

# Wake County Fire Services Long Range Plan

A tool for making data driven  
decisions for optimizing fire  
service delivery

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# Wake County is growing!

## How does the fire service keep up with the growth?

- What resources are needed?
- Where are they needed?
- When are they needed?

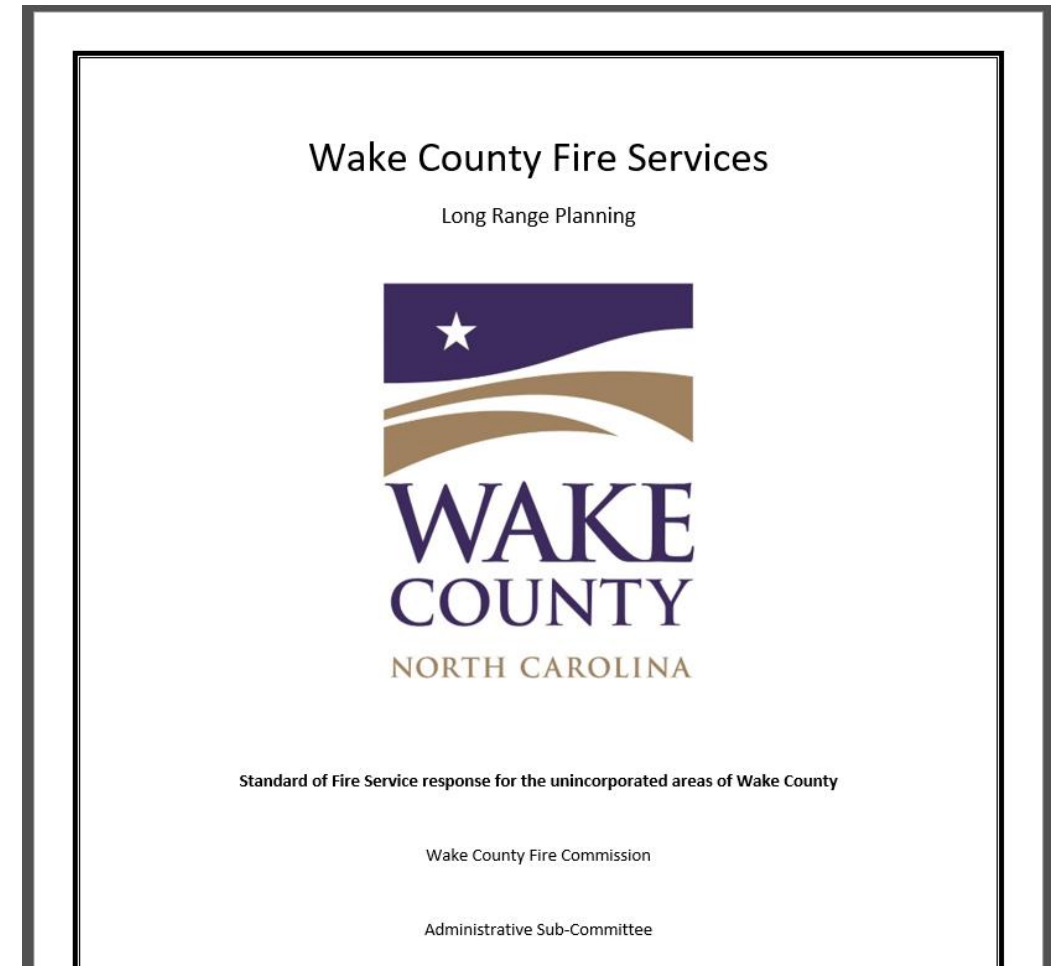


How can we answer those questions?

DATA!

In 2019, the Wake County Fire Commission Administrative Sub-Committee embarked on a study to determine the answers to these questions.

- The assessment was performed in 2020
- The initial report was released in January of 2021
  - Standard of Fire Service response for the **unincorporated areas of Wake County**
- The data is updated every 6 months and presented to the Fire Commission





# What data do we use?

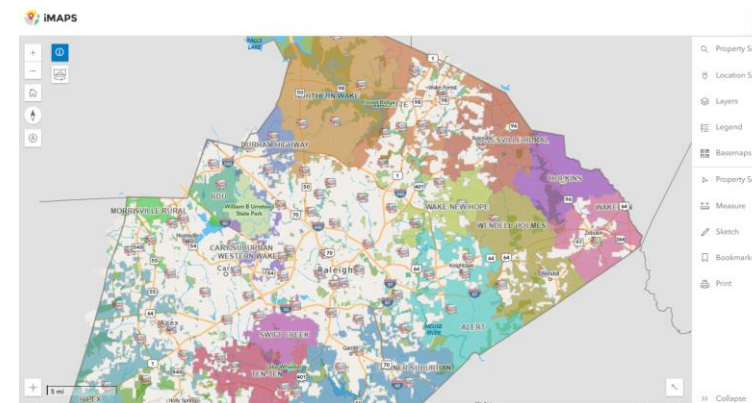
Data from the dispatch software at the Raleigh-Wake 911 center



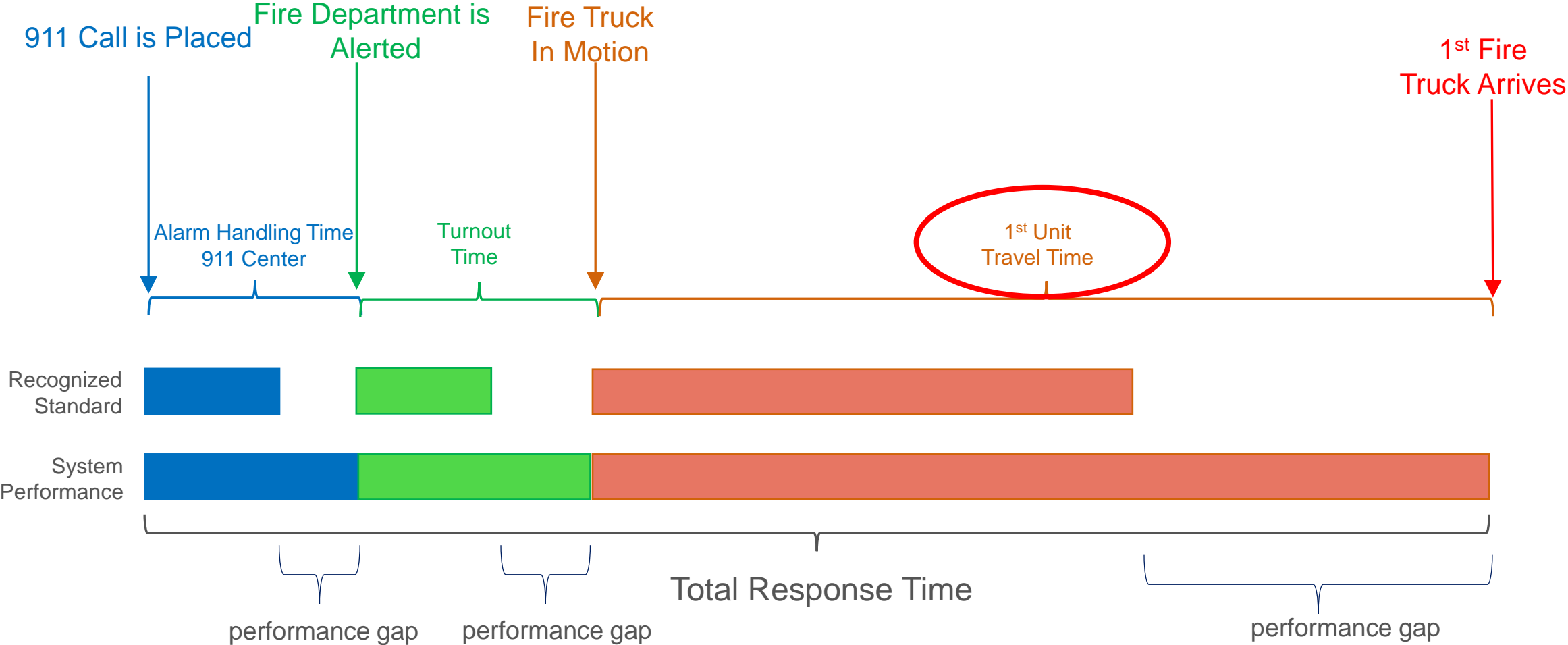
Data from fire reports



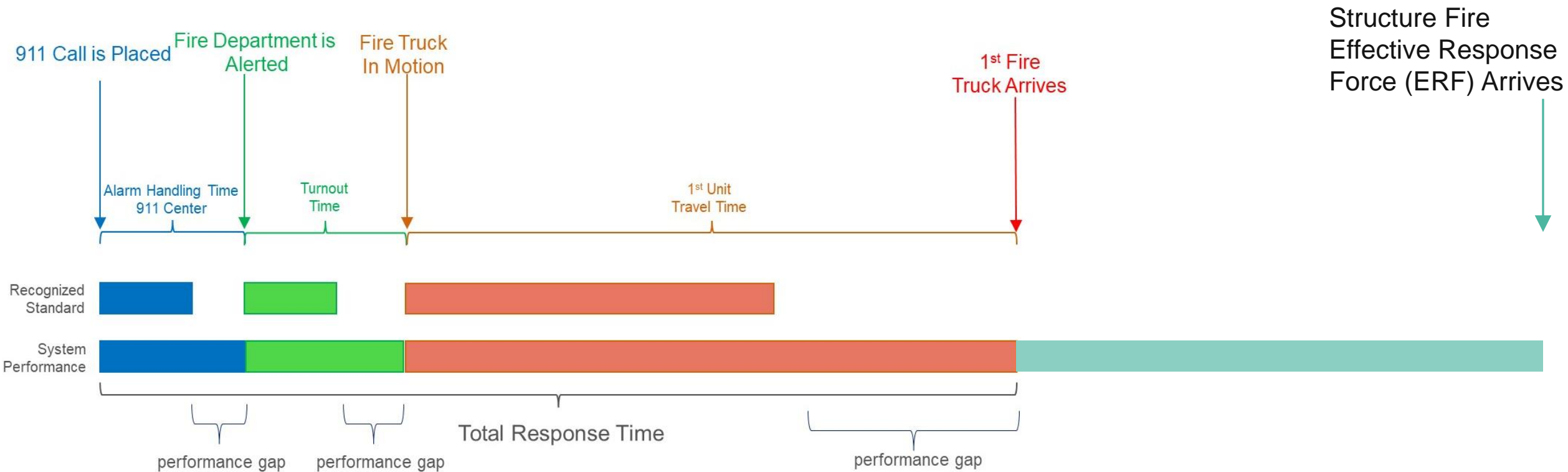
Geographic Information System (GIS)



# Emergency Response Timeline



# Emergency Response Timeline



# What statistics are we seeking?

Travel time of the first arriving fire unit

Arrival time of the Effective Response Force for dispatched structure fires



# What is the analysis process?

The screenshot displays a Microsoft Excel spreadsheet with multiple sheets. The active sheet, 'Fairview Fire Department', contains a table with columns: IncidentNumber, Determinant, Problem, Address, Latitude, Longitude, GenericProblemDescription, ResponseArea, Jurisdiction, PhonePickup, FirstUnitAssigned, and FirstUnitEnroute. The data lists various incidents with their details and response times.

Below the main data table, there is a summary table with the following columns: Row Labels, Total Rural Responses, Rural Emergency Responses, 90th% Travel, and Emergency Responses Over 7min Travel. The 'Grand Total' row shows 6912 Total Rural Responses, 5282 Rural Emergency Responses, 07:28 90th% Travel, and 701 Emergency Responses Over 7min Travel.

To the right of the main data table, there is another summary table with the following columns: Department, Total Rural Responses, Rural Emergency Responses, Travel Time 90%, and Emergency Responses Over 7 Min Travel. This table provides a breakdown of the summary data by department.

Row Labels	Total Rural Responses	Rural Emergency Responses	90th% Travel	Emergency Responses Over 7min Travel
1 Northern Wake Fire Department-Hook	24	17	14:05	15
2 Garner Fire Department	1165	915	08:29	196
3 Fuquay-Varina Fire Department	899	702	07:54	123
4 Rolesville Fire Department	228	184	07:46	30
5 Wendell Fire Department	562	419	07:45	59
6 Northern Wake Fire Department	867	644	07:29	79
7 Zebulon Fire Department	274	219	07:24	30
8 Holly Springs Fire Department	122	95	07:21	11
9 Hopkins Fire Department	206	143	07:05	17
10 Wake Forest Fire Department	425	307	06:56	30
11 Knightdale Fire Department	895	681	06:49	62
12 Fairview Fire Department	482	384	06:24	23
13 Durham Highway Fire Department	239	184	06:15	12
14 Swift Creek Fire Department	143	123	06:09	8
15 Western Wake Fire Department	102	42	06:08	3
16 Wake-New Hope Fire Department	279	223	05:20	3
<b>Grand Total</b>	<b>6912</b>	<b>5282</b>	<b>07:28</b>	<b>701</b>

Department	Total Rural Responses	Rural Emergency Responses	Travel Time 90%	Emergency Responses Over 7 Min Travel
NWFD - NW District	24	17	14:05	15
Garner Fire	1165	915	8:29	196
Fuquay-Varina Fire	899	702	7:54	123
Rolesville Fire	228	184	7:46	30
Wendell Fire	562	419	7:45	59
Northern Wake Fire	867	644	7:29	79
Zebulon Fire	274	219	7:24	30
Holly Springs Fire	122	95	7:21	11
Morrisville Fire	163	107	7:17	16
Hopkins Fire	206	143	7:05	17
Wake Forest Fire	425	307	6:56	30
Knightdale Fire	895	681	6:49	62
Apex Fire	228	186	6:44	18
Fairview Fire	482	384	6:24	23
Durham Highway Fire	239	184	6:15	12
Swift Creek Fire	143	123	6:09	8
Western Wake Fire	102	42	6:08	3
Wake-New Hope Fire	279	223	5:20	3
Cary Suburban Fire District	16	13	2:56	0

To this point –

- Spreadsheets
- More spreadsheets
- Data given to WC GIS to map

# What is the analysis process?

Parts of the process are manual

- All structure fire dispatches in unincorporated Wake County
- All are examined individually
- Fire reports narratives are read
- Some are excluded from the analysis
  - Calls handled by the initial arriving units that cancel the others
  - Calls that are initially dispatched as something else but later upgraded to a structure fire

This study established standards based on industry best practices

- Arrival of the first fire unit to a call in 7:00 travel time
- A structure fire should receive
  - 16 firefighters
  - In a 12:00 travel time

# What is the result of the analysis?

## 90<sup>th</sup> Percentile travel time

- Broken down by fire department
- For all calls in unincorporated WC

Target = 7:00 travel, 90% of the time

## Structure fire responses

- Count of structure fire dispatches
- Count of how many “qualify” for analysis
- How many achieved the ERF target vs. how many did not

Target = 16 firefighters on the scene with a 12:00 travel time

Why these  
two  
statistics?

# Why these two statistics?

90<sup>th</sup> percentile travel time for first arriving unit

Tells us:

- Do we have fire stations in the correct places?
- Do we have gaps that need additional stations?

90<sup>th</sup> percentile travel time for first 16 firefighters for structure fires

Tells us:

- Do we have enough personnel?
- Do we have enough units at each station?

# How are we doing?

Most recent 6-month period

- 10/1/24 to 3/31/25
- Overall travel time for first arriving unit in unincorporated Wake County: 7:28
- We're achieving our 7:00 goal 86.6% of the time

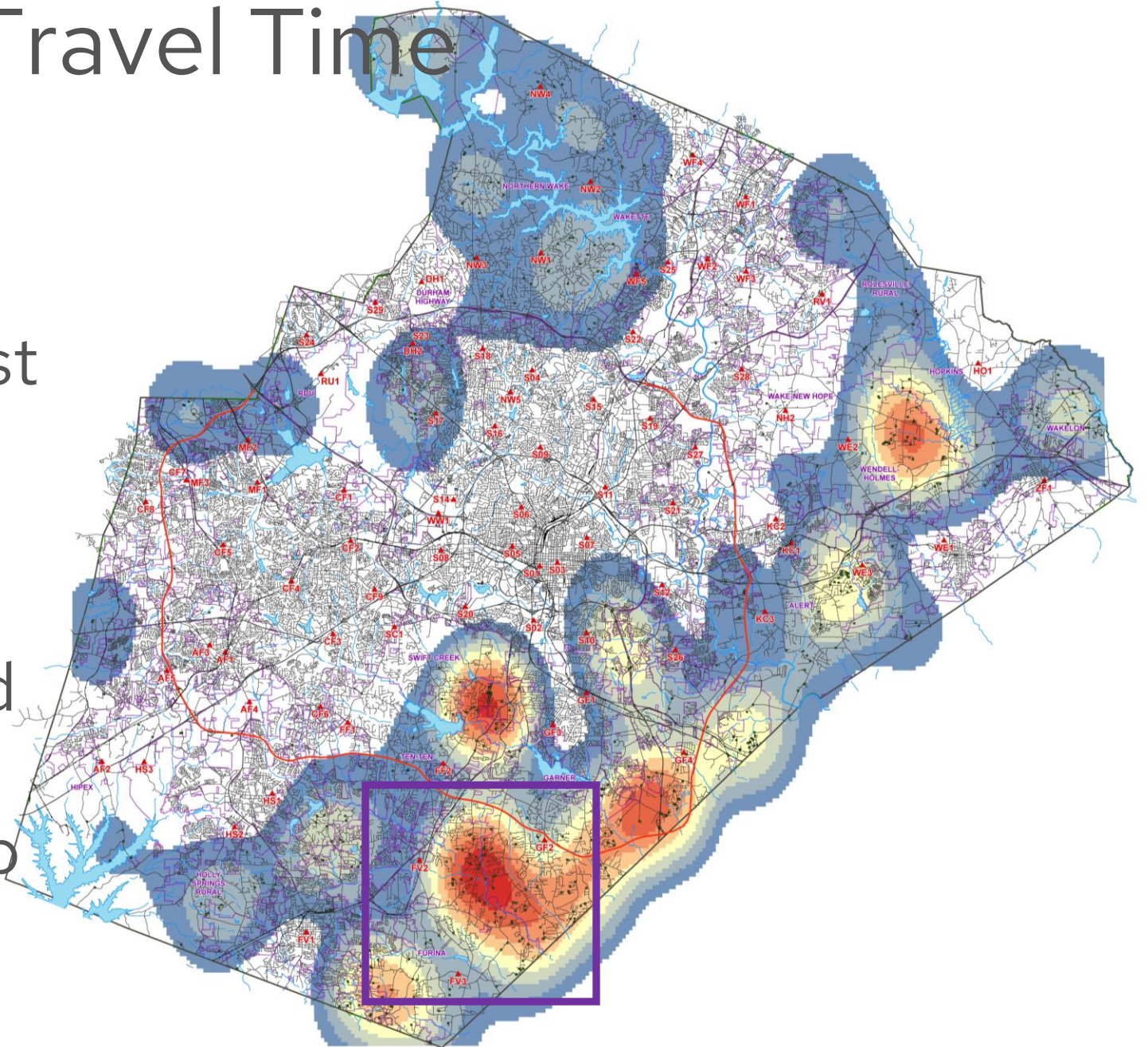
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# 90<sup>th</sup> Percentile Travel Time

Plotted

- All calls where the first arriving travel time >7:00
- For a 6-month period
- Made into a heat map





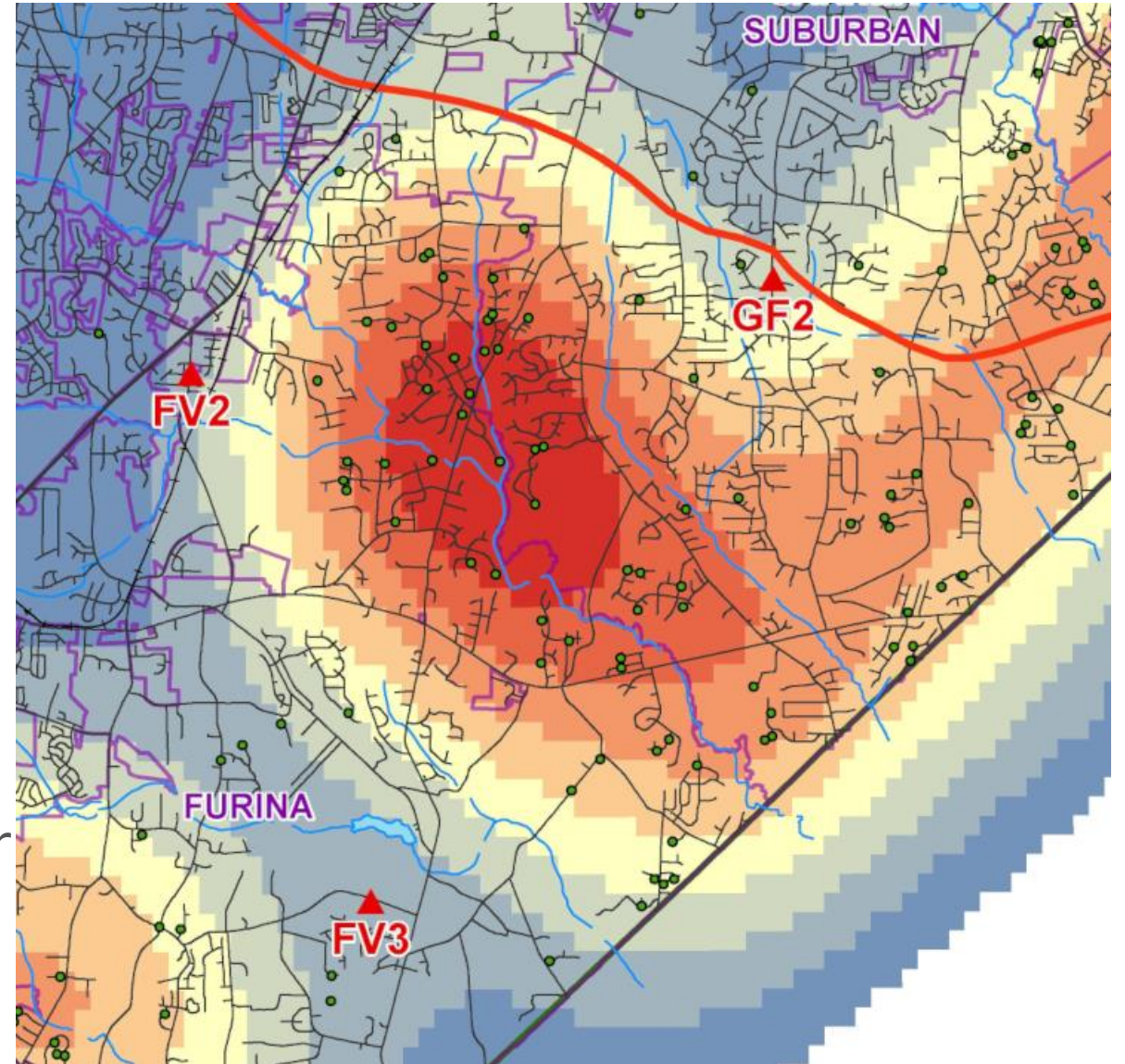
# 90<sup>th</sup> Percentile Travel Time

What does it tell us?

- There is a concentration of calls where we're not making our 7:00 travel time
- An additional fire station is needed for this area

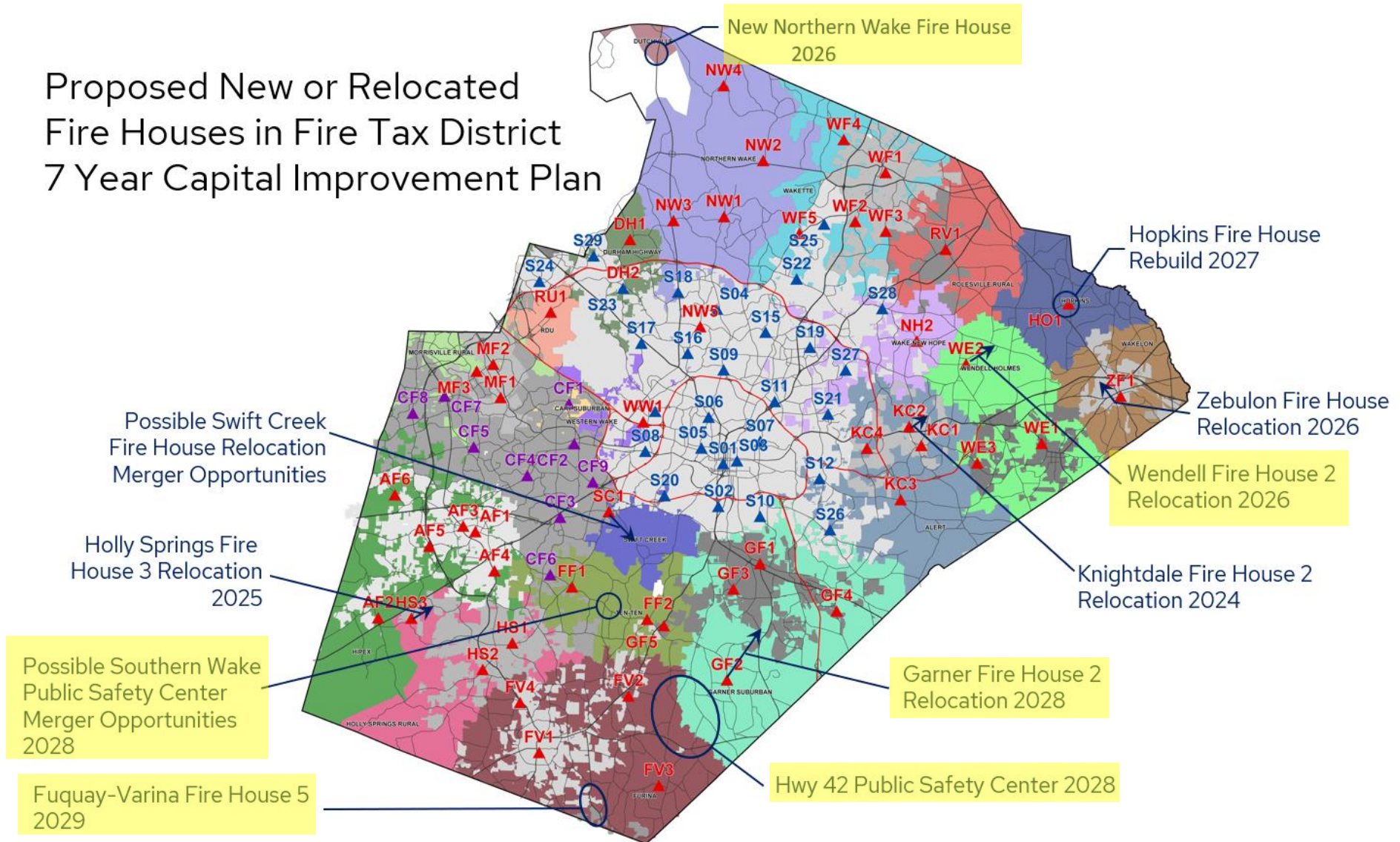
Result?

- Highway 42 Public Safety Center is now in the Capital Improvement Plan, 2028

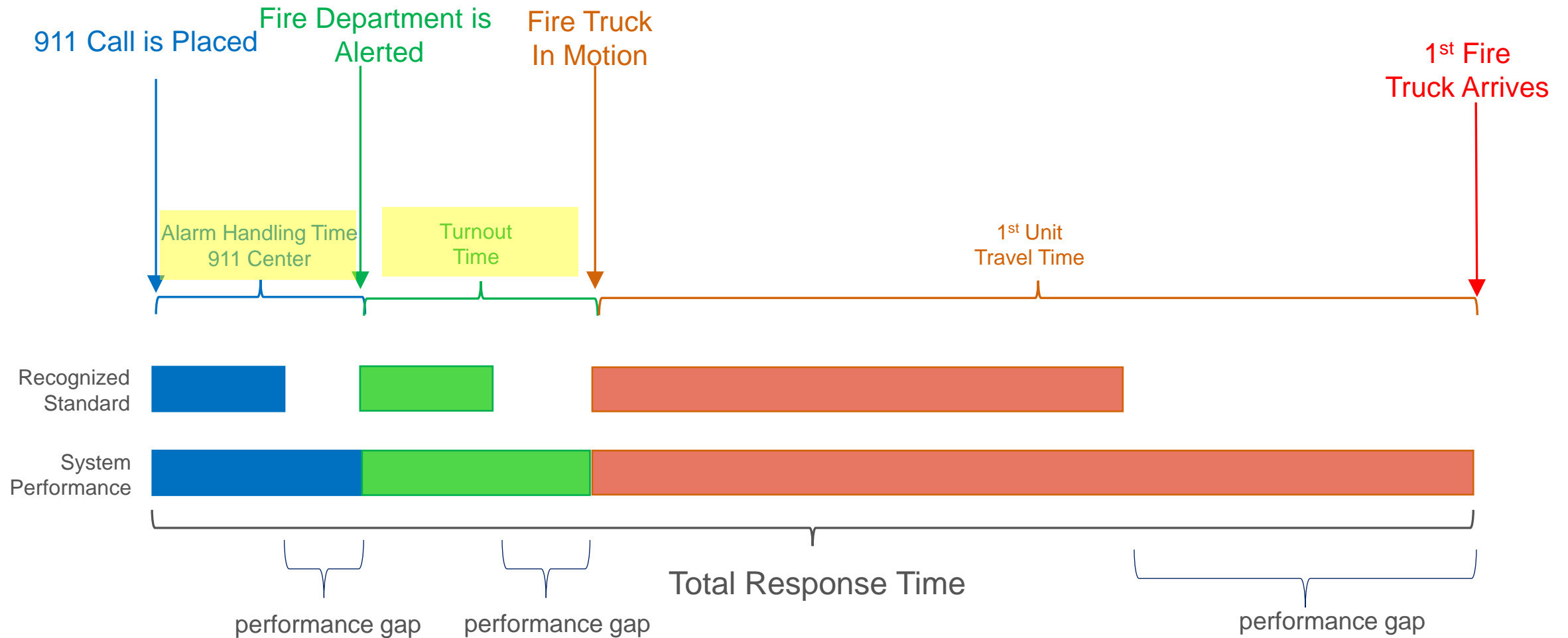


# Other Results

Proposed New or Relocated  
Fire Houses in Fire Tax District  
7 Year Capital Improvement Plan



# Next Steps







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