iteris®

CASE STUDY

Hillsborough Metropolitan Planning Organization

Hillsborough MPO
Metropolitan Planning
for Transportation

The Hillsborough Metropolitan Planning Organization (MPO) is a transportation policymaking board directly responsible for ensuring federal and state dollars spent on existing and future transportation projects and programs are based on a continuing, cooperative, and comprehensive transportation planning process. The MPO is located in the west central portion of Florida and is responsible for establishing priorities to meet short and long-term multimodal transportation needs for the City of Tampa, Temple Terrace, Plant City and unincorporated Hillsborough County.

Hillsborough MPO has been at the forefront of data and technology, and in fact participated in a Federal Highway Administration (FHWA) pilot project to develop a data business plan with their partners in 2017.

Project

As part of the FHWA pilot project to develop a data business plan, Hillsborough MPO included about 20 different agencies and organizations in the initial interview to help streamline and standardize data strategies across agencies. This project included identifying data stewards within each agency to conduct a data gap assessment. That work revealed that over 50 sets of mobility data were collected across the county. Some agencies had limited resources to invest in data, while others had a rich data program that included novel datasets such as connected vehicle deployments, Waze crowdsourcing and predictive models. This project sought to integrate data sources across all agencies within the Hillsborough MPO area, and come up with a plan to standardize and enhance data sources.

Problem

Hillsborough MPO used free tools available to them to calculate travel time reliability, which could take multiple days and involved several people within the organization to pull data required to calculate these metrics. The MPO also had to work across multiple platforms to understand how incidents impacted travel times within the county. What they discovered when working with agencies within the county was that there were duplicate efforts to collect and produce data across the county; each agency also had their own methodologies for calculating congestion related metrics. Couple that with multiple individuals working on a single project and this is a recipe for error within analysis. This siloed approach made it nearly impossible to share data across agencies to create regional dashboards to facilitate collaboration from the MPO to local agencies.

Solution

The MPO wanted a data and analytics portal that would allow it to work smarter, not harder. It wanted to centralize data sets across the region, provide for error-free analysis, eliminate data duplication and produce regional performance measures. Iteris offered Hillsborough MPO a solution to help normalize the data collection, integration and calculation of congestion metrics. This was accomplished through Iteris' ClearGuide™ solution, which integrates data from agencies, Waze and HERE into a centralized data engine that normalizes calculation of over 17 congestion metrics.

The first phase of the project has been completed and includes access to volume, speed, historical crashes, real-time incidents and weather from Waze, HERE and other agency sources, and enables ClearGuide to produce metrics such as travel time reliability, delay, top 10 congested bottlenecks and top crash locations.

The MPO shares access to ClearGuide with all of its partners in the region, including the City of Tampa, the Florida Department of Transportation District office, Hillsborough County and the Hillsborough Area Regional Transit Authority. New users are added every day as the platform grows in applicability across the region.

> " We wouldn't have expected ClearGuide to pay the dividends so soon. "

Results

Many agencies under the Hillsborough MPO had differing methods for calculating various congestion metrics, with multiple individuals collaborating on the same project, which increased the possibility of mistakes being made in preparation. ClearGuide standardizes the calculation of congestion metrics and offers a method to save and share various events to enable efficient collaboration across agencies.

Hillsborough found that cities within the county had differing states of data granularity and access. Giving all cities under the MPO standardized access to incident, probe and weather data across smaller and larger agencies helped to standardize data across all cities under the Hillsborough MPO.

As Johnny King Alaziz Wong PhD., principal planner at Hillsborough MPO, said: "We wouldn't have expected ClearGuide to pay the dividends so soon." This year, the MPO is approaching the mid-term development of its travel time reliability targets and is leveraging ClearGuide to update the performance data that support those targets. According to Mr Wong: "In the past we had to use some of the free tools that were available to MPOs, and using those tools calculating travel time reliability just on the National Highway System alone could take multiple days. Using ClearGuide, we have reduced that to just a few minutes." Hillsborough will continue to leverage ClearGuide as a tool to help streamline data analysis, integration and sharing.

What's Next?

Hillsborough is continuing to partner with Iteris to leverage the data and intelligence from ClearGuide. Future data sources may include transit (GTFS), connected vehicle (Wejo), origin-destination and other evolving data sets. Additional phases of the project will also include additional data, and predictive and forecasting procedures for network-wide congestion, travel time reliability and safety performance.
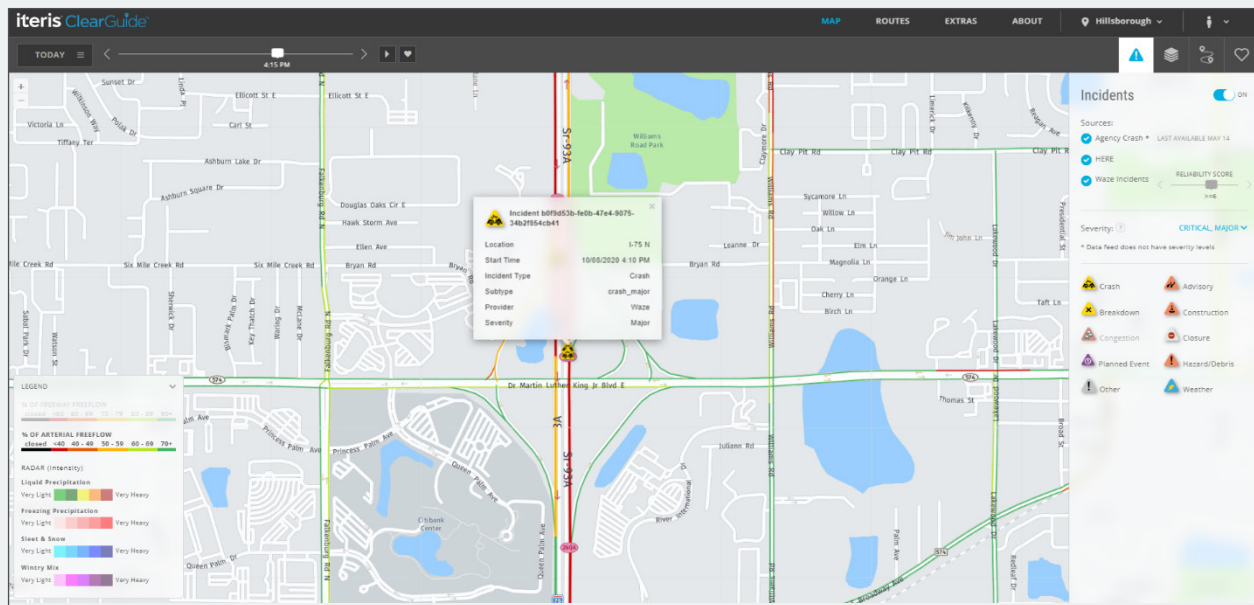
Other Ways Hillsborough is Using ClearGuide

Planning | Congestion Management Plan

ClearGuide helps Hillsborough analyze their current congestion management plan to fine-tune strategies it has mapped out over the year. This is done by reviewing current conditions to understand if any reprioritization is needed. ClearGuide is also used to help prepare its Congestion Management Plan more efficiently, again streamlining the analysis that would have taken the team days or weeks to compile into just a few minutes.

Vision Zero Analysis | Partner Support

Hillsborough is providing limited access to consultants working on their corridors for Vision Zero corridor analysis. Specifically, consultants are tapping into ClearGuide to analyze the relation between speed conditions and crash trends.

Top 20 Miserable Commutes

Hillsborough identified 15 key economic spaces within the region. Once identified, it used ClearGuide's route feature to build common routes to those economic spaces. Using ClearGuide's multi-route analysis to analyze six performance measures for the AM and PM peaks, Hillsborough was able to identify 20 of the most unreliable routes to those economic areas. This strategy allows Hillsborough to shift the focus away from corridor-level improvements to route-based improvements, in turn supporting a reduction in travel time on heavily used commuter routes.

> " ClearGuide has saved us a ton of time on data analysis and reporting. "

Project Comparison & Selection

Hillsborough leverages ClearGuide's multi-route report to compare reliability index and delay time for each corridor in consideration for improvements. This data-driven approach allows Hillsborough to quickly identify where its budgets can be spent to treat the correct corridors for transportation systems management and operations (TSMO) and smart cities technologies to minimize delays.

Map-21 | Before & After Studies

COVID-19 Investigations

Hillsborough had multiple requests after the COVID-19 shutdowns to understand the impacts the crisis had on congestion and driver behaviors. After the stay-at-home order was put in place, authorities saw a larger volume of crashes and local media was investigating the reasons why. Hillsborough was able to provide the media with the data they needed within minutes, rather than taking days to compile the required information. What Hillsborough saw within ClearGuide was that with lighter traffic, speeding was increasing, which directly correlated to the increase in incidents. Hillsborough was able to provide authorities with a list of the highest speeding corridors to help combat the issue during the stay-at-home order.
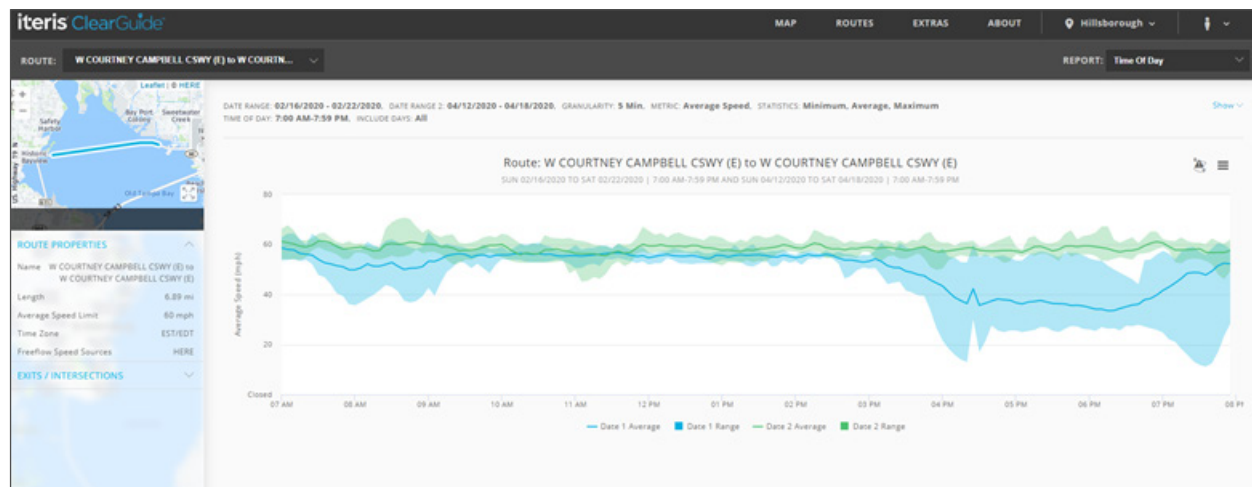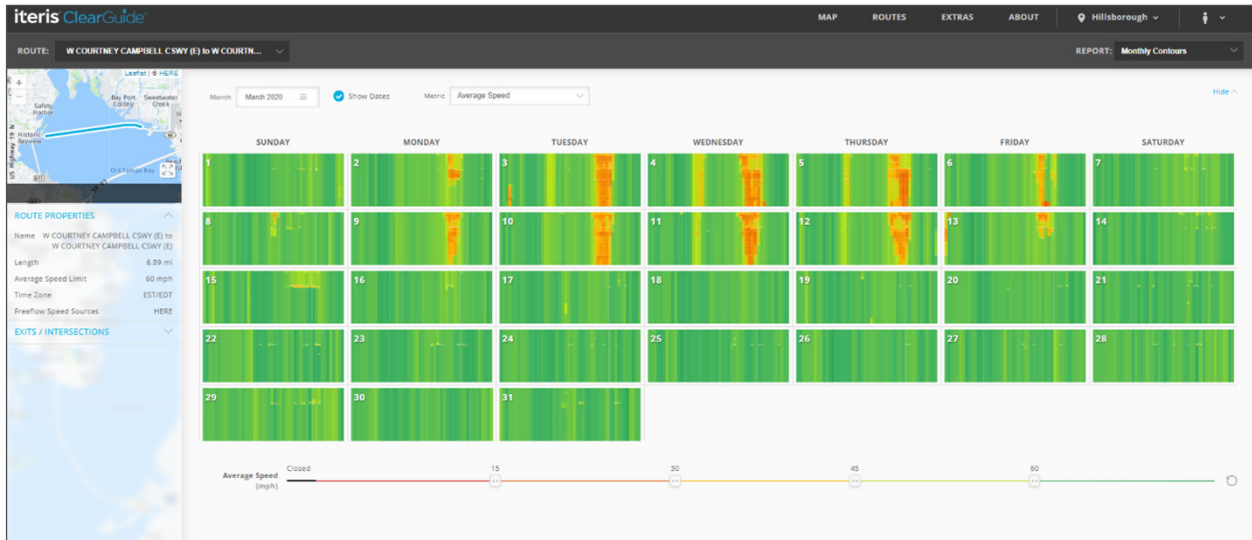
Reliability Index Calculation

The traditional methods to calculate reliability required a team to clean all data Hillsborough had access to. This was required before any analysis could be done. Once the data were in a proper state to conduct analysis, Hillsborough would have multiple individuals calculate reliability within their area, leading to possible inaccuracies and large investments in resources to conduct this calculation. With ClearGuide, a single individual can pull this information within minutes to support any data quality and travel time reliability analysis needs.

> It took only 13 minutes to generate a performance report that reviews a year's worth of data for 18 three-mile segments.

Public Outreach

Hillsborough often needs to share information with the public directly through public press releases and the local media. ClearGuide gives its team the ability to export the data and visualizations in multiple formats for presentations, press releases and dissemination to local media. The application helps streamline the information gathering, analysis and sharing to ensure consistency is upheld when communicating to citizens and legislators alike. The data and metrics required to support their efforts vary by audience:

- Citizens: most concerned with delay times and alternative routes
- Media: are often seeking general statistics on congestion and alternative routes
- Legislators: Hillsborough must prepare actionable reports for legislators in efforts of supporting any federal planning

Incident Analysis

Hillsborough had a major accident on the region's Howard Frankland Bridge. This incident involved an SUV that flipped over the bridge guardrail into the bay below. This accident caused severe congestion on the bridge, but also had major effects on the entire surrounding roadway and highway networks for hours after the incident. Having access to ClearGuide gave Hillsborough the ability to see congestion leading up to and after the incident. This data and illustration empowered the agency with the tools and data necessary to plan for future events.