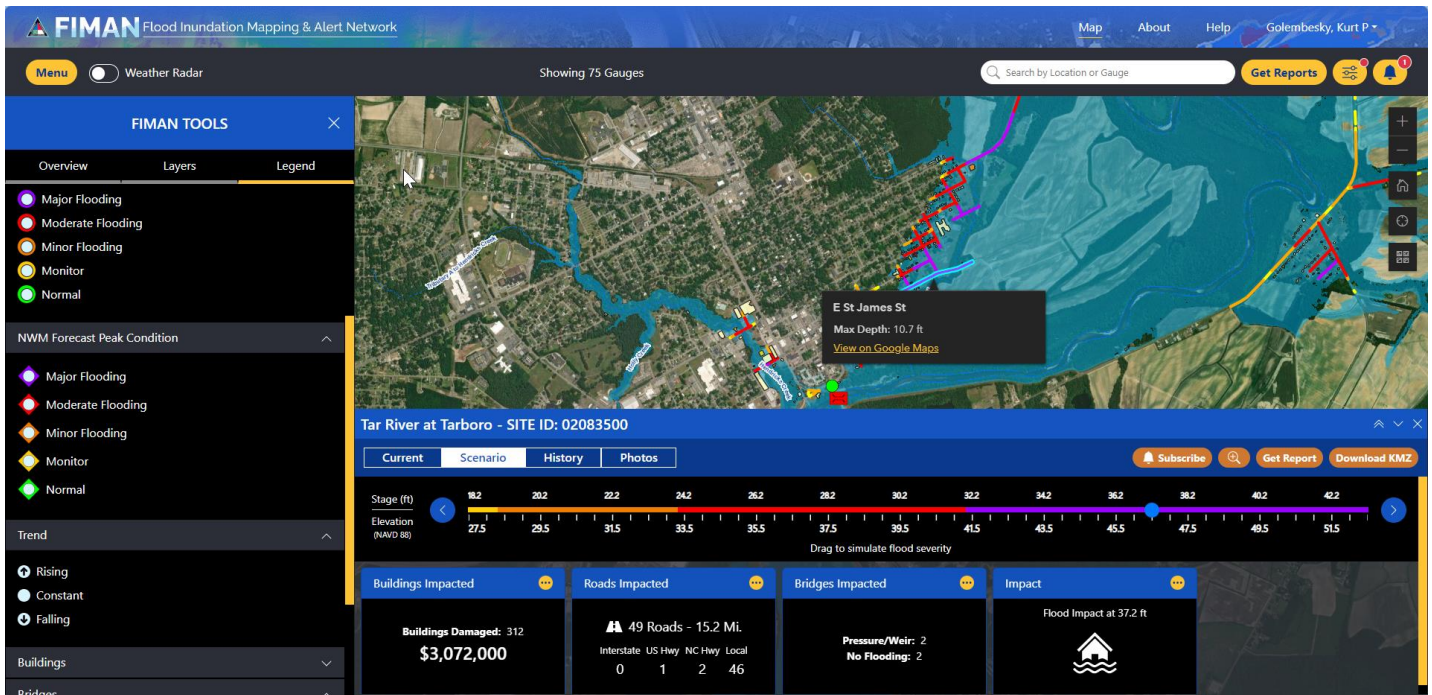


Detailed Flooded Roadway Forecasts

Expanding upon the successful FIMAN system, in 2020 NCDOT and NCEM partnered to develop FIMAN for Transportation (FIMAN-T), a web-based tool used to provide NCDOT officials and emergency management stakeholders with real-time and forecasted flood inundation depths along roads, bridges, and other NCDOT assets in support of risk-based decision-making during flooding events. In 2024, FIMAN-T was integrated into the broader FIMAN as an additional layer of analysis. The goal is to provide visualization and metrics for roadway inundation, bridge hydraulic performance and identify potentially impacted NCDOT assets. This will enhance NCDOT’s responsiveness during flooding events by generating data and reports for use in disaster response and planning.



Example of FIMAN-T Road Flooding Predictions in Tarboro along the Tar River.

At 82 locations and increasing to over 370 by 2026, FIMAN-T leverages real time, inundation mapping coupled with LiDAR-derived roadway elevation to compute flooding depths over roadways for current and forecasted conditions. The application features an interactive dashboard that allows users to navigate between current conditions, modeled scenarios, and historical and forecasted conditions where available. Featured in the dashboard are “info-widgets” that provide detailed information including Stream Elevation, an interactive stage hydrograph, and Forecasted Peak. In addition, the Roads Affected widget reveals a summary table of all impacted roads within the inundation extent of the selected gauge, or a sortable and filterable table showing all impacted roadway segments (shown on the right). The system also utilizes the NCDOT bridge database to provide real time bridge hydraulic performance dashboards during flooding events. The system reports critical emergency response information and has the option to export this information to a PDF report.

Roadway Flood Depth Range	Estimated Inundated Lengths (Miles)				
	Total	Interstate	US Highway	NC Highway	Local
5.0 + ft	2.6	0	0.4	0	2.2
2.0 - 5.0ft	5.5	0	0.2	1.3	4.1
0.5 - 2.0ft	3.5	0	1.2	0.7	1.6
0 - 0.5ft	0.6	0	0.3	0	0.3
Total	12.2	0	2.1	2	8.1

FIMAN-T roadway impact summary table displaying mileage affected grouped by flood depth category.

For more information about FIMAN-T please contact:
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