17; CD-2016-2)
- KYTC Rolling Roadblock Staging Drawings – Permit-submitted staging plans specifying pacing speeds, distances, ramp closures, and traffic release procedures. (KY_RRBP18)
- TDOT Rolling Roadblock Detail for Divided Highways (TN_RRBDDH22) – Dedicated statewide standard drawing defining vehicle procession, queue protection, and phased implementation. (TN_RRTDDSD25; TN_WZM21)

Checklist-Driven Procedures (Operational Control Tools)

- ALDOT Reverse Laning Master Checklist – Prescriptive checklist governing rolling roadblock uses within emergency reverse-laning operations, including clearance verification and command authorization. (AL_RLC25; AL_RLI6525)

Minimal or Discretionary Artifacts

- Caltrans Traffic Break Practices – Relies on existing lane-closure standards and law-enforcement discretion; no traffic-break-specific worksheet or staging drawing is provided. (C_C78MM24; C_SPT15T1724)

Together, these tools illustrate that agencies vary not only in policy and authorization structures, but also in the degree of formalization embedded in their implementation resources. Agencies that rely on worksheets tend to treat RRBs as engineering calculations. Those who rely on drawings emphasize procedural consistency, while checklist-based or discretionary approaches reflect command-control or law-enforcement-led operational models.

Chapter 4. Conclusion, Recommendations, and Future Work

4.1 Conclusions

Phase 1 synthesis examined formal RRB guidance across federal and state agencies, drawing on FHWA guidance and documented practices from eight state DOTs (Appendix B.1–B.9). Among the 20 states reviewed, only a minority were found to have formal documented RRB guidance, underscoring the limited institutionalization of this practice nationwide. Where guidance does exist, it is highly heterogeneous, reflecting differences in legal authority, organizational structure, and operational philosophy.

Several overarching conclusions emerge. First, RRBs are widely recognized as a legitimate temporary traffic control strategy, but they are not standardized. Across agencies, RRBs are consistently used to support short-duration activities that require temporary, full-width access to limited-access facilities. However, the mechanisms by which traffic is controlled—pacing, slowing, or complete stopping—vary substantially, as does the degree of operational specificity. Second, law enforcement involvement is a universal structural element, but its role differs markedly. Some agencies integrate law enforcement as pace-setting vehicles or queue-control assets (e.g., NYSDOT, KYTC, TDOT), while others vest exclusive execution authority in law enforcement (e.g., Caltrans). These differences are not cosmetic; they shape authorization pathways, communication protocols, and enforceability. Third, agencies diverge sharply in how they govern risk and accountability. Permit-based systems (e.g., KYTC) rely on advance notice, explicit duration limits, and financial accountability. Engineering-driven systems (e.g., FDOT, MoDOT) rely on analytical tools to bound queue growth and work duration. Principle-based systems (e.g., Caltrans) emphasize discretion and real-time judgment. TDOT represents a hybrid model, pairing a dedicated standard drawing with practice-based duration limits documented through recurring operational reports. Fourth, the presence or absence of formal worksheets, standard drawings, or checklists is a strong indicator of how RRBs are conceptualized. Agencies that provide worksheets treat RRBs as calculable engineering problems; those that provide drawings treat them as procedural staging problems; those that provide neither rely on institutional discretion. This structural choice has direct implications for consistency, transferability, and safety oversight. Finally, the synthesis reveals a structural gap between federal guidance and state implementation. FHWA guidance establishes conceptual legitimacy but stops short of defining minimum operational elements. As a result, states have filled this gap in inconsistent ways, producing a patchwork of practices that may hinder cross-state learning and systematic evaluation of safety outcomes.

4.2 Recommendations

Based on these findings, several recommendations are offered for agencies, practitioners, and future research.

1. Align Authorization with Operational Risk: Agencies should ensure that authorization mechanisms reflect the operational risk profile of RRBs. Permit-based systems offer strong accountability but may be burdensome for routine short-duration work. Conversely, discretionary systems may lack sufficient guardrails. Hybrid approaches—combining regional approval, standardized drawings, and documented duration limits—may offer a more balanced solution.
2. Integrate Analytical and Procedural Tools: States relying exclusively on either worksheets or drawings may benefit from integrated approaches. Analytical tools can improve anticipation of queue growth and secondary crash risk, while standardized drawings improve field consistency. Combining both could enhance safety and predictability without over-constraining operations.
3. Standard Duration and Queue Management Metrics: While agencies differ in context, the wide variation in duration limits (from strict caps to none) suggests a need for more consistent

performance-based metrics. Rather than fixed time limits alone, agencies should consider queue length, dissipation time, and exposure duration as complementary controls.

4. Strengthen Documentation of Practice-Based Evidence: TDOT’s use of roadway activity reports and project-specific documentation highlights the value of practice-based evidence. Agencies should systematically document RRB deployments, including timing, duration, traffic conditions, and observed issues, to support data-driven refinement of guidance.

This synthesis demonstrates that rolling roadblocks are neither rare nor ad hoc, but they are institutionally fragmented. Appendix B.1–B.9 shows that agencies have independently developed workable solutions to similar operational problems, yet the lack of a shared framework limits comparability and learning. Addressing this gap represents a meaningful opportunity to improve work zone safety and operational consistency nationwide.

4.3 Future Work

This TAR focused on Phase 1 activities, which involved identifying and synthesizing formal RRB guidance across FHWA and selected state DOTs. A potential Phase 2 effort—originally envisioned to include informal outreach to peer DOTs and applied discussion of implementation considerations—is not included within the scope of the current contract and would require a separate agreement to proceed.

Given the extended timeline and expanded analytical depth of Phase 1, initiation of a follow-on Phase 2 contract has not yet occurred and therefore remains pending. No outreach or practitioner engagement has been conducted beyond the document-based synthesis reported.

If NCDOT elects to pursue future work under a new contract, Phase 2 could build upon the findings of this report by engaging selected peer agencies to discuss real-world implementation experiences, coordination practices, and operational considerations relevant to NCDOT’s context. The Phase 1 synthesis presented in Appendix B provides a strong foundation for such an effort, should NCDOT determine that additional applied insights would be beneficial.

Chapter 5. Implementation and Technology Transfer Plan

5.1 Phase 1 Implementation Outputs

The primary implementation outputs of Phase 1 are informational and documentary, intended to support awareness and cross-agency comparison rather than procedural change. The central implementation product is Appendix B, which consolidates RRB-related guidance from FHWA and eight state DOTs into a structured comparative framework. The appendix is organized using consistent categories, such as terminology, authorization, duration, safety measures, and enforcement, to facilitate systematic comparison. This structure allows readers to quickly identify which states have formal RRB guidance, understand how RRBs are defined and constrained across agencies, and compare institutional approaches without independently reviewing multiple source documents. The synthesis is explicitly designed as a reference tool, not as a recommended or prescriptive standard.

In addition, Phase 1 documents substantial institutional variation in RRB practice. Differences are observed in terminology (e.g., rolling roadblock, traffic pacing, traffic break), authorization structures (permit-based, TCP-based, or command-level), and levels of operational prescriptiveness (ranging from worksheets and standard drawings to checklist-driven or discretionary practices). By preserving these differences rather than normalizing them, the research supports context-aware interpretation by agencies operating under different regulatory and organizational frameworks.

5.2 Technology Transfer and Use of Findings

Technology transfer for Phase 1 is focused on knowledge sharing and situational awareness, not on operational deployment. Practitioners and DOT staff may use the findings to benchmark their own practices against those documented in Appendix B, identify peer agencies with similar institutional approaches, and recognize where formal RRB guidance exists and where documentation gaps remain. The study does not suggest that agencies adopt practices from other states; rather, it provides a transparent, comparative picture of current RRB practice nationwide to support internal discussion and informed decision-making. The synthesis may inform internal DOT conversations regarding whether additional clarification or documentation of RRB practices would be beneficial, as well as future research examining safety performance, operational impacts, or implementation challenges. Any such activities would fall outside the scope of Phase 1 and would require separate authorization and analysis.

The primary intended user of the Phase 1 findings is the NCDOT Work Zone Traffic Control Unit, which oversees statewide policies, practices, and documentation related to temporary traffic control and work zone operations. This unit serves as the central institutional home within NCDOT for interpreting, maintaining, and disseminating information related to RRB practices.

Phase 1 deliverables, particularly the comparative synthesis presented in Appendix B, are intended to support this role by providing situational awareness of how peer agencies document and govern RRB practices nationally. The findings are not intended to prescribe new procedures, but to function as a reference resource that may be drawn upon in internal discussions, training contexts, or future research considerations.

5.3 Dissemination, Limitations, and Transition

Dissemination of Phase 1 results emphasizes clarity and accessibility. The findings are disseminated primarily through the inclusion of Appendix B as a standalone reference within the final report. The materials are intended for use by state DOT traffic operations and work zone safety personnel, transportation researchers, and agency decision-makers seeking situational awareness of RRB practices.

Because Phase 1 is limited to document review and synthesis, no field testing or pilot implementation was conducted, no evaluation of safety or operational effectiveness was performed, and no recommendations for modifying existing RRB practices were made. These limitations are intentional and reflect the exploratory and comparative nature of Phase 1. While Phase 1 does not include implementation in the operational sense, it establishes a structured baseline that can support subsequent phases of research. Any future phase that evaluates effectiveness, develops tools, or proposes guidance would build upon—but is not implied by—the findings documented in this report.

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Appendix A. Reference Code

Referencing Coding	Document Title	Uploaded File Name
ALDOT		
AL_PSP25	ALDOT Project Specific Special Provision	AL_ProjectSpecificSpecialProvision2025.pdf
AL_RLC25	ALDOT Reverse Laning Master Checklist	AL_ReverseLaningMasterChecklist_2025.pdf
AL_RLI6525	ALDOT Reverse Laning of Interstate 65	AL_ReverseLaningOfInterstate65_2025.pdf
Caltrans		
C_C78MM24	Caltrans Chapters 7 and 8 of the Maintenance Manual September 2024	C_Chapters7and8ofMaintenanceManual_2024
C_TMPG15	Caltrans Transportation Management Plan Guidelines	C_TransportationManagementPlanGuidelines_2015
C_SPT15T1724	Caltrans Standard Plans T15-T17 - Moving Lane Closure 2024	C_StandardPlansT15T17_2024
CTDOT		
CT_WZSM17	CTDOT Work Zone Safety and Mobility Process Review Final Report	CT_WorkZoneSafetyandMobilityProcessReview_2017
CT_PRA17	CTDOT Work Zone Safety and Mobility Process Review Final Report Appendix 3-7	CT_WZSMProcessReviewAppendices_2017
FDOT		
F_TPD19	FDOT 242 Traffic Pacing Design	FDOT_DesignManual242TrafficPacing_2019
F_TPS10	FDOT Traffic Pacing Sheet	FDOT_TrafficPacingSheet_2010
FHWA		
FHWA_GRRO18	FHWA Guidance on Rolling Roadblock Operations - Attachment	FHWA_GuidanceOnRollingRoadblockOperations_2018
FHWA_WZMP19	FHWA Work Zone Management Program	FHWA_WorkZoneManagementProgram_2019
KYTC		

KY_TOGM05	KYTC Traffic Operations Guidance Manual	KY_TrafficOps_2005
KY_RRB18	KYTC Rolling Roadblock Permit _TC 99-210	KY_RRBTC99210_2018
MoDOT		
MO_TP26	MoDOT Engineering Policy Guide-616.19.7 Traffic Pacing	MO_616.19.7MoDOTEngineeringPolicyGuide_2026
MO_TPCMS	MoDOT Traffic Pacing Changeable Message Signs	MO_616.13.7.3TrafficPacingChangeableMessageSigns
MO_SPD	MoDOT Staging Plan Details (Mainline Pacing Details)	MO_616.13.7.2StagingPlanDetails(Mainline Pacing Details)
MO_TPW17	MoDOT Traffic Pacing Worksheet	MO_616.13.7.1TrafficPacingWorksheet_2017
NYS DOT		
NY_WZTCM15	NYS DOT Work Zone Traffic Control Manual	NY_WorkZoneTrafficControlManual_2015
TDOT		
TN_RRTDDSD25	TDOT Traffic Regarding Revised Traffic Design Division Standard Drawings	TN_RevisedRemovedTrafficDesignDivisionStandardDrawings_2025
TN_WZM21	TDOT Work Zone Manual	TN_WorkZoneFieldManualMaintenanceOperations_2021
TN_MTLCR25	TDOT Middle Tennessee Lane Closure Report August 2025	TN_MiddleTennesseeLaneClosureReport_2025
TN_RAR25	TDOT Roadway Activity Report Cumberland August 2025	TN_RoadwayActivityReportLowerEastUpperCumberland_2025
TN_I40RRB24	TDOT I-40 Rolling Roadblocks Nashville Airport	TN_I40RollingRoadblocks_2024
TN_RRBDDH22	Rolling Roadblock Detail for Divided Highways	TN_RollingRoadblockDetailForDividedHighways_2022

Appendix B. Cross-Agency Rolling Roadblock and Traffic Pacing Practices

Appendix B.1 FHWA Guidance

Category	FHWA Guidance
Terminology	Rolling Roadblock, Traffic Pacing, Rolling Block, Pacing Operation [FHWA_WZMP19, P1; FHWA_GRRO18, P2]
Definition	“A TTC technique frequently used by State DOTs to temporarily slow or stop traffic in order to provide a gap in the flow of traffic in advance of downstream construction activities.” [FHWA_WZMP19, P1]
Typical Uses	Applied for short-duration activities requiring temporary full roadway access, including bridge beam placement, overhead sign installations, utility crossings, and blasting operations [FHWA_WZMP19, P1].
Duration	Short-term / short-duration (no fixed maximum specified) [FHWA_WZMP19, P1]
Speed/Distance	Project- and state-determined; FHWA does not specify pacing speed or pacing distance. [FHWA_WZMP19, P1; FHWA_GRRO18, P2]
Authorization	RRB policies and procedures should be documented within Traffic Management Plans (TMPs) and included in encroachment permits; FHWA guidance emphasizes coordination with law enforcement and roadway agencies as a best practice. [FHWA_GRRO18, P3]
Vehicles and Personnel	Recommends the use of truck-mounted attenuators (TMAs), arrow boards, and pacing vehicles to shield the work zone and manage queues. Law enforcement vehicles are encouraged to enhance compliance and visibility [FHWA_WZMP19, P1].
Safety Measures	Calls for queue monitoring systems to track traffic buildup, crash cushions and TMAs to shield work areas, and emergency response plans to manage incidents. Emphasizes layered safety to protect both workers and motorists [FHWA_WZMP19, P1-P2].
Advance Warning	Recommends portable changeable message signs (PCMS) placed one week before the RRB and again on the day of operation. Also encourages public outreach through press releases, DOT websites, and social media to inform motorists in advance [FHWA_WZMP19, P1-P2].
Communication	Stresses the importance of two-way radios for coordination between all vehicles involved in the pacing, along with pre-operation stakeholder meetings to review procedures and responsibilities before implementation [FHWA_GRRO18, P2].
Enforcement	Requires biennial Work Zone Process Reviews under 23 CFR Part 630 Subpart J to evaluate the effectiveness of state policies and procedures, including practices related to rolling roadblocks [FHWA_GRRO18, P4].
Contextual factors (Timing/Road Type)	Advises RRB be conducted on high-speed, limited-access freeways during off-peak traffic periods to minimize congestion and queue-related risks [FHWA_WZMP19, P1].
Implementation Steps	Calls for a pre-operation review with all stakeholders, including contractors, engineers, and law enforcement. Requires stakeholder meetings to establish responsibilities, public outreach prior to operations, and queue monitoring during the event [FHWA_GRRO18, P2].
Training/Resources	ATSSA guidelines and FHWA training resources for rolling roadblock implementation. [FHWA_WZMP19, P2]

Others	Highlights the 2016 Palm Springs crash (13 fatalities) as a case study underscoring the need for improved warning systems and queue monitoring, and recommends that states incorporate lessons learned into policy updates. [FHWA GRRO18, P1]
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Abbreviations Used in Appendix B.1 (FHWA Guidance)

ATSSA — American Traffic Safety Services Association

CFR — Code of Federal Regulations

CMS — Changeable Message Sign

DOT — Department of Transportation

FHWA — Federal Highway Administration

PCMS — Portable Changeable Message Sign

RRB — Rolling Roadblock

TMA — Truck-Mounted Attenuator

TMP — Transportation Management Plan

TTC — Temporary Traffic Control

Appendix B.2 ALDOT

Category	ALDOT
Terminology	Uses the term “rolling roadblock” explicitly in project-specific Traffic Control Plan notes and defines RRB (Rolling Road Block) in reverse laning operational checklists. [AL PSP25, P15; AL RLC25, P1]
Definition	No formal statewide definition. Rolling roadblocks are implemented as temporary traffic stoppages or controlled pacing operations embedded within project-specific construction provisions and emergency reverse laning procedures. [AL PSP25, P15; AL RLC25, P1–2]
Typical Uses	Used for bridge girder placement, demolition of existing bridges, removal or installation of overhead sign bridges, and other Engineer-approved construction activities requiring temporary full roadway control, as well as for emergency reverse-laning operations associated with hurricane evacuation on interstate facilities. [AL PSP25, P15; AL RLC25, P1–10; AL RLI6525, P1–2]
Duration	Traffic must be released at least every 15 minutes during rolling roadblock operations to limit delay and excessive queue formation. [AL PSP25, P15]
Speed/Distance	No prescriptive statewide pacing speed or distance criteria specified. Traffic control characteristics are defined through project-specific TCP notes or reverse laning operational procedures. [AL RLC25, P1–10]
Authorization	Authorized through project-specific Traffic Control Plan provisions subject to Engineer approval for construction activities, and through DOT Director authorization and Central Office coordination for reverse laning operations; no standalone rolling roadblock permit is described in the reviewed ALDOT documents. [AL PSP25, P15; AL RLC25, P2–P3]
Vehicles and Personnel	Department of Public Safety (DPS) vehicles are used to execute rolling roadblocks. Defined roles include Area Maintenance Engineers (AMEs), Traffic Leaders (TLs), and Assistant Traffic Leaders (ATLs). ATLs ride in DPS vehicles to scout roadway segments, report conditions, and support clearance verification prior to traffic release. [AL RLC25, P1–6; AL RLI6525, P5–6]
Safety Measures	Safety is ensured through prescriptive, checklist-driven procedures, including DPS-led traffic control, ATL roadway scouting, obstruction detection and response protocols, mandatory clearance verification prior to traffic release, and continued on-site personnel presence to prevent unsafe traffic movements. [AL RLC25, P5–9; AL RLI6525, P5–6]
Advance Warning	For construction rolling roadblocks, a minimum 48-hour advance notice to the Engineer, local police, fire departments, Emergency Management Agency (EMA), and media is required. For emergency reverse-laning operations, advance warning is provided through planned deployment, traveler information materials, and field coordination rather than a fixed notice period. [AL PSP25, P15; AL RLI6525, P2]
Communication	For construction rolling roadblocks, formal advance communication is required, including a mandatory 48-hour notice to the Engineer, police, fire, Emergency Management Agency (EMA), and media. For reverse-laning operations, communication follows structured, checklist-driven notification and reporting chains among Central Office, Area Maintenance Engineers, Traffic Leaders, Assistant Traffic Leaders, DPS, and EMA, with additional field-level communication provided directly to travelers. [AL PSP25, P15; AL RLC25, P1–7; AL RLI6525, P2]
Enforcement	For construction rolling roadblocks, enforcement is exercised through engineer oversight and adherence to approved Traffic Control Plans. For reverse-laning operations, enforcement is integral to execution, with Department of Public Safety (DPS) vehicles

	physically controlling traffic, command-level authorization required prior to initiation, and ALDOT and DPS personnel required to remain on site until formally released to prevent unauthorized traffic movements. [AL PSP25, P15; AL RLC25, P2, P5, P9–10; AL RLI6525, P8]
Contextual factors (Timing/Road Type)	Construction rolling roadblocks are limited to controlled-access highways and are restricted to nighttime operations between 11:00 PM and 5:00 AM. Reverse-laning rolling roadblocks are applied on interstate facilities and are event-driven, with contraflow operations typically scheduled during daytime hours and extended as needed based on traffic conditions. [AL PSP25, P15; AL RLC25, P1; AL RLI6525, P2]
Implementation Steps	For construction rolling roadblocks, implementation procedures are defined through project-specific Traffic Control Plans and Engineer direction, with no standardized statewide sequence. For reverse-laning operations, implementation follows a prescriptive, checklist-driven sequence that includes command-level authorization, DPS-led rolling roadblock initiation, traffic control device installation, ATL roadway scouting and clearance verification, and controlled termination and removal of traffic control devices. [AL PSP25, P15; AL RLC25, P1–10; AL RLI6525, P4–8]
Training/Resources	Training and operational knowledge are embedded in project-specific special provisions and prescriptive reverse-laning checklists. Specialized personnel (Area Maintenance Engineers, Traffic Leaders, and Assistant Traffic Leaders) rely on detailed procedural checklists and corridor-specific reverse-laning plans rather than standalone training manuals or formal certification programs. [AL PSP25, P15; AL RLC25, P1–10; AL RLI6525, P1–8]
Others	ALDOT applies rolling roadblocks under two distinct operational regimes: (1) highly restrictive, project-specific construction rolling roadblocks limited to nighttime hours with mandatory clearance and advance notice requirements, and (2) command-authorized reverse-laning rolling roadblocks used for large-scale emergency evacuation, executed through prescriptive, law-enforcement-led checklists rather than a standalone statewide policy. [AL PSP25, P15; AL RLC25, P1–10; AL RLI6525, P1–8]

Abbreviations Used in Appendix B.2 (ALDOT)

- ALDOT — Alabama Department of Transportation
- AME — Area Maintenance Engineer
- ATL — Assistant Traffic Leader
- DPS — Department of Public Safety (Alabama)
- EMA — Emergency Management Agency
- RL — Reverse Laning
- RRB — Rolling Road Block
- TCP — Traffic Control Plan
- TL — Traffic Leader

Appendix B.3 Caltrans

Category	Caltrans
Terminology	Uses the term “traffic break”, conducted by the California Highway Patrol (CHP), rather than “rolling roadblock.” [C C78MM24, Ch. 7, p. 7-39]
Definition	Caltrans does not provide a standalone definition of “traffic break.” In practice, a traffic break refers to a CHP-led temporary stopping or control of traffic used to support short-duration maintenance or construction activities and to protect workers. [C C78MM24, Ch. 7, p. 7-8; Ch. 7, p. 7-39; Ch. 8, p. 8-35]
Typical Uses	Used for short-duration maintenance activities on the traveled way (e.g., pothole patching and debris retrieval), to allow safe worker access across traffic, and to support moving lane-closure operations and installation or removal of traffic control devices. [C C78MM24, Ch. 7, p. 7-39; Ch. 8, p. 8-35; C SPT15T1724, T15–T17]
Duration	No fixed duration is specified for traffic breaks. Traffic break use is situational and determined by CHP based on traffic conditions and safety needs, typically in support of short-duration maintenance activities. [C C78MM24, Ch. 7, p. 7-39–7-40; Ch. 8, p. 8-35]
Speed/Distance	No prescriptive speed or spacing requirements are specified for CHP traffic breaks. Traffic control is executed directly by CHP through stopping or releasing traffic based on real-time conditions. Pilot-car operations used in other traffic control contexts are subject to separate speed limits (e.g., ≤25 mph) and are not part of CHP traffic break procedures. [C C78MM24, Ch. 7, p. 7-8; Ch. 7, p. 7-39]
Authorization	Traffic breaks are authorized through Caltrans planning and lane-closure processes, including approved Transportation Management Plans, with operational authority to stop, hold, or release traffic vested exclusively in the California Highway Patrol (CHP). Traffic breaks are conducted as joint Caltrans–CHP operations rather than through a standalone permit process. [C C78MM24, Ch. 7, p. 7-8; p. 7-9; p. 7-39; C TMPG15, p. i–1]
Vehicles and Personnel	Traffic breaks are executed by California Highway Patrol (CHP) officers using law-enforcement vehicles. Caltrans maintenance personnel coordinate with CHP and request traffic breaks as needed to support maintenance activities, but do not directly control traffic. Traffic-break operations are conducted as joint Caltrans–CHP activities. [C C78MM24, Ch. 7, p. 7-8; Ch. 7, p. 7-9; Ch. 8, p. 8-35]
Safety Measures	Safety is ensured through CHP-led traffic control, with traffic breaks used as a protective measure when traffic conditions make work unsafe. Caltrans maintenance forces are required to wait or request CHP traffic breaks when necessary, and traffic stopping or release is executed by CHP to ensure worker and public safety. Safety coordination is governed through joint Caltrans–CHP operational policies. [C C78MM24, Ch. 7, p. 7-8; p. 7-9; p. 7-39; Ch. 8, p. 8-35]
Advance Warning	Advance warning is addressed through the Transportation Management Plan (TMP) public-information and motorist-information strategies, including CMS, PCMS, and media notifications. For highway closures or restricted operations, district offices coordinate advance notification with CHP and local and statewide media. No traffic-break-specific advance-notice duration is prescribed. [C TMPG15, Ch. 1.2.1–1.2.2; C C78MM24, Ch. 7, p. 7-9; p. 7-13]

Communication	Communication is coordinated through Transportation Management Centers (TMCs) and Transportation Management Plan (TMP) processes, with structured notification and coordination among Caltrans districts, the California Highway Patrol (CHP), and internal traffic operations staff. For traffic impacts or closures, district offices coordinate communication with CHP and local and statewide media. [C TMPG15, Ch. 1.2.2–1.2.3; C C78MM24, Ch. 7, p. 7-9; p. 7-13]
Enforcement	Enforcement authority for traffic breaks rests exclusively with the California Highway Patrol (CHP), which is authorized to direct traffic, including stopping or expediting traffic, to ensure safety. Caltrans authorizes closures and supports enforcement through planning and coordination, but does not directly enforce traffic control during traffic-break operations. [C C78MM24, Ch. 7, p. 7-8; p. 7-9; Ch. 8, p. 8-35]
Contextual factors (Timing/Road Type)	Applied to State highway facilities, including freeways and expressways. Traffic-break timing is context- and safety-dependent; Transportation Management Plan (TMP) planning typically favors off-peak or nighttime work to minimize impacts. Predicted individual delays of 30 minutes or more trigger “significant traffic impact” classification and higher-level TMP review, but this threshold is not specific to traffic-break operations. [C C78MM24, Ch. 7, p. 7-8; C TMPG15, Key Terminology, p. iii; Ch. 1.2.4.D1, p. 1-8]
Implementation Steps	Traffic breaks are implemented by first identifying short-duration or safety-critical maintenance activities where lane closures are impractical, followed by requesting CHP traffic control. CHP executes the traffic break by stopping or holding traffic, allowing Caltrans maintenance forces to perform the work. Traffic control is released by CHP after coordination with Caltrans, consistent with joint Caltrans–CHP maintenance procedures. [C C78MM24, Ch. 7, p. 7-8; p. 7-9; p. 7-39; Ch. 8, p. 8-35]
Training/Resources	Guidance and operational knowledge for traffic breaks are provided through the Caltrans Maintenance Manual, Transportation Management Plan (TMP) Guidelines, Standard Plans, and a Joint Operations Policy Statement with the California Highway Patrol (CHP). No traffic-break-specific training or certification requirements are specified. [C C78MM24, Ch. 7, p. 7-7 & p. 7-9; C TMPG15, Preface & p. i–1; C SPT15T1724]
Others	Caltrans uniquely separates planning authority and field execution: traffic control decisions are planned through Transportation Management Plans and maintenance procedures by Caltrans, while operational authority to stop, hold, and release traffic during traffic breaks rests exclusively with the California Highway Patrol (CHP). Traffic breaks are condition-based and discretionary, embedded within broader maintenance and TMP frameworks rather than governed by a standalone rolling roadblock policy. [C C78MM24, Ch. 7, p. 7-8 & p. 7-39; C TMPG15, p. i–1]

Abbreviations Used in Appendix B.3 (Caltrans)

Caltrans — California Department of Transportation

CHP — California Highway Patrol

CMS — Changeable Message Sign

PCMS — Portable Changeable Message Sign

TMP — Transportation Management Plan

TMC — Transportation Management Center

TTC — Temporary Traffic Control

Appendix B.4 CTDOT

Category	CTDOT
Terminology	Rolling Road Block [CT_WZSM17, P15]
Definition	“The Rolling Road Block is a method used by CTDOT to slow down traffic in all lanes for a short duration to accommodate traffic pattern set-ups or break-downs.” [CT_WZSM17, P15]
Typical Uses	Primarily used for installation and removal of temporary lane closures, including traffic pattern set-ups and break-downs on limited-access highways. [CT_PRA17, Appx 6; CD-2016-2, P38–39]
Duration	Maximum 15 minutes per rolling road block. [CT_PRA17, Appx 6; CD-2016-2, P39]
Speed/Distance	No fixed pacing speed or distance specified. [CT_WZSM17]
Authorization	Authorized through Construction Directive CD-2016-2; no separate permit required. District-level discretion allowed for exceptions. [CT_PRA17, Appx 6; CD-2016-2, P38]
Vehicles and Personnel	State Police vehicles and contractor vehicles equipped with truck-mounted attenuators (TMAs) are required to implement rolling road blocks. [CT_PRA17, Appx 6; CD-2016-2, P39]
Safety Measures	Mandates TMAs, flashing lights, and enforcement of duration limits; non-conformance addressed through field reviews and corrective actions. [CT_WZSM17, P15–16; CT_PRA17, Appx 6]
Advance Warning	Requires a pre-warning vehicle (TMA equipped with a portable changeable message sign) positioned ½ mile upstream of the traffic queue to warn motorists in advance of rolling road block operations. [CT_PRA17, Appx 6; CD-2016-2, P39]
Communication	Coordination meetings recommended prior to first implementation; rolling road block procedures reviewed with State Police before each shift involving temporary lane closures. [CT_PRA17, Appx 6; CD-2016-2, P38–40]
Enforcement	Compliance enforced through Construction Directive CD-2016-2 and Non-Conformance Notices (NCNs); repeated violations may result in suspension of rolling road block privileges. [CT_PRA17, Appx 6; CD-2016-2, P39–40; CT_WZSM17, P93–94]
Contextual factors (Timing/Road Type)	Limited to limited-access highways; typically implemented during overnight or off-peak periods to reduce disruption. [CT_WZSM17, P40–94]
Implementation Steps	Stepwise procedure defined in CD-2016-2: vehicles accelerate to roadway speed, form a side-by-side rolling block, decelerate to initiate traffic control, deploy a pre-warning vehicle upstream, complete lane-closure work, and release traffic once clear. [CT_PRA17, Appx 6; CD-2016-2, P39–40]
Training/Resources	Construction Directive CD-2016-2 and associated Work Zone Safety procedures; coordination with State Police emphasized. [CT_PRA17, Appx 6]
Others	Process review documented frequent non-compliance with duration limits (up to 57 minutes), highlighting the need for stricter enforcement and standardized procedures. [CT_WZSM17, P93–94]

Abbreviations Used in Appendix B.4 (CTDOT)

CD-2016-2 — Construction Directive 2016-2: Rolling Road Blocks CTDOT — Connecticut Department of Transportation
 NCN — Non-Conformance Notice TMA — Truck-Mounted Attenuator

Appendix B.5 FDOT

Category	FDOT
Terminology	Traffic Pacing [F TPD19, P1]
Definition	“Traffic pacing operations are used to provide work time for overhead construction activities on limited-access highways by controlling traffic flow at reduced speeds for a defined duration.” [F TPD19, P1]
Typical Uses	Used for short-duration overhead construction activities on limited-access highways that require temporary access across all lanes, including bridge girder placement and overhead sign structure installation [F TPD19, P1].
Duration	Work duration available during traffic pacing for overhead construction is typically 10–30 minutes; total pacing operation time is calculated and varies by conditions [F TPD19, P3; P6–P7].
Speed/Distance	Typical pacing speeds range from 10–20 mph. Pacing distance, maximum queue length, and dissipation time are calculated using FDOT’s traffic pacing methodology and Excel-based pacing worksheet [F TPD19, P1; F TPS10].
Authorization	Authorized through the project Traffic Control Plan (TCP) developed in accordance with FDOT Standard Plans Index 102-655; no standalone rolling roadblock permit or separate authorization procedure is specified [F TPD19, P1].
Vehicles and Personnel	FDOT does not prescribe specific vehicle configurations or personnel requirements for traffic pacing operations; vehicle type, staffing, and enforcement presence are determined through the project-specific Traffic Control Plan. [F TPD19, P1]
Safety Measures	Safety is addressed through the traffic pacing design methodology, which analytically controls pacing speed, work duration, queue growth, maximum queue length, and queue dissipation to limit traffic disruption and risk; no prescriptive safety device or enforcement requirements are specified. [F TPD19, P1–P7]
Advance Warning	Advance warning measures, including sign placement and ramp management, are addressed through the project-specific Traffic Control Plan developed as part of the traffic pacing design; no prescriptive advance warning requirements are specified in FDOT traffic pacing guidance. [F TPD19, P1]
Communication	No traffic-pacing-specific communication protocol is prescribed; coordination and communication are addressed through the project-specific Traffic Control Plan and standard FDOT operational practices. [F TPD19, P1]
Enforcement	No traffic-pacing-specific enforcement requirements are specified; enforcement presence and compliance measures are determined through project-specific Traffic Control Plans and standard FDOT practices. [F TPD19, P1]
Contextual factors (Timing/Road Type)	Applied on limited-access highways; timing of traffic pacing operations is determined through traffic pacing analysis, which defines allowable pacing hours and “begin/don’t begin pacing” windows based on traffic demand and queue dissipation. [F TPD19, P1; P6–P7]
Implementation Steps	Uses an Excel-based pacing design tool to generate operational parameters such as pacing speed, work duration, total pacing operation time, and queue length. The output is incorporated into the Traffic Control Plan (TCP), which guides field implementation [F TPD19, P1–3].
Training/Resources	No traffic-pacing-specific training requirements are specified; FDOT provides an Excel-based Traffic Pacing Worksheet to support pacing analysis and report preparation. [F TPD19, P1; F TPS10]

Others	Leans heavily on its Excel-based pacing tool, which calculates queue length, pacing duration, and effects of heavy vehicle percentages. However, the manual is less detailed on field vehicle requirements, leaving gaps in operational guidance [F_TPD19, P1–3].
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Abbreviations Used in Appendix B.5 (FDOT)

FDOT — Florida Department of Transportation

TCP — Traffic Control Plan

Appendix B.6 KYTC

Category	KYTC
Terminology	Rolling Roadblock [KY_RRBP18, P1]
Definition	A rolling roadblock is a traffic control technique used to pace or slow traffic, under law enforcement control, to facilitate short-duration work operations on fully controlled-access highways when an elaborate or difficult detour is not warranted. The pacing operation provides up to fifteen (15) minutes of work time. [KY_RRBP18, P2]
Typical Uses	Applied to short-duration operations where completed closure is not warranted or allowed, including overhead utility and sign installations and other overhead work requiring temporary full-lane control on fully controlled-access highways. [KY_RRBP18, P1; P3–P5]
Duration	Up to fifteen (15) minutes of work time per rolling roadblock operation. [KY_RRBP18, P2]
Speed/Distance	Traffic is paced by law enforcement vehicles at reduced speeds (minimum 10 mph, commonly 10–20 mph). Pacing distance is established using KYTC’s staged rolling roadblock plans and pacing distance tables based on pacing speed, regulatory speed, and work duration. [KY_RRBP18, P4–P5]
Authorization	Requires an approved Temporary Traffic Control Plan (TCP), an approved Public Information Plan, and submission of the Rolling Roadblock Permit (TC 99-210). Contractors must notify and receive KYTC approval at least seven (7) days in advance of the rolling roadblock. The approved permit must include site-specific staging drawings, pacing distances, ramp control procedures, and signing layouts. A payment bond is required to cover liquidated damages if the rolling roadblock exceeds the approved time limit. [KY_RRBP18, P1–P2; P3–P6]
Vehicles and Personnel	Rolling roadblocks are led by law enforcement pace-setting vehicles (fully marked with roof-mounted blue lights) operated by uniformed officers, with at least one law enforcement vehicle required per direction. Additional lanes may be controlled by contractor vehicles equipped with flashing lights. A minimum number of safety vehicles are staged upstream to form the rolling roadblock, with ramp-control vehicles positioned at on-ramps as shown in the approved staging diagrams. [KY_RRBP18, P1–P2; P4]
Safety Measures	Requires law enforcement–led traffic pacing, MUTCD-compliant traffic control devices, and continuous communication among all participating vehicles. Truck-mounted crash cushions are required at the work area for equipment occupying travel lanes, and equipment on shoulders must be protected by appropriate safety devices. Contractors must provide backup equipment on site to address critical failures, and all traffic control devices must be promptly removed once rolling roadblock operations are complete. [KY_RRBP18, P1–P2; P4]
Advance Warning	Requires advance warning to motorists using portable changeable message signs (PCMS) and static warning signs. PCMS must be placed after the last feasible entry point and no more than one (1) mile upstream of the work area. Static warning signs are required at controlled on-ramps, and ramp access is actively managed during the rolling roadblock operation as shown in KYTC’s standard ramp-closure and staging diagrams. [KY_RRBP18, P2–P3]

Communication	Requires constant communication among law enforcement pacing vehicles, contractor vehicles, and the work location using approved communicating devices throughout the rolling roadblock operation to coordinate pacing, ramp control, work execution, and traffic release. [KY RRBP18, P2]
Enforcement	Enforced through KYTC’s permit and inspection process. Compliance with the approved Rolling Roadblock Permit (TC 99-210), Temporary Traffic Control Plan (TCP), and staging requirements is mandatory. Failure to follow the approved plan, including exceeding the allotted rolling roadblock duration, may result in liquidated damages, additional permit requirements, or other contractual consequences. [KY RRBP18, P2]
Contextual factors (Timing/Road Type)	No explicit time-of-day or off-peak requirement is specified; rolling roadblocks are limited by a maximum duration of up to fifteen (15) minutes and subject to permit approval and operational coordination. Use is limited to fully controlled-access highways and applied to short-duration operations when a complete roadway closure is not warranted or allowed, facilitating temporary traffic pacing for over-lane or overhead work while maintaining traffic flow. [KY RRBP18, P1–P2]
Implementation Steps	Implemented as a staged rolling roadblock operation led by law enforcement pacing vehicles. The operation follows defined stages that include upstream vehicle staging, initiation of traffic pacing, closure of on-ramps and access points, execution of short-duration work activities, and controlled release of traffic once the work area is cleared. Staging details, pacing speeds, ramp control procedures, and traffic release sequences are specified in the approved rolling roadblock plans and drawings submitted with the permit. [KY RRBP18, P3–P5]
Training/Resources	Requires compliance with MUTCD standards and KYTC’s work zone safety policies. Law enforcement personnel involved in rolling roadblock operations must have completed FHWA Work Zone Law Enforcement Training in accordance with 23 CFR Part 630 Subpart K. Rolling roadblock implementation is supported through KYTC permit documentation (TC 99-210), approved Traffic Control Plans, and standard staging and signing drawings. [KY RRBP18, P1–P2; KY TOGM05]
Others	Distinctive for requiring a payment bond to cover liquidated damages if a rolling roadblock exceeds the approved time limit, creating an explicit financial accountability mechanism tied to duration control. This requirement is more prescriptive than in many other state practices. [KY RRBP18, P2]

Abbreviations Used in Appendix B.6 (KYTC)

CFR — Code of Federal Regulations

FHWA — Federal Highway Administration

KYTC — Kentucky Transportation Cabinet

MUTCD — Manual on Uniform Traffic Control Devices

PCMS — Portable Changeable Message Sign

TC — Traffic Control (as used in Rolling Roadblock Permit TC 99-210)

TCP — Traffic Control Plan

Appendix B.7 MoDOT

Category	MoDOT
Terminology	Traffic Pacing (equivalent to Rolling Roadblock) [MO TP26, §616.19.7]
Definition	“Traffic pacing is a traffic control technique that facilitates short duration work operations by pacing traffic at a safe slow speed for a predetermined distance upstream of the work area, rather than being completely stopped.” [MO TP26, §616.19.7]
Typical Uses	High-volume/high-speed urban and rural freeways and other multi-lane access-controlled facilities for work such as overhead utility work, installing overhead sign structures, replacing sign panels, placing bridge girders, and installing cantilever trusses. [MO TP26, §616.19.7]
Duration	Allowable pacing duration is determined through engineering analysis based on required work time and traffic conditions using the Traffic Pacing Worksheet. [MO TPW17; MO TP26, §616.19.7]
Speed/Distance	Pacing speed and distance are calculated using the Traffic Pacing Worksheet based on regulatory speed, traffic volumes, and work duration; no fixed values are specified in policy. [MO TPW17; MO TP26, §616.19.7]
Authorization	Traffic pacing operations require preparation of a traffic pacing design and are approved at the district level, with coordination required for non-standard applications. [MO TP26, §616.19.7]
Vehicles and Personnel	Traffic pacing is controlled by law-enforcement pilot vehicles with blue lights flashing; all on-ramps within the pacing zone must be blocked until pilot vehicles pass. [MO TP26, §616.19.7]
Safety Measures	Requires ramp closures, law-enforcement control, advanced signing, and continuous two-way radio communication among pilot vehicles, contractor crews, and the project engineer. [MO TP26, §616.19.7]
Advance Warning	Changeable message signs (CMS) are required upstream of the pacing area, with message content and placement defined as part of the traffic pacing design. [MO TPCMS; MO TP26, §616.19.7]
Communication	Two-way radios shall be used to maintain constant communication between pilot vehicles, contractor personnel, and the project engineer during traffic pacing operations. [MO TP26, §616.19.7]
Enforcement	Traffic pacing operations are subject to District oversight, with compliance ensured through review of the traffic pacing design and associated control plans. [MO TP26, §616.19.7]
Contextual factors (Timing/Road Type)	Primarily used on high-volume, high-speed urban and rural freeways and other multi-lane access-controlled facilities; operations should be scheduled during off-peak periods when feasible. [MO TP26, §616.19.7]
Implementation Steps	Implementation follows defined staging procedures for mainline pacing, ramp control, and traffic release, with pacing parameters established using the Traffic Pacing Worksheet. [MO SPD; MO TPW17; MO TP26, §616.19.7]
Training/Resources	MoDOT Engineering Policy Guide, Traffic Pacing Worksheet, and standard staging and CMS layouts support traffic pacing design and execution. [MO TP26; MO TPW17; MO SPD; MO TPCMS]
Others	

Abbreviations Used in Appendix B.7 (MoDOT)

CMS — Changeable Message Sign MoDOT — Missouri Department of Transportation

Appendix B.8 NYSDOT

Category	NYSDOT
Terminology	Rolling Road Block, Slow Roll, Rolling Slowdown [NY_WZTCM15, P26]
Definition	“A means of slowing and controlling traffic to clear a section of roadway and allow a work operation which requires short duration access to an entire roadway (typically a freeway or other controlled access highway).” [NY_WZTCM15, P26]
Typical Uses	Used when crews need to perform work such as cable pulls, overhead sign structure work, bridge beam erection, traffic pattern changes, or storm clean-up activities. All involve temporary closure of multiple lanes [NY_WZTCM15, P26].
Duration	Max 15 min [NY_WZTCM15, P27]
Speed/Distance	15 mph = 3.75 mi / 20 mph = 5 mi [NY_WZTCM15, P27]
Authorization	Requires Regional Engineer approval. The Transportation Management Center (TMC) and state/local police must be notified at least 24 hours in advance before implementation [NY_WZTCM15, P26].
Vehicles and Personnel	Requires one shadow vehicle with TMA per lane, a clearance vehicle to confirm the work area is safe before reopening traffic, and flaggers at on-ramps. Police assistance is optional, depending on project needs and engineer discretion [NY_WZTCM15, P26–30].
Safety Measures	Requires full compliance with The Manual on Uniform Traffic Control (MUTCD) devices, including portable variable message signs (PVMS) and advance warning signs. A clearance vehicle must verify the roadway is safe and clear before traffic is released [NY_WZTCM15, P29–30].
Advance Warning	Requires PVMS placement one mile upstream of the pacing point and an additional sign 1,500 feet before the anticipated queue. Standard MUTCD signs, including W20-7 (Flagger Ahead) and W3-4 (BE PREPARED TO STOP), must also be installed at ramps and approach areas [NY_WZTCM15, P29].
Communication	Requires all participants (shadow vehicles, clearance vehicle, flaggers, and optional police) to operate on a common radio or phone channel to ensure simultaneous communication and quick response during the five-step process [NY_WZTCM15, P27].
Enforcement	Enforcement is managed through regional oversight. The Regional Engineer has authority to approve and monitor operations, while police may be involved at their discretion to support compliance during the event [NY_WZTCM15, P26–28].
Contextual factors (Timing/Road Type)	Recommends scheduling operations early on Saturday or Sunday mornings (6:00–8:00 AM), in daylight hours and under favorable weather conditions, to maximize visibility and reduce traffic impacts [NY_WZTCM15, P27].
Implementation Steps	Defines a clear five-step procedure: (1) Staging of shadow vehicles, (2) Formation of rolling block across lanes, (3) Ramp control to restrict on-ramps, (4) Clearance of work activity confirmed by a clearance vehicle, and (5) Release of traffic once the roadway is safe [NY_WZTCM15, P30].
Training/Resources	Work Zone Manual Guidance [NY_WZTCM15, P26]
Others	Notes that RRB are often referred to by multiple names (“slow rolls,” “rolling slowdowns”), which reflects their long history of use in New York [NY_WZTCM15, P26]. Provides one of the most detailed operational manuals among all states.

Abbreviations Used in Appendix B.8 (NYSDOT)

MUTCD — Manual on Uniform Traffic Control Devices

NYSDOT — New York State Department of Transportation

PVMS — Portable Variable Message Sign

RRB — Rolling Roadblock

TMA — Truck-Mounted Attenuator

TMC — Transportation Management Center

W20-7 — Flagger Ahead warning sign (MUTCD designation)

W3-4 — BE PREPARED TO STOP warning sign (MUTCD designation)

Appendix B.9 TDOT

Category	TDOT
Terminology	Rolling Roadblock [TN WZM21, Piii–iv]
Definition	TDOT does not provide a standalone textual definition of a rolling roadblock. Instead, rolling roadblocks are recognized as a standard temporary traffic control (TTC) application and are defined operationally through the Rolling Roadblock Detail for Divided Highways (T-WZ-61). [TN WZM21, Piii & P78; TN RRTDDSD25]
Typical Uses	Used for overhead construction and maintenance activities requiring brief, full-width traffic control on interstates and divided highways, including beam setting, sign installation, aerial utility work, coring/testing, and short-duration repairs. [TN I4ORRB24; TN RAR25, P5–6; TN MTLCR25]
Duration	Rolling roadblocks are typically short-duration operations, commonly 15 minutes or less, with some activities extending up to 15–30 minutes, depending on work type and traffic conditions. [TN RAR25, P6; TN MTLCR25]
Speed/Distance	Traffic pacing geometry, roll-ahead distances, vehicle spacing, and upstream queue protection are defined diagrammatically in TDOT’s Rolling Roadblock Detail for Divided Highways (T-WZ-61), rather than through narrative speed limits. [TN RRTDDSD25; TN RRBDDH22]
Authorization	Rolling roadblocks require extensive planning and approval by the Regional Operations Engineer or Regional Traffic Engineer and are implemented under TDOT-approved traffic control practices. Adoption and current applicability of the rolling roadblock layout are established through Traffic Memorandum No. 2505. [TN WZM21, P78; TN RRTDDSD25]
Vehicles and Personnel	Operations use a coordinated procession of work vehicles, attenuator vehicles, pilot/chase vehicles, and law enforcement. Law enforcement presence is required for rolling roadblock operations on divided highways. [TN WZM21, P78; TN RRTDDSD25; TN RRBDDH22; TN RAR25, P3]
Safety Measures	Safety is addressed through queue protection (PTQ), attenuator vehicles, controlled vehicle spacing, advance warning devices, and limiting rolling roadblock duration to reduce end-of-queue collision risk during temporary traffic stoppages. [TN WZM21, P78; TN RRTDDSD25; TN RRBDDH22; TN RAR25, P6]
Advance Warning	Advance warning is provided through signing, arrow boards, message boards, and upstream vehicle placement, as illustrated in the standard rolling roadblock layout, with additional notice practices reflected in operational activity reports. [TN RRTDDSD25; TN RRBDDH22; TN WZM21; TN RAR25, P3]
Communication	Communication is required between pilot vehicles, chase vehicles, and work crews during rolling roadblock operations, and coordinated through TDOT operational channels and traffic management personnel. [TN RRTDDSD25; TN RRBDDH22; TN WZM21, P16–17]
Enforcement	Law enforcement participation is required to execute traffic stoppages and manage compliance during rolling roadblock operations on divided highways. [TN WZM21, P78; TN RRTDDSD25; TN RRBDDH22]
Contextual factors (Timing/Road Type)	Primarily applied on interstates and multi-lane divided highways. Rolling roadblocks are commonly conducted during nighttime or off-peak periods, though practice reports also document daytime morning windows for utility and short-duration maintenance activities. [TN I4ORRB24; TN RAR25, P6; TN MTLCR25]

Implementation Steps	Implementation follows TDOT’s phase-based rolling roadblock layout (T-WZ-61), including staged vehicle positioning, temporary traffic stoppage, completion of the work activity, and coordinated release of traffic. [TN RRTDDSD25; TN RRBDDH22; TN WZM21, P78]
Training/Resources	TDOT relies on the Work Zone Field Manual, approved Traffic Design Division standard drawings, and Work Zone Safety training for personnel supervising and implementing rolling roadblock operations; no rolling-roadblock-specific standalone training program is specified. [TN WZM21, P1–3 & P78; TN RRTDDSD25]
Others	TDOT uniquely institutionalizes rolling roadblocks as a standard TTC application with a dedicated statewide standard drawing (T-WZ-61) and explicit practice-based duration limits (typically ≤15–30 minutes) documented in recurring operational reports and major interstate projects. [TN WZM21, Piii–iv & P78; TN RAR25, P6; TN I40RRB24]

Abbreviations Used in Appendix B.9 (TDOT)

PTQ — Protect the Queue

RRB — Rolling Roadblock

TDOT — Tennessee Department of Transportation

TTC — Temporary Traffic Control

T-WZ-61 — Rolling Roadblock Detail for Divided Highways (TDOT standard drawing)