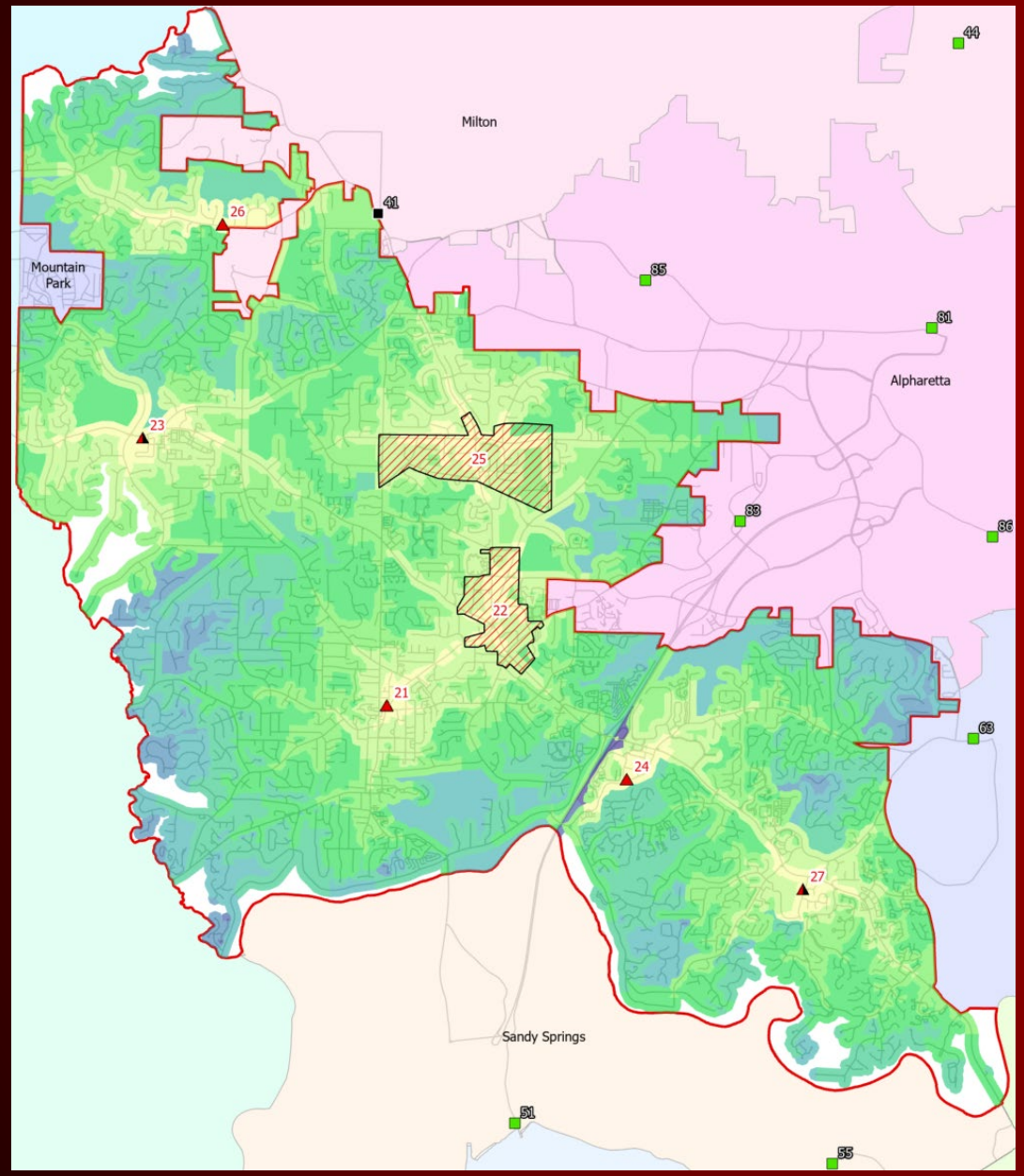
ROSWELL FIRE

RECOMMENDATIONS

Immediate Term	Short Term	Medium/Long Term
• Implement Traffic Preemption on all existing & future traffic lights within the City of Roswell. • Relocate Fire Station 27 to site at East Roswell Park. • Retain portion of the City-owned Bowen Rd/92 site for Fire Station 23. • Retain locations of Fire Stations 21, 24, and 26.	• Relocate Fire Station 23 to the retained property at Bowen/92. • Relocate Fire Station 22 to the area of SR9 & Holcomb Bridge Rd.	• Relocate Fire Station 25 to the area of Hembree Rd & Houze Rd.

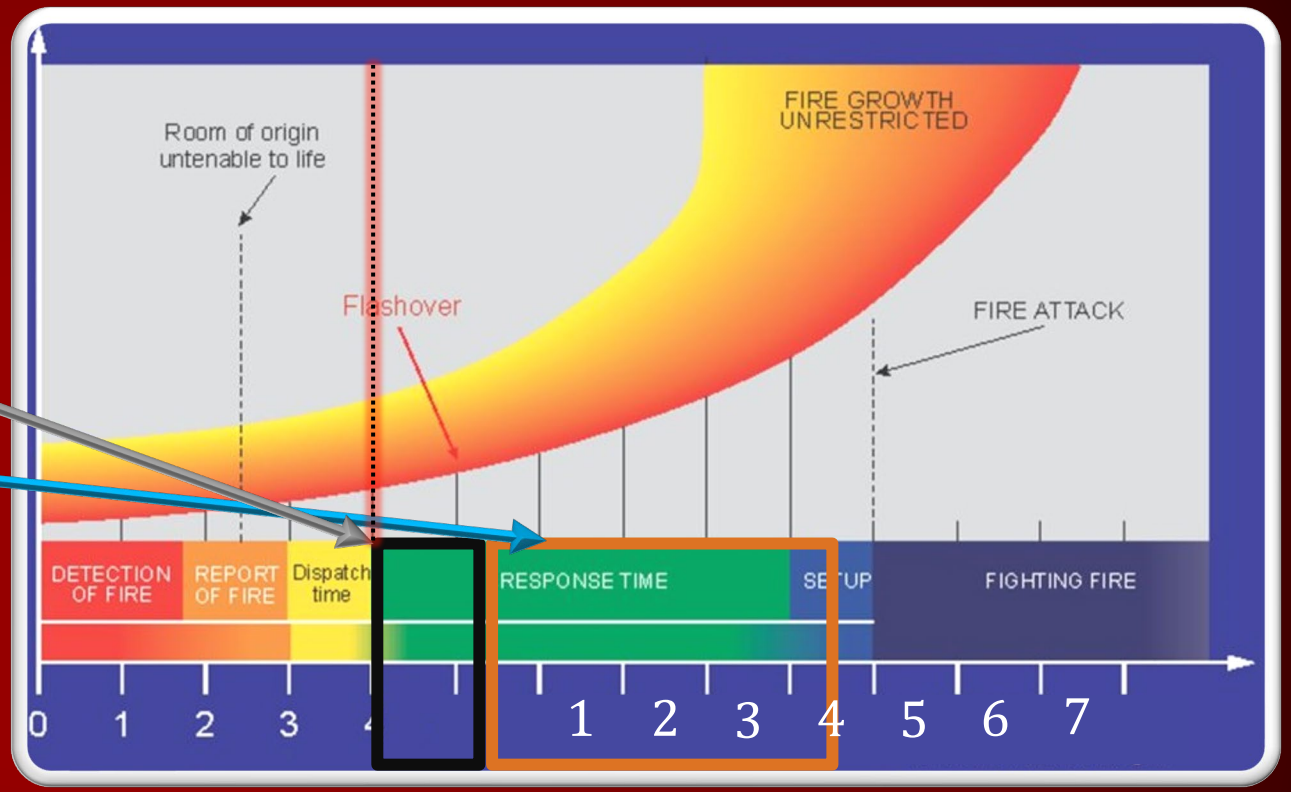
ABOUT THE ANALYSIS MODEL



- The model uses a proven facility optimization approach with a **novel** fire service dataset.
- Model is designed to optimize facilities in locations that improve services to the most addresses in the city.
- Dataset is a product of collaboration with RDOT & CoR GIS to ensure accurate data frameworks such as the use of real traffic data (Streetlight) while integrating realistic considerations for fire apparatus travel behaviors like turning, braking, and acceleration.
- The model's accuracy was validated against historical RFD data and aligned with 2021 CPSM Gap Analysis findings.
- The dataset was adapted to model the impacts of intelligent traffic preemption systems, with exceptional accuracy.

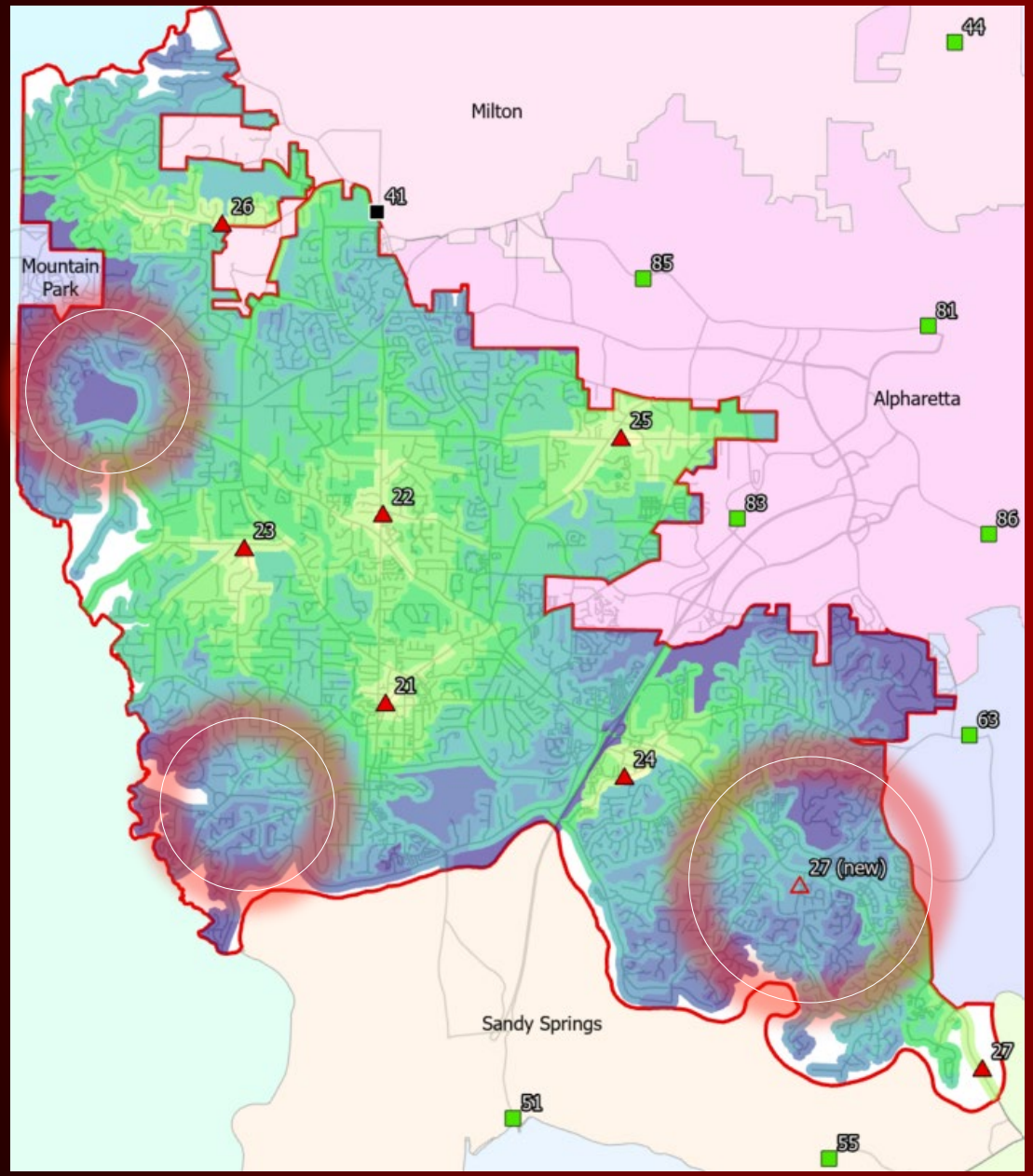
OUTCOMES TO CONSIDER

Response Phase		Time Cost	Cumulative Time Cost
Pre-Dispatch		Variable (~3:00)	3:00
Total Response Time	Call Taking Time	1:00	4:00
	Turnout Time	1:20	5:20
	Travel Time	**4:00**	9:20



- Travel Time is a part of the overall Response Time, starting when a fire apparatus departs its station and ending when it arrives at a scene.
- Minimizing Travel Times can play a substantial role in improving outcomes for Fire & Emergency Medical incidents.
- Utilizing a 4:00 Travel Time as a benchmark is the gold standard approach to high-quality Emergency Services.

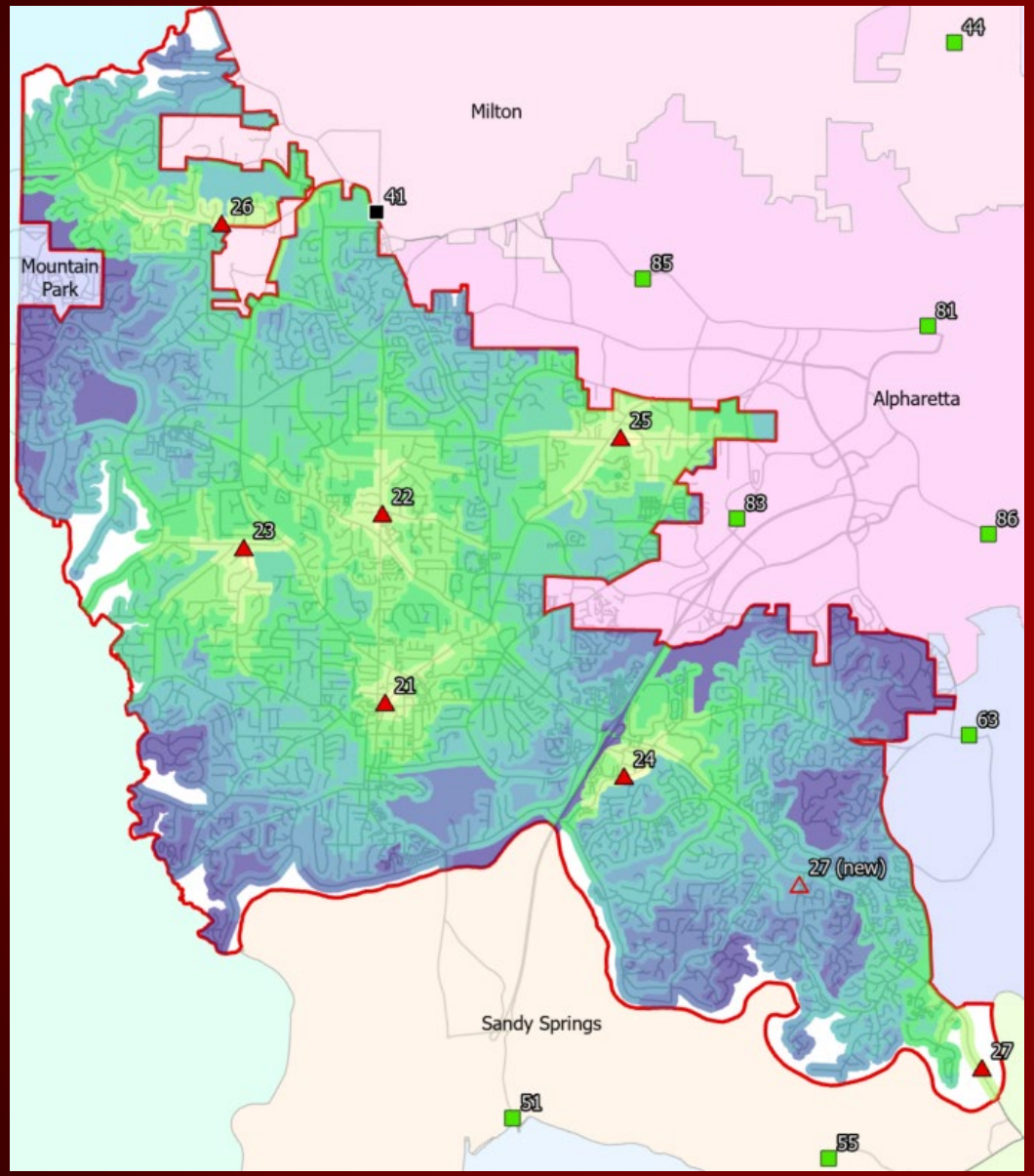
CURRENT 7 FIRE STATIONS, PEAK TRAFFIC CONDITIONS



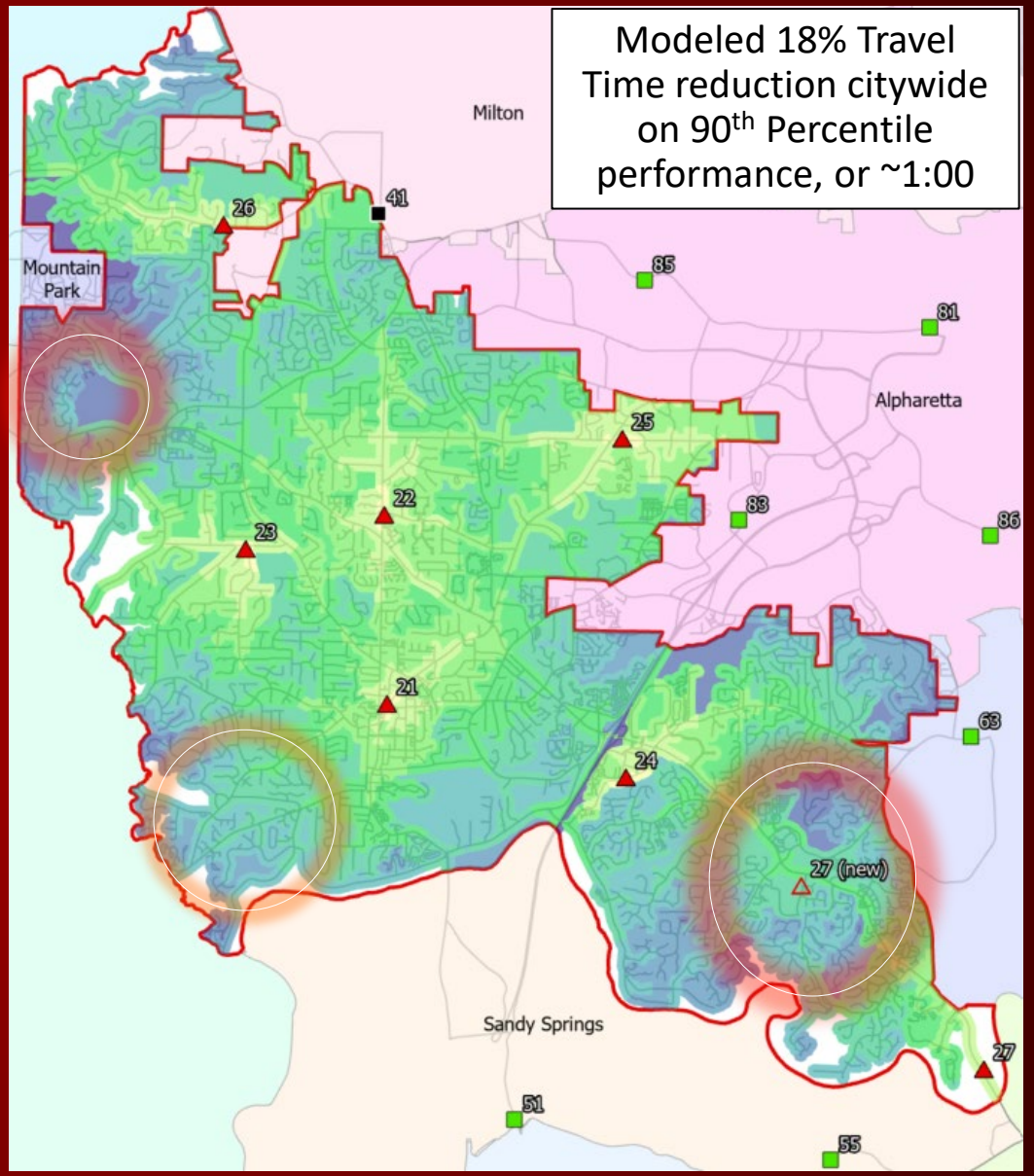
Modeled Travel Time Performance (Peak Traffic Conditions)	90th Percentile	Addresses With > 4:00 Minute Travel Time
Current Locations (without Traffic Preemption)	6:56	69% (31,351)

- Why 90th Percentile?
  - 90th Percentile performance is the preferred statistic of RFD because it demonstrates the majority of the data & is not easily influenced by outliers.
  - Averages only show the middle of the data, and are easily influenced by outliers.
  - Utilizing 90th Percentile performance is a gold-standard approach that allows us to best measure our performance for the whole of the community.

PREEMPTION IMPACTS, EXISTING 7 FIRE STATIONS IN PEAK TRAFFIC CONDITIONS

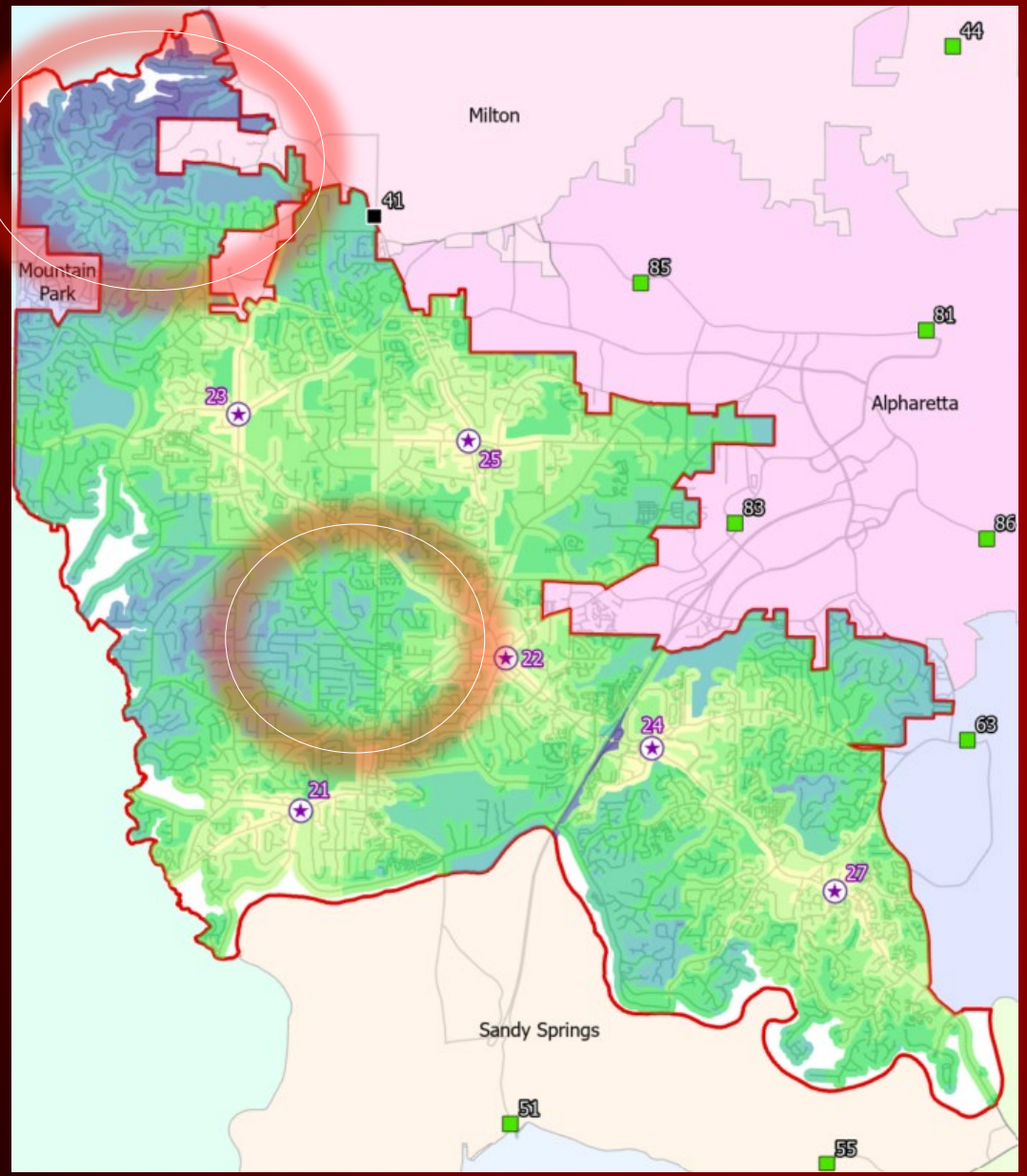


Without Traffic Preemption



With Traffic Preemption

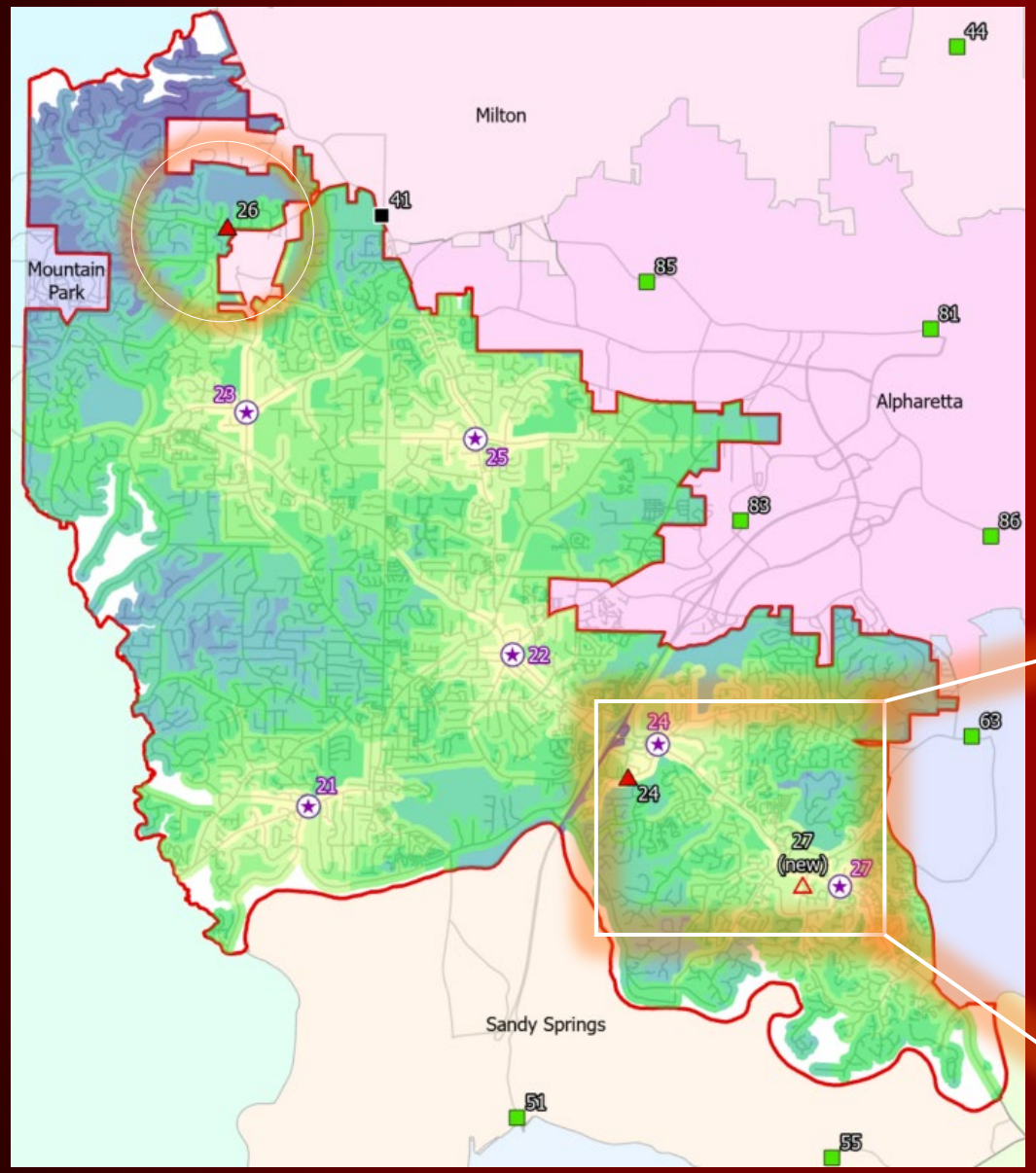
6 FIRE STATIONS, STARTING FROM SCRATCH



Peak Traffic Conditions with Traffic Preemption

- Our approach to this project was to first start with a blank slate to see how many fire stations are needed.
- While the 6 Fire Station configuration with Traffic Preemption shows potential for performance improvement, it is highly dependent on multiple unrealistic factors:
  - Precise facility placement on the exact parcel selected by the analysis (regardless of size, availability).
  - Could not be a phased approach; it would all have to happen simultaneously.
  - Would require five fire stations to be relocated.
    - Only existing site to be retained would be Fire Station 24
  - Closing Fire Station 26 & compromising coverage to north Roswell.
    - This is due to a lack of address density in that part of the city.
  - Compromising coverage to downtown Roswell.

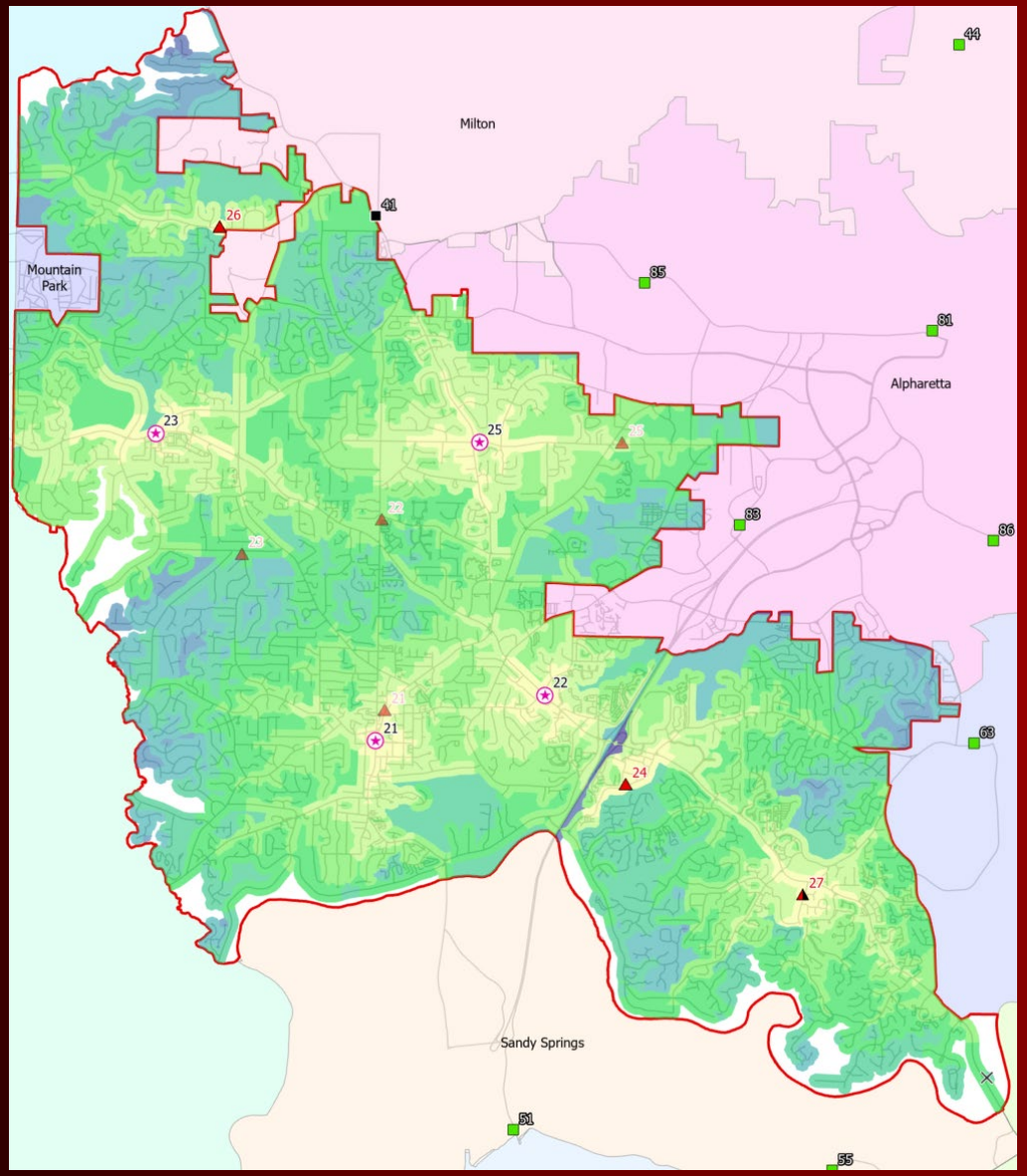
OBSERVATION & KEY ASSUMPTIONS



Peak Traffic Conditions with Traffic Preemption

- Retaining Fire Station 26 is critical to ensuring coverage in north Roswell.
  - Additionally, the City of Milton is planning to relocate Fire Station 41 away from the Roswell border & into their city.
- Analysis highlights that existing site for Fire Station 24 is in good location.
- Planned site for Fire Station 27 at East Roswell Park aligns well with analysis.

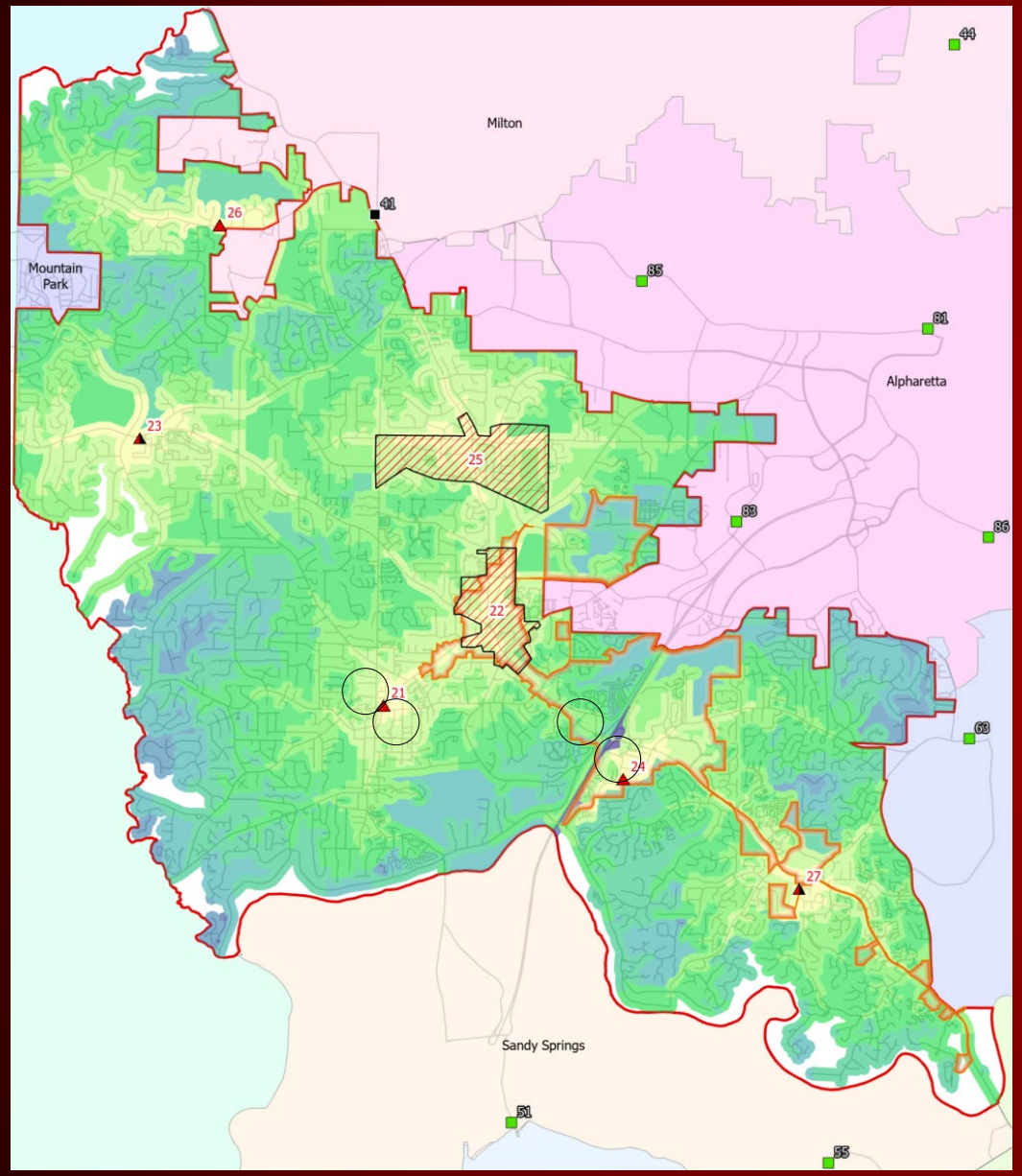
CURRENT FIRE STATIONS 24 & 26, PROPOSED 27; SCRAMBLING 4



Peak Traffic Conditions with Traffic Preemption

- With preemption, Fire Station 21's current location is validated.
- Analysis recommends Fire Station 23 relocate to Hardscrabble/92, extremely close to Bowen/92 site.
- Multiple iterations of modeling also show the following trends:
  - Fire Station 22 could provide better coverage if moved southeast.
  - Fire Station 25 could provide greater citywide coverage if it moved west on Hembree Rd.

FINAL FUTURE STATION LOCATION CONFIGURATION



Peak Traffic Conditions with Traffic Preemption

Modeled Travel Time Performance (Peak Traffic Conditions)	90th Percentile	Addresses With > 4:00 Minute Travel Time
Current Locations (without Traffic Preemption)	6:56	69% (31,351)
Final Locations (with Traffic Preemption)	4:48	24.5% (11,193)
Improvement	-2:08	-20,158
	30.7%	64%

- Continue with full implementation of Automatic Aid (CAD).
- Recommend collaborating with RDOT to review traffic engineering in key areas that could improve public safety travel times.
- Fire station placement planning is aligned with ongoing Economic Development initiatives (circled) to meet future needs.
  - Fire Station 22's recommended placement zone & Fire Station 27's planned relocation site align well with TAD (orange outlined area), which could be a potential funding source.

NEXT STEPS

- Seeking approval to move forward with citywide Traffic Preemption.

- Seeking approval to proceed with relocating Fire Station #27 to Fouts Rd. south of Holcomb Bridge Rd. at East Roswell Park.

QUESTIONS?