

HELP Alerts

Final Report

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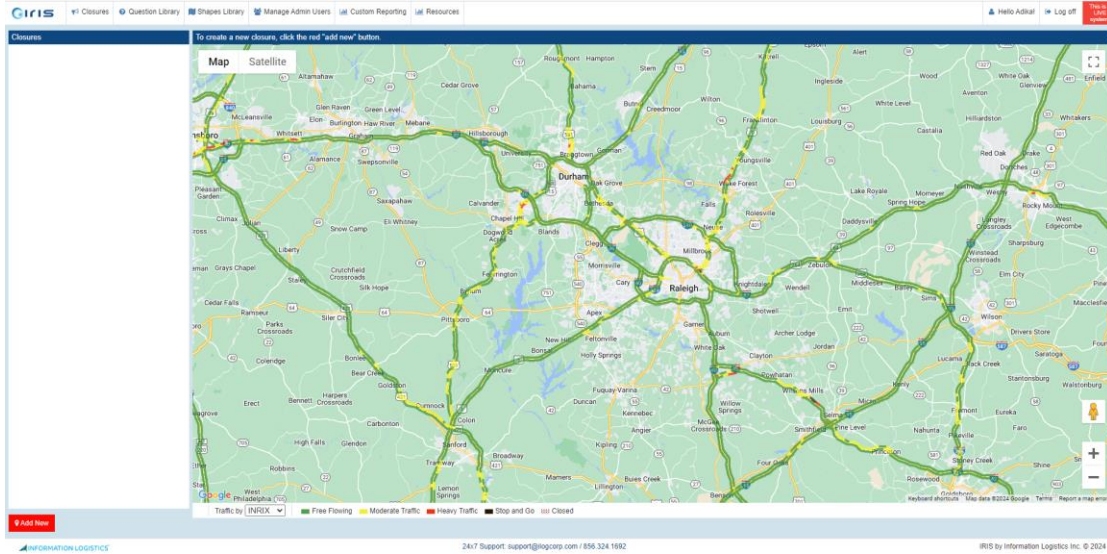
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Description of Project

The Highway Emergency Linked Platform (HELP) Alerts system is a communication tool that facilitates direct alerting between traffic management authorities and travelers during emergency situations. The HELP tool allows NCDOT to issue a Wireless Emergency Alert (WEA) directly to the cell phones of motorists in a defined geographical area, most often those that cannot exit a freeway due to an incident ahead that has closed the road for a long period of time. (These are the same type of alerts that citizens receive for Amber Alerts and National Weather Service alerts.) By bypassing the need for mobile applications or pre-registration, HELP Alerts ensure that critical information reaches affected individuals. NCDOT had previously issued a handful of WEAs through NC Emergency Management using more manual tools. This process required more time to issue an alert and only allowed for one-way communication. The HELP tool advances North Carolina's traffic management program by providing specific and relevant traveler information to affected motorists.

The HELP platform allows NCDOT to issue HELP Alerts using the following process:

- The NCDOT Statewide Transportation Operations Center (STOC) creates an event by providing details about the emergency and drawing a polygon around an area containing motorists that are trapped on a freeway due to a road closure.
- NC Emergency Management approves the alert using the HELP software.
- A Wireless Emergency Alert (WEA) is then sent to all cellphones in the drawn polygon.
- Once the traveler receives the alert, they can opt-in for two-way communications for the duration of the event. Agency staff can send messages and instructions to the travelers via text messages. The agency can adjust their response based on the ongoing intelligence from those stuck on the roadway.
- Brief one-way messages, such as “NC 12 closed near Salvo due to crash” could be sent to very slow-moving traffic in special situations.



NCDOT's HELP Website

Overall Budget

Table 1 Project Budget Performance

Task	Cost
HELP Software Set Up Cost	\$ 77,533
STIC Incentive Funds	\$ 50,000
State Match	\$ 27,533

Alignment with Program Criteria

HELP Alerts support the Federal Highway Administration's (FHWA) goals by integrating technological innovations into traffic management practices. This project enhances real-time responsiveness and interactivity in traffic management systems and improves the state's capacity to manage traffic emergencies.

The Technology and Innovation Deployment Program (TIDP) goals addressed include:

TIDP Goal	How Addressed by this Project
Significantly accelerate the adoption of innovative technologies by the surface transportation community; develop and deploy new tools, techniques and practices	While WEA's have been used for other purposes, like weather and missing persons, WEA's for transportation are a new use case. Using WEA's makes more effective use of the location of road users and the prevalence of cell phones to improve the relevance of and accessibility to traveler information.
Improved quality and user satisfaction	Affected travelers will be informed and updated through the WEA HELP alerts.

Improve highway efficiency, safety, mobility, reliability, service life, environmental protection, and sustainability	By providing timely notifications to travelers about road closures they have the security of knowing that public officials know they are there and are actively working to clear the road so they can get moving.
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Project Development

- **Early 2023:** Official launch of the project, with initial phases focusing on setting up the necessary infrastructure and interdepartmental coordination. Work included coordination with NC Emergency Management, NC Department of Information Technology IT security procedures and FEMA authorizations.
- **Mid 2023:** Implementation of required FEMA monthly system tests to ensure proficiency with the system. These tests were crucial for training staff, refining NCDOT business processes and preparing the STOC for real-world scenarios.
- **2024:** Transition from test phase to live operation, with the system beginning to issue live alerts. To date we have issued 2 alerts
 - one due to an overturned tractor trailer crash in Haywood County on I-40 West
 - one due to a vehicle fire and hazmat spill in Henderson County on I-26 WestWe have conducted After Action Reviews for these alerts to continue to refine our processes to make our alerts even more timely.

These development stages reflect a diligent approach to overcoming initial challenges and emphasize the project's commitment to continuous improvement and stakeholder collaboration.

Results

Preliminary deployments of the HELP Alerts in North Carolina have demonstrated the system's capability to provide relevant information to travelers trapped in a queue due to an emergency. The HELP system has improved the speed, efficiency, and relevance of communicating with affected travelers during incidents.

Challenges

Delays in login and authentication processes

One issue was the delay in login and authentication processes, where login authentication took between 3-5 minutes, and password reset processes required about 15 minutes. We are collaborating with the vendor to reduce these time delays, striving for a quicker alert to affected travelers.

Clearer Criteria for Identifying Situations that Warrant a HELP Alert

We also recognized the need to establish clearer criteria for identifying situations that warrant a HELP alert. We developed specific questions for initial coordination to determine the necessity for a HELP/WEA alert. These questions include whether the incident involves a full closure, if there is a trapped queue, how long the queue is expected to be trapped, and if efforts are underway to remove the trapped queue. These criteria have now been clarified in the NCDOT STOC Standard Operating Procedures to improve response times and decision-making processes.

Technical Issues with the System

The platform users faced several technical issues while trying to issue an alert. The platform did not identify errors when it rejected an alert. This required the user to call the 24/7 customer service line to investigate the issue and delayed the alert. The vendor quickly updated the system to detect and correct errors in drawing polygons, which previously allowed alerts to be created improperly. This update prevents system users from proceeding until the correct polygon is drawn which cuts down on time spent resolving errors.

Lessons Learned

Throughout the development and implementation of the HELP Alerts system, we have gathered several lessons that are shaping our approach to enhancing emergency communications. One of the foremost lessons learned is the importance of comprehensive and continuous testing. Our experiences underscored that real-world application often reveals nuances that are not apparent in controlled testing environments. Ensuring that all functionalities perform as expected under various operational scenarios is crucial for the reliability of emergency communication systems.

Another significant insight was the necessity for robust training and familiarization for all system users. As we integrated new features and updates, it became evident that regular and detailed training sessions are essential for enabling users to effectively manage and utilize the system, particularly in urgent situations. These lessons are guiding our ongoing efforts to refine our processes by utilizing the HELP Alerts system to meet the needs of both traffic management personnel and the traveling public.