# ADAM Helps the Cleveland Division of Fire Get a Seat at the Planning Table

**When it came to determining the location for a new fire station in the city of Cleveland, the Cleveland Division of Fire continuously found themselves presenting from a position of opinion, rather than fact. Lacking the concrete data they needed to confidently present station location choices to city stakeholders, the Cleveland Division of Fire turned to Deccan to provide what they were missing.**

The Cleveland Division of Fire (CDF) has been faithfully serving its city since 1863, even today functioning out of some of the same fire stations that were built all those years ago. In a move to update its stations and better serve its community, in 2019 the CDF decided to close Fire Station 26 and Fire Station 41, both single engine houses, and in their place build a larger station to house both engine companies.

In preparation for the city planning committee meeting to determine where the new combined fire station should be located, the CDF knew they needed to take a novel approach. "We've always had a physical seat at the table, but our metaphorical steering wheel was never connected to anything. We were giving our opinions to city leaders based on experience - we had to ask ourselves, why are we the only ones here not using data?", said CDF Battalion Chief Greg Lightcap.
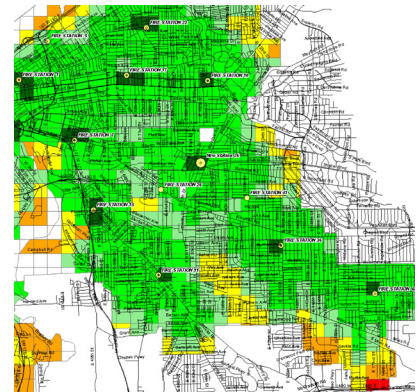


Image Caption: ADAM analysis displays First Unit Response Time projections based on the addition of a new fire station in one of the new proposed locations.

**"**We were giving our opinions to city leaders based on experience - we had to ask ourselves, why are we the only ones here not using data?**"**

- Greg Lightcap, Chief of Information Services Cleveland Division of Fire

The CDF utilized Deccan's Apparatus Deployment Analysis Module (ADAM), a predictive modeling tool that uses historical CAD data, GIS map data, and a rigorous projection algorithm to project the impact of deployment changes on response times and unit availability. After running multiple analyses in ADAM, the CDF identified two optimal station locations to present to city stakeholders.

Now armed with evidence-based data, Chief Lightcap was able to present with confidence to city officials, sharing Deccan generated maps, charts, and response time projections, and answer any questions from the committee. However, after learning of the CDF's new Deccan tools to evaluate station location choices and response performance, the city planning committee revealed they had already identified 14 potential locations for the new fire station.

With this new data analysis available, it was determined by the committee that all entities involved in the decision-making process would be allotted 10 points, with the CDF given 20 points, as the committee believed the CDF's selections were of greater value given they deal directly with public safety. Each entity would then divide their point allotment among the 14 potential station locations. "We finally had a true seat at the table, they connected our wheel to something," said Chief Lightcap.



Image Caption: Detailed plans from the Ohio Department of Transportation were provided to the CDF in order to account for the new road changes within ADAM's response time projections.

## Incorporating Future Road Network Plans

While planning for the new combined fire station, Cleveland city planners were simultaneously working on plans for a new eight-mile stretch of highway that would be built within the next ten years. With the CDF's new Deccan tools at their disposal, city planners approached the CDF about incorporating the new highway plans into their analysis for the new fire station location; this would provide them with a more accurate picture of the CDF's projected response times for the new station location once the new highway was complete.

The Ohio Department of Transportation provided color-coded maps showing all new road designs, intersections, layers, and more. Deccan then integrated these new road network and highway maps into the CDF's ADAM application, so when the CDF ran each analysis for the 14 potential fire station locations, the new highway data was incorporated.

This collaboration paved the way for a strengthened partnership between the CDF and Cleveland's city planners, showing both parties the importance of working together early in the planning process.

**To complete their analysis, the CDF used ADAM in the following process**:

- Created a new station location in ADAM for each of the 14 proposed locations

- Included both engine companies for deployment modeling at each new station location, and utilized "First Unit Response" as the primary response time performance indicator

- Used ADAM's Scenario Comparison feature to compare the current response time performance for Fire Station 26 and Fire Station 41 to the projected response time performance for each of the 14 proposed fire station locations.

- Accounted for second and third engine response times, as well as Effective Fire Force response times

- Created a point assignment system - for every potential station location, the station location would gain a point for each one second reduction in response time, and would lose a point for each one second increase in response time

- Assigned a final score for each potential station location using their allotted 20 points, all factors considered

With their 20 points now assigned based on science-backed analytics, the CDF presented their top choices for the new combined station location to the city planning committee. Deccan's intuitive maps and exportable reports allowed the CDF to clearly present their response time analyses to city officials. After taking into account the point allotments of all entities involved, the final station location was chosen.

"Over the last year, the Cleveland Division of Fire has used ADAM to take the first step in changing the way city officials see us. Even more importantly, we now have the tools we need to steer new city projects toward data-supported decisions that will ensure we are continually improving the lifesaving services that we provide every day."

- Greg Lightcap, Chief of Information Services Cleveland Division of Fire

### Fire Station 26 Site Selection Matrix

| | Deccan | Location | Size/Fit | Frontage/En | Environment | Ownership | Land Assembly | Site Prep | Planning | Economic Dev | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Possible Points: | 20 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 110 |
| | | | | | | | | | | | |
| Site: | | | | | | | | | | | |
| Victoreen, 10101 Woodland | 12 | 8 | 10 | 10 | 6 | 0 | 8 | 10 | 0 | 2 | 66 |
| SW corner Kinsman/E93 | 15 | 7 | 8 | 9 | 7 | 5 | 4 | 10 | 0 | 6 | 71 |
| Buckeye Woodland School l | 18 | 10 | 9 | 7 | 8 | 5 | 7 | 6 | 0 | 3 | 73 |
| Angle Ct b/ w E7 9 & E 80 | 6 | 6 | 8 | 7 | 7 | 6 | 2 | 6 | 0 | 4 | 52 |
| Buckeye /  E93 | 14 | 8 | 6 | 7 | 6 | 4 | 1 | 5 | 0 | 8 | 59 |
| Holton Av/  W of 79th | 8 | 5 | 8 | 5 | 6 | 8 | 1 | 6 | 0 | 4 | 51 |
| Holton Av/   E 83rd | 10 | 5 | 5 | 5 | 6 | 4 | 9 | 6 | 0 | 4 | 54 |
| Glade Av b/w  E82 & E83 | 6 | 6 | 4 | 4 | 6 | 2 | 6 | 7 | 0 | 5 | 46 |
| FS9 | 16 | 5 | 5 | 5 | 7 | 5 | 7 | 5 | 0 | 2 | 57 |
| Colfax Rd / E75th | 2 | 5 | 4 | 5 | 5 | 5 | 4 | 6 | 0 | 3 | 39 |
| Ambler Holton Playground | 18 | 5 | 4 | 5 | 6 | 4 | 3 | 5 | 0 | 2 | 52 |
| SE corner Bu ckeye /  Woodhill | 20 | 7 | 4 | 4 | 5 | 6 | 7 | 1 | 0 | 8 | 62 |
| E88 /  S of Bessemer | 0 | 2 | 4 | 3 | 6 | 2 | 6 | 6 | 0 | 6 | 35 |
| E75 / N of Woodland | 4 | 3 | 3 | 3 | 4 | 1 | 7 | 1 | 10 | 5 | 41 |

Image Caption: This matric displays each possible location for the new fire station, along with the total points that were allotted by the fire department and all other stakeholders involved