

# Tow Contracts for Work Zones



By North Carolina Department of Transportation

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## Benefits Statement

The North Carolina DOT's (NCDOT) Performance-Based Tow Contracts improve safety, reduce delays, and cut costs in freeway work zones. By dispatching pre-qualified tow companies immediately after an incident, lanes are cleared faster, reducing the risk of secondary crashes and protecting first responders. Faster clearance times ease traffic congestion, saving drivers time and fuel. Financial incentives encourage towers to work quickly, while disincentives deter delays. A benefit-cost analysis shows a high return, making the program efficient and cost-effective for the public.

## In this case study you will learn:

1. How NCDOT addressed traffic disruptions in work zones that can lead to higher crash rates, delayed incident response, and congestion.
2. How NCDOT developed Performance-Based Tow Contracts to incentivize quicker incident clearance.
3. How NCDOT's Performance-Based Tow Contracts lower congestion, save costs through time and fuel savings, and reduce secondary crashes by getting traffic moving faster.

## BACKGROUND

Though necessary for the long-term health of a state's transportation network, work zones for freeway construction projects adversely impact roadway users and first responders in many ways. Periodic closures and new traffic patterns cause heavier congestion and travel delays. Stopped traffic and other unexpected conditions contribute to higher crash rates with more severe consequences. Traffic control measures and construction equipment close or reduce shoulders which prevents disabled vehicles and minor crashes from safely exiting travel lanes simultaneously preventing first responders from quickly reaching incident scenes and crash victims.

The North Carolina Department of Transportation (NCDOT) has implemented numerous strategies within their work zones to mitigate the impacts to roadway. Performance Based Tow Contracts have consistently proven themselves as one of the most effective solutions within that suite of strategies.

Historically, towing and recovery operations account for a significant amount of the delays associated with incident clearance. This is largely due to inefficiencies with dispatching a tower and the mobilization of appropriate equipment and personnel. Typically, towing firms are paid for their time, which can be a powerful disincentive to clear incidents quickly. To address these limitations, NCDOT established Performance-based Tow Contracts with private towing companies. The selected tower is continuously on-call and ready to deploy light-duty and heavy-duty wreckers to incidents within major work zones. In addition to monthly service fees and revenues for vehicle recovery and storage, the contracted towers are awarded a financial incentive for rapid arrival on-scene and for quickly reopening travel lanes. Likewise, financial disincentives may be levied if incident clearance is delayed. By effectively motivating towers to reopen travel lanes quickly, NCDOT has successfully reduced congestion and im-

proved roadway safety in multiple major work zones across the state.

## TSMO PLANNING, STRATEGIES AND DEPLOYMENT

The Quick Clearance Memorandum of Understanding (MOU), originally signed by the NCDOT and the North Carolina State Highway Patrol (NCSHP) in 2011, includes two key components in support of Performance Based Tow Contracts:

1. NCDOT's ability to immediately remove vehicles involved in incidents – "Quick Clearance Law"
2. NCSHP's ability to utilize NCDOT's available resources (NCDOT Administered Tow Contract) to clear the roadway.

The MOU provides protection against liability for damages caused while removing vehicles and empowers towers to remove vehicles without the owner's consent if authorized by law enforcement or NCDOT. IMAP (Incident Management Assistant Patrol) is NCDOT's safety service patrol and serves as NCDOT's primary resource for delivering Quick Clearance of incidents.

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**The Decision:** NCDOT works internally to evaluate the impacts of a work zone and the performance of a corridor to determine if a tow contract could provide value. NCDOT follows a clearly defined process that includes multiple conversations with partners to support a final decision. Figure 1 provides an overview of the acceptable and preferred conditions that support the benefits of a tow contract.

Figure 2 shows the locations of the tow contracts that NCDOT has executed since 2018 along with two future projects. Each iteration of these contracts has allowed NCDOT to learn more, and enhance the impacts of the tow contract, streamline the cost structure, and refine the competitive bidding process.

ID	Project Characteristics	Defining Features	Keep As-Is (Local Rotation)	Enhanced IMAP	NCDOT Administered Towing
1	Construction cost less than \$20M	Project Type	Preferred	Acceptable	Cost Prohibitive
2	Low availability of towing companies	Route Constraint	Acceptable	Preferred	Cost Prohibitive
3	High availability of towing companies	Available Resources	Acceptable	Not Feasible	Preferred
4	IMAP Presence	Available Resources	Acceptable	Preferred	Preferred
5	No IMAP Presence	Available Resources	Not Feasible	Not Feasible	Preferred
6	New alignment w/ connections to freeway or interstate	Project Type	Preferred	Not Feasible	Acceptable
7	No Regional TMC Coverage	Available Resources	Acceptable	Not Feasible	Acceptable
8	Regional TMC Coverage	Available Resources	Acceptable	Preferred	Preferred
9	No intuitive alternate routes	Available Resources	Acceptable	Acceptable	Preferred
10	Work zone is a long length	Project Type	Acceptable	Acceptable	Preferred
11	Hurricane evacuation route	Route Constraint	Acceptable	Preferred	Preferred
12	Pre-existing safety issues in work zone	Route Constraint	Acceptable	Preferred	Preferred
13	Interstate work zone	Project Type	Acceptable	Preferred	Preferred
14	Complete closure	Project Type	Acceptable	Preferred	Preferred

Figure 1. Preferred Conditions for a Tow Contract

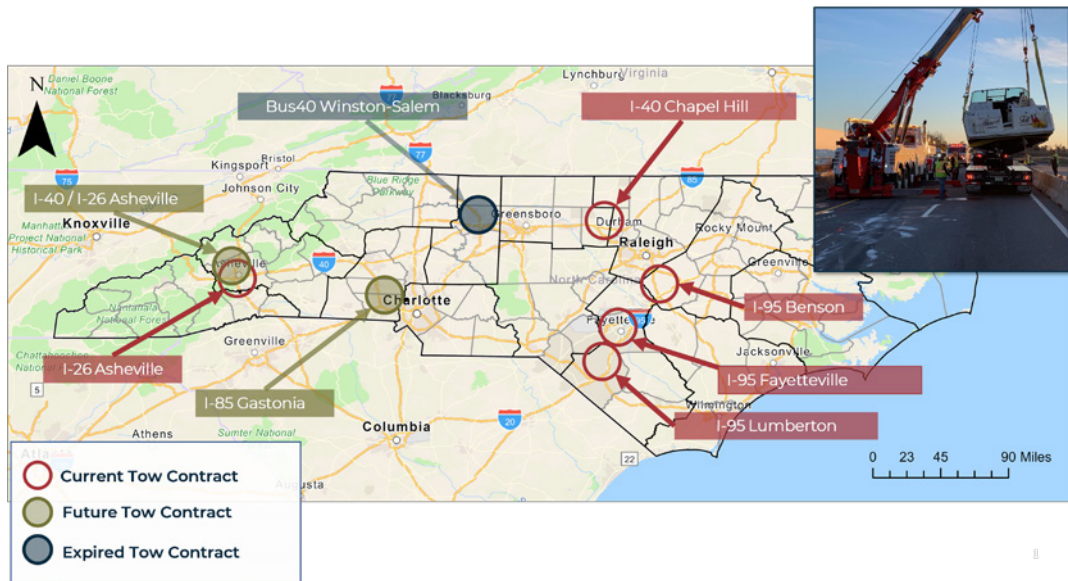


Figure 2. Locations of Tow Contracts in North Carolina

**Scope and Contract Development:** Immediately after deciding to implement a tow contract, NCDOT defines the potential footprint of the tow zone and initiates communication with local law enforcement agencies to gauge their commitment, establish a point of contact for each agency, and compose a list of law enforcement rotation towers. NCDOT reviews the current tow rotation agreements to create a tow contract that can co-exist with the tow programs in the area.

**Outreach to Towers:** NCDOT begins outreach to towers in the area to promote the pre-qualification process and educate about the upcoming contract. The pre-qualification process guarantees potential contractors are able to perform the responsibilities of the contract. NCDOT communicates key dates (such as the pre-bid, bid opening, tow availability, and impacts to traffic) to the towing community. NCDOT then hosts a series of meetings with pre-qualified towers. Once NCDOT selects the tow contractor, NCDOT's Traffic Incident Management (TIM) Coordinators provide that contractor with training on the contract requirements.

## COMMUNICATIONS PLANNING AND EXECUTION

**Tow Contract Operations:** NCDOT measures the performance of tow contractors based on two performance metrics: Response Time and Roadway Clearance Time. Figure 3 shows how NCDOT calculates the performance measures within timeline of an incident. The performance measures are in place for minor, intermediate, and major incidents for both light and heavy-duty deployments. The Traffic Management Center (TMC) notifies the tow contractors after an incident occurs. Once notified, a tower must be on scene within 20 minutes. The TMC documents times related to both performance measures, which NCDOT references for potential incentives and disincentives each month.

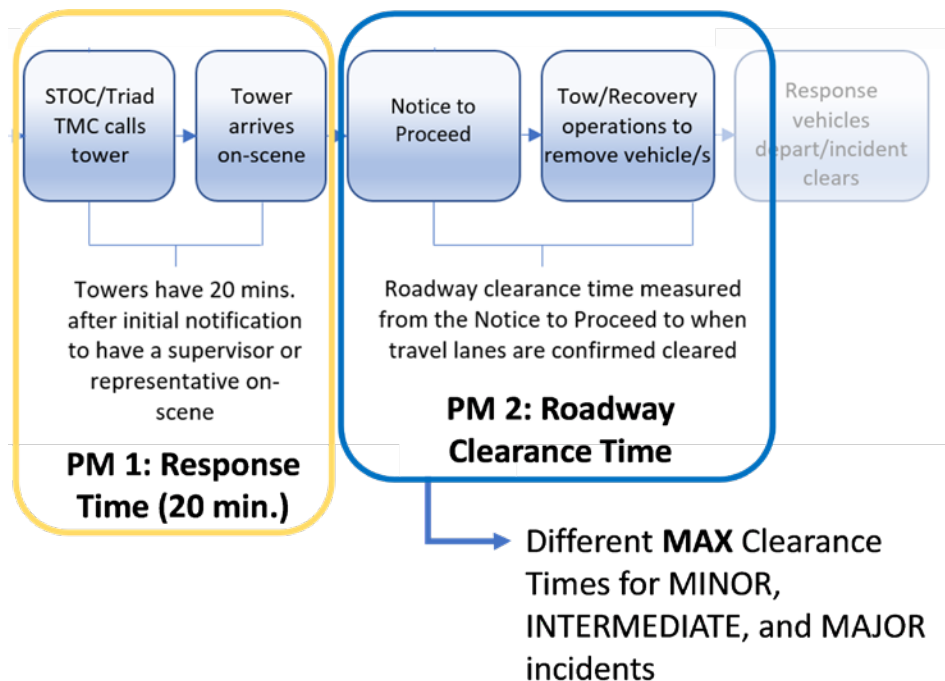


Figure 3. Performance Measures for Tow Contracts

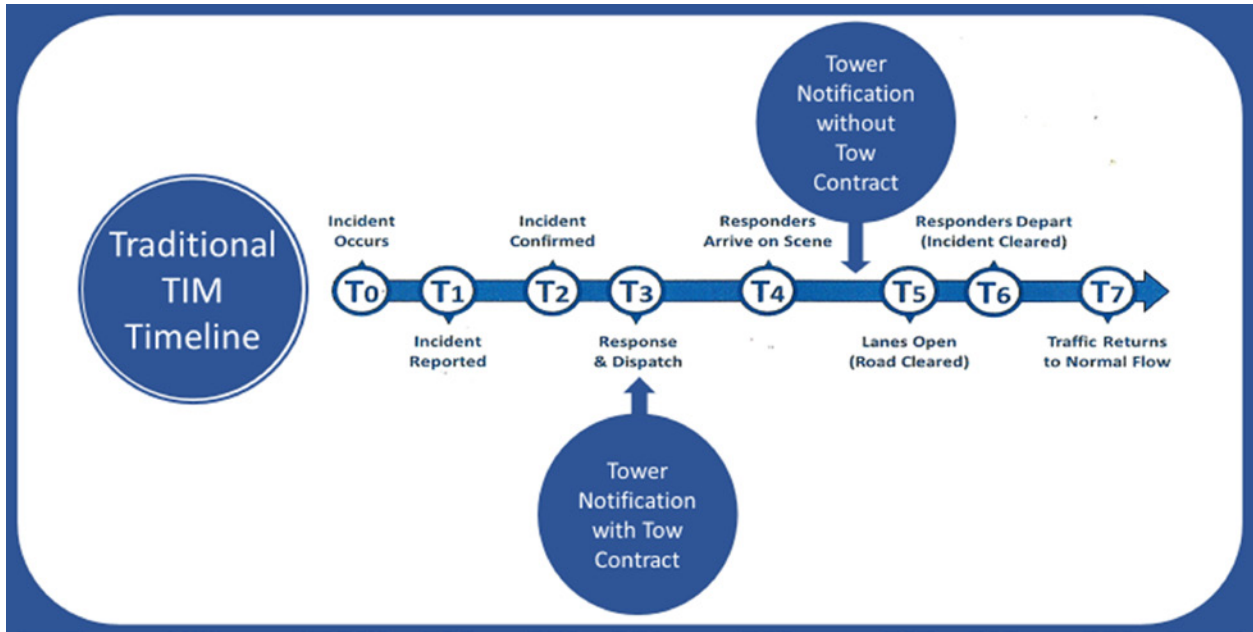


Figure 4. Timeline Change with a Tow Contract

Tow contractors patrol or stage resources so they can immediately respond to incidents prior to law enforcement’s arrival, which is required in law enforcement rotation tow programs. The immediate dispatching of towers reduces the overall impacts from an incident and decreases the amount of time first responders must be on the roadway. The figure below demonstrates how this notification is much earlier in the overall incident timeline. Allowing notification earlier not only decreases the response time, but it also impacts the overall roadway clearance time, returning traffic to normal flow, and reducing secondary crashes.

**Contract Administration:** Once under contract, NCDOT works closely with the tow contractor on monthly invoices, by reviewing all details and auditing data supporting all incentives and disincentives.

NCDOT requires the contracted tower to attend related training and participate in after action reviews (AARs); whereas training and AAR participation are not requirements under the rotation wrecker system. Tow contractors dedicate specific resources to a specific project and the contract requires those resources to respond when requested by NCDOT representatives. Failure to respond when requested will subject the tower to the possibility of monetary disincentives.

## OUTCOME, BENEFITS AND LEARNINGS

**Outcome: Reduced response and roadway clearance times:** Reduced response and roadway clearance times. The NCDOT Performance Based Tow Contracts are inherently different from rotation wrecker systems utilized by the NCSHP and local municipalities. By having a contract with one dedicated tower, the NCDOT can dispatch towers as soon as the TMC detects

an incident. The sooner the TMC notifies a tower, the quicker they can respond and help mitigate the impact an incident will have on the motoring public. Figure 5 and Figure 6 showcase example quarterly performance metrics for I-26. A benefit cost analysis of data from the I-26 tow contract (January 2020 – September 2022) determined an average benefit-cost rating of just above 7.0.

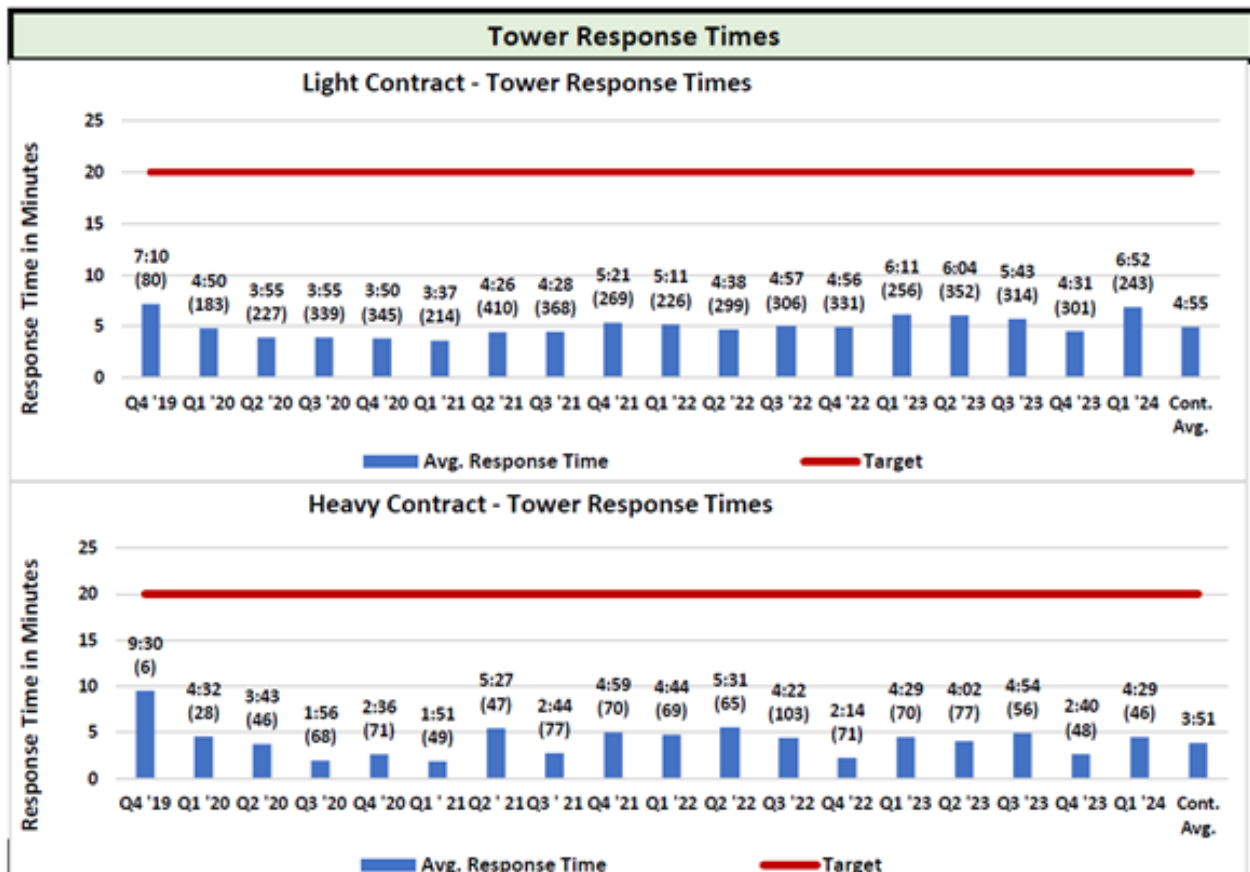


Figure 5. I-26 Quarterly Report - Response Times

**Public Benefit: Safety and Costs:** Reducing the roadway clearance time provides benefits to the public through time and fuel savings. Responders clearing incidents more quickly reduces the likelihood of secondary crashes. Law enforcement and first responder partners greatly value the benefits of the contract as it lessens their time on scene and exposure to the hazards of traffic.

**Learnings: Streamlined contracts:** NCDOT has revised the contract language based on experience and analysis of the return on investment of the executed contracts. The refinement includes:

- Reduction of incentive times for roadway clearance
- Update incident types to differentiate between hazards (includes disabled vehicles) and crashes (incentives only for crashes)
- Tightened up the limits of the tow contracts to focus on towing within the work zone
- Combined light and heavy-duty towing into a single contract
- Optimized and effectively balanced incentives and disincentives

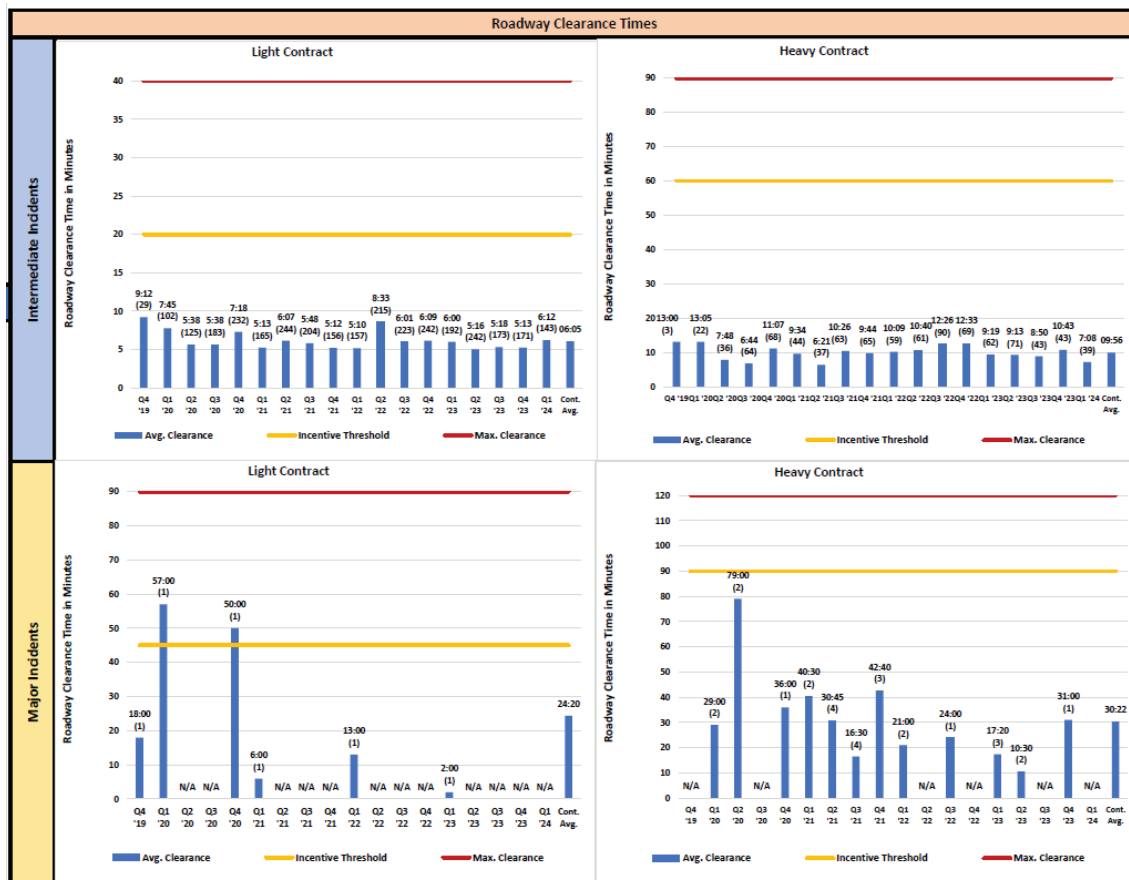


Figure 6. I-26 Quarterly Report - Roadway Clearance Times