

Data Analytics in Traffic Incident Management

It is no surprise that the topic of data analytics continues to rise in conversations amongst business leaders in Florida. Each day, more organizations are engaging in Business Analytics, Business Intelligence, and the use of Big Data in their operation. In fact, the projected value of data for just “personal location” is expected to reach \$100 billion in the next 10 years. The projected value of “health” data over the next 10 years could reach \$250 billion.ⁱ Additionally, 79% of enterprise executives surveyed by Accenture agreed that “if companies do not embrace Big Data, they will lose their competitive position and could face extinction”.ⁱⁱ The reality is that data continues to be collected and used at an increasing rate. Plainly stated, data is becoming critical to the success of organizations, both private and public. The demand is growing for organizations to not only collect data but analyze the data to make informed decisions. So, how does this current trend apply to Traffic Incident Management?

Many industries use data to prioritize their efforts on reducing cost, improving efficiencies, and increasing overall profitability. While TIM stakeholders can still benefit in these areas, they are primarily looking to use data analytics to improve safety and enhance performance metrics like Response Time, Incident Clearance Time, and Roadway Clearance Time. These metrics matter more than ever as we see a significant increase in Florida’s population combined with the growth in the number of tourists visiting the state each year. In the first quarter of 2019, there was an estimated 35.7 million tourists that visited the state.ⁱⁱⁱ These statistics both contribute to the total number of individuals travelling on Florida roadways each year. There is subsequently an increase in traffic incidents that may occur as a result. Incident responders are continuing to work daily to improve traffic safety and respond appropriately to the increase of traffic incidents. As TIM partners, we must continue pursuing data analytics to enhance the safety of our roadways here in Florida.



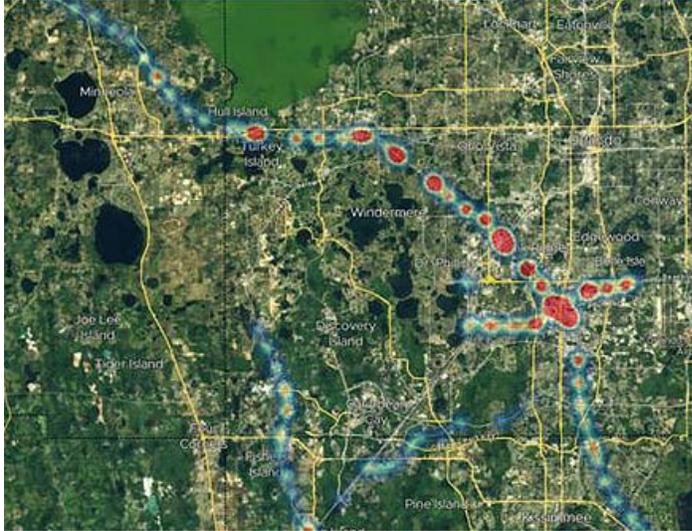
One of the predominant stakeholders in TIM for the state of Florida are the FDOT Road Rangers. Road Rangers serve the Florida motorists daily as they aid in traffic incident management by providing Maintenance of Traffic, roadside assistance, and scene safety for other first responders. Road Rangers across the state also serve as a primary source of data collection for the SunGuide, FDOT’s traffic management software. As with any

data analytics process, the first step is to acquire the correct data. Road Ranger’s provide a wealth of traffic incident information from each event recorded into the SunGuide. As TIM managers look for opportunities to analyze data for historical trends and relationships to keep up with the demand for actionable data-they must look at the SunGuide as the foundation for Traffic Incident Management data. However, there exists a struggle that many organizations face when first attempting to analyze data. How do you truly analyze the raw information from the database?

It may be easy to generate a static report that produces total incidents in a specific area or even average response times over a month. However, this information is often insufficient since it only delivers data in the form of a monthly statistic versus analyzing historical trends or patterns. The reports often do not yield the necessary information for TIM managers to make the informed decisions that they desire. As we acknowledged there is exist a capability gap between the TIM data and actionable data analytics, our company has partnered with many TIM managers to develop an innovative solution to this issue. We have now began working with our TIM partners to create custom data analytics dashboards that combine the necessary TIM data analytics with a user-friendly interactive data visualization tool. This tool has allowed them to see a different perspective of their operation and ask better questions on the allocation of resources and focusing on more congested areas to increase their performance metrics and roadway safety.



Earlier this year, the National Cooperative Highway Research Program (NCHRP) issued a report titled “Leveraging Big Data to Improve Traffic Incident Management.”^{iv} This report highlighted the need for Big Data in TIM and identified many opportunities that organizations can adopt to perform data analytics while enhancing TIM practices. The report does an outstanding job of detailing how Big Data can truly generate positive changes for TIM managers and programs. The issue that exists for TIM managers is now navigating the natural latency between identifying innovative ideas and embracing them as common practice for their program. Our company has begun focusing our efforts on reducing the barrier between the idea of “TIM Data Analytics” and a tangible tool that TIM programs can easily adopt to enhance their ability to make informed decisions for the program. We want to deliver a usable and effective tool to analyze data.



There are many data visualization tools that organizations can use to better understand their data. We encourage all organizations to continue seeking new ways of exploring data to offer better solutions for not only TIM, but all transportation data. Our TIM data dashboards have already helped many TIM managers better analyze the present data and increase their understanding of the operation. By utilizing these interactive dashboards, TIM managers have instant access to

thousands of reports, statistics, as well as historical trends and patterns that they have not had before. These data dashboards also incorporate interactive maps to help visualize TIM data. TIM programs now have a viable solution to keep up with the demand for actionable data while ultimately enhancing the safety of all our motorists in Florida.

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ⁱ <https://www.emc.com/leadership/digital-univers/2014ivew/executive-summary.htm>

ⁱⁱ <https://www.forbes.com/sites/louiscolombus/2018/05/23/10-charts-that-will-change-your-perspective-of-big-datas-growth/#28fa42122926>

ⁱⁱⁱ <https://www.floridadaily.com/record-high-number-of-tourists-visited-florida-in-first-quarter-of-2019/>

^{iv} <http://www.trb.org/Main/Blurbs/179756.aspx>