When an unplanned event throws commute patterns into disarray, the public and leaders need data to show the work that goes into getting a city back online.

INRIX IQ gathers data for actionable insight on unplanned events. The new data source – Signal Analytics – expands insight into city arterials, individual intersections, and corridors.

Situation: Dallas Microburst

June 2019: Dallas is hit with a microburst, a weather phenomenon best described as a downward tornado. The 70 mph winds and three inches of rain in 45 minutes was bad even by Dallas weather event standards. It ripped up trees, took down powerlines and **knocked out 40 percent of the 1,500 signals in Dallas.**

### Commute Nightmare: Preston Road

Undeterred, drivers headed to work on critical commute corridors like Preston Road, a nine-mile long, six-lane major arterial with 60,000 ADT, 31 signalized intersections coordinated to provide signal progression.
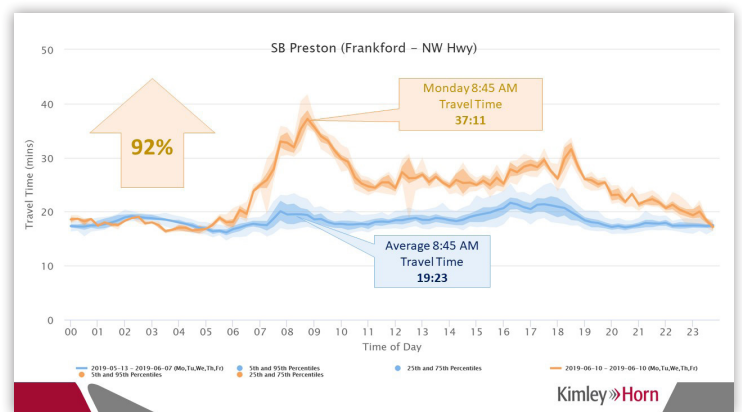

Credit: Washington Post

"A violent thunderstorm targeted 60% of the metropolitan area of Dallas on Sunday, June 9, 2019.

It felt like Armageddon, especially for those who managed to escape a crane that fell backwards into a 5-story apartment complex. The downtown Dallas apartment complex was evacuated and residents could take only what they could carry; the parking garage collapsed; cars buried under 5 stories of concrete and rubble."
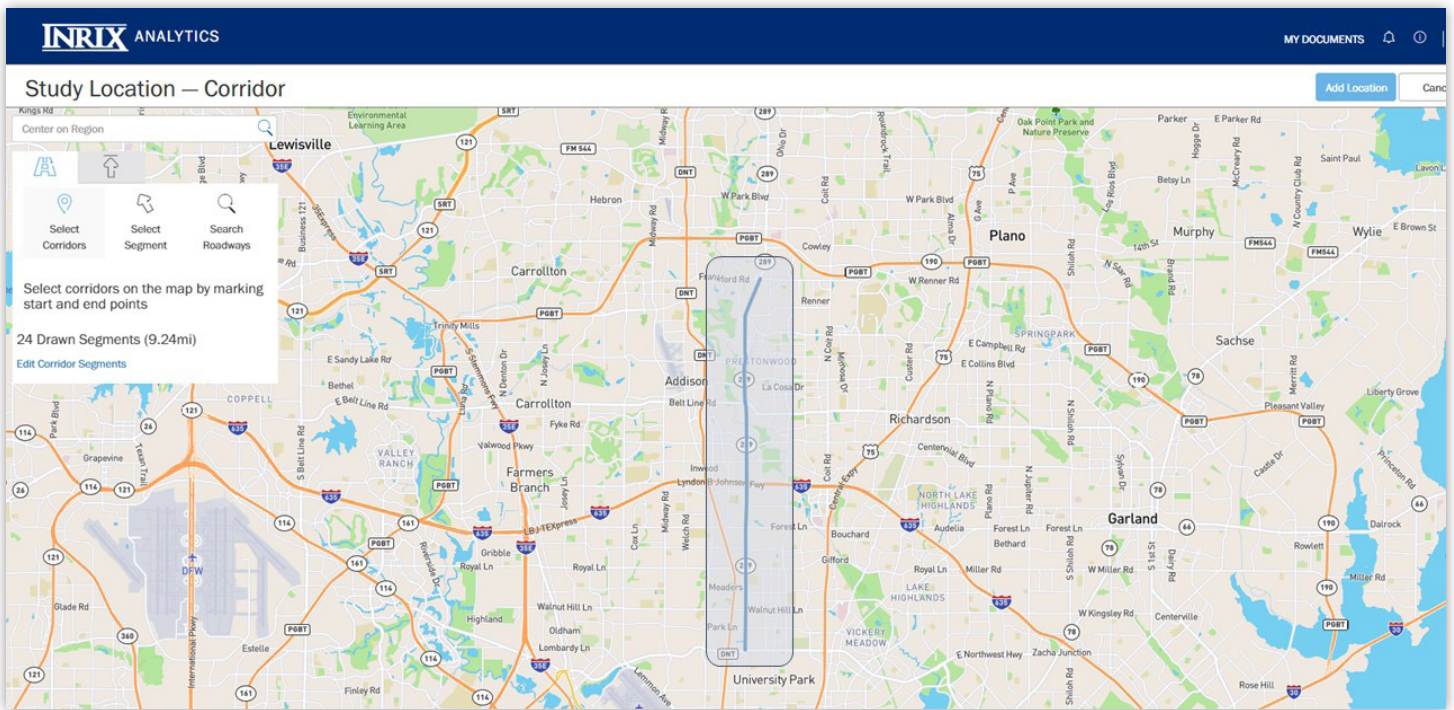
Signals were out, debris was everywhere. It was a nightmare. How bad? Using INRIX IQ data Kimley-Horn Traffic Engineer Tom Hartmann, P.E., PTOE, who counts on his 22-minute morning commute, ran the numbers on the 24 INRIX XD segments. He looked at average historical data for the previous month of weekdays and compared it to the post-storm Monday commute and had an answer: **it took 37 minutes, 92 percent longer.**

He quantified the storm's impact and shared what the city was up against in the effort to get signals operating again.

Blue line shows average travel time Yellow line shows 18 hours post-storm travel times at 37 minutes, an increase of 92%

Kimley-Horn is known for signals expertise. Kimley-Horn's Dallas team has timed over 4,400 signals for more than 2 dozen municipalities in the DFW Metroplex. Hartmann uses data daily to identify and track problems and maximize flow.

The Recovery

In the aftermath of the storm, City employees worked furiously to get nearly 700 signals back online, visiting every controller in the field and running coordinated signal timing. Just 48 hours after the storm, data showed congestion dropping. At the 72-hour mark, traffic was nearly back to normal.

Using the data and visuals, City leaders were able to share the herculean efforts and outcomes with top-level management, stakeholders, the Public Information Officer and the media to show what these teams had accomplished.

The City of Dallas asked Tom to run the same data over the same period on a wider scale. Using INRIX Analytics, Tom was again able to demonstrate that signals were working and traffic was back to normal by the end of the week.

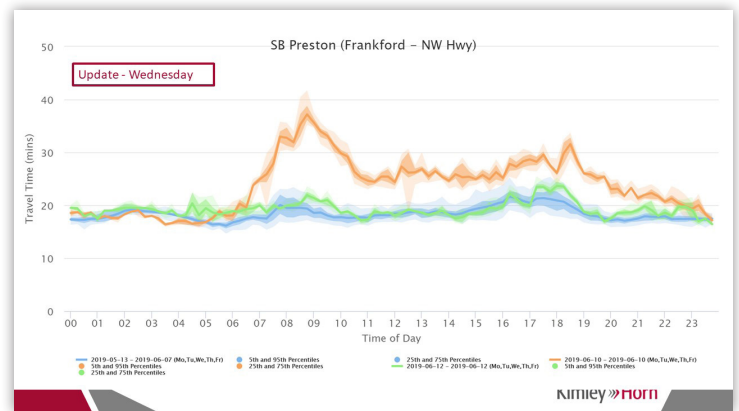### Signal Analytics Digs Deeper

The new tool, INRIX Signal Analytics, takes this analysis to the next level. In a future scenario, Dallas could drill down to individual signals to prioritize repairs, determining which signal and which movement was most important based on real-time delays.

Signal Analytics is a game-changing breakthrough in signal and segment management. Signal Analytics tracks the movement of each lane. Using a floating car data (FCD) platform and grabbing billions of anonymous data points, it tracks a sample of vehicles, every three seconds, as they approach and leave each intersection: 150 meters on approach, 80 meters after the intersection.
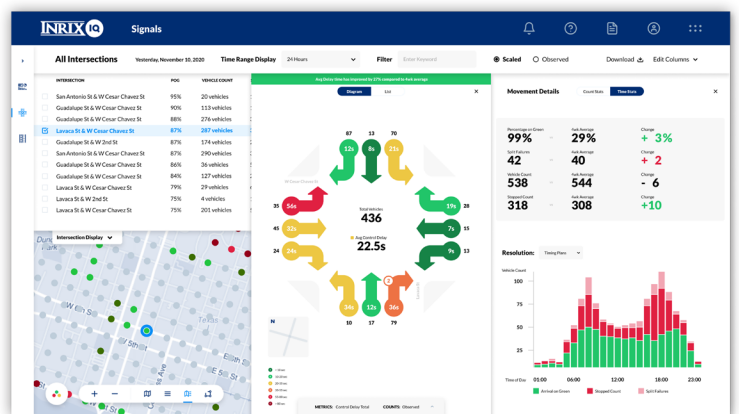
It is the most comprehensive traffic analysis tool available.

Blue line shows average travel times, the yellow line shows travel times 24 hours after the storm, green line shows travel times 72 hours after the storm.

Because Signal Analytics is not hardware based, dark signals are not a problem. Intersection information is still gathered and can be used to prioritize repairs.

The data is sourced from connected vehicles. The platform is scalable, easy-to-use, and cost-effective; it doesn't require special training and there is nothing to install. Agnostic data is downloaded and accessible in users' preferred platform. Users can easily access metrics to identify, rank and prioritize intersection signal projects to achieve maximum impact on traffic flow.

Signal Analytics also allows users to easily conduct systemwide intersection comparisons, and it also provides the ability to drill down to individual intersection movements.

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