



Emergency Services Consulting *International*

City of Topeka Kansas

Fire Department Station Location Update

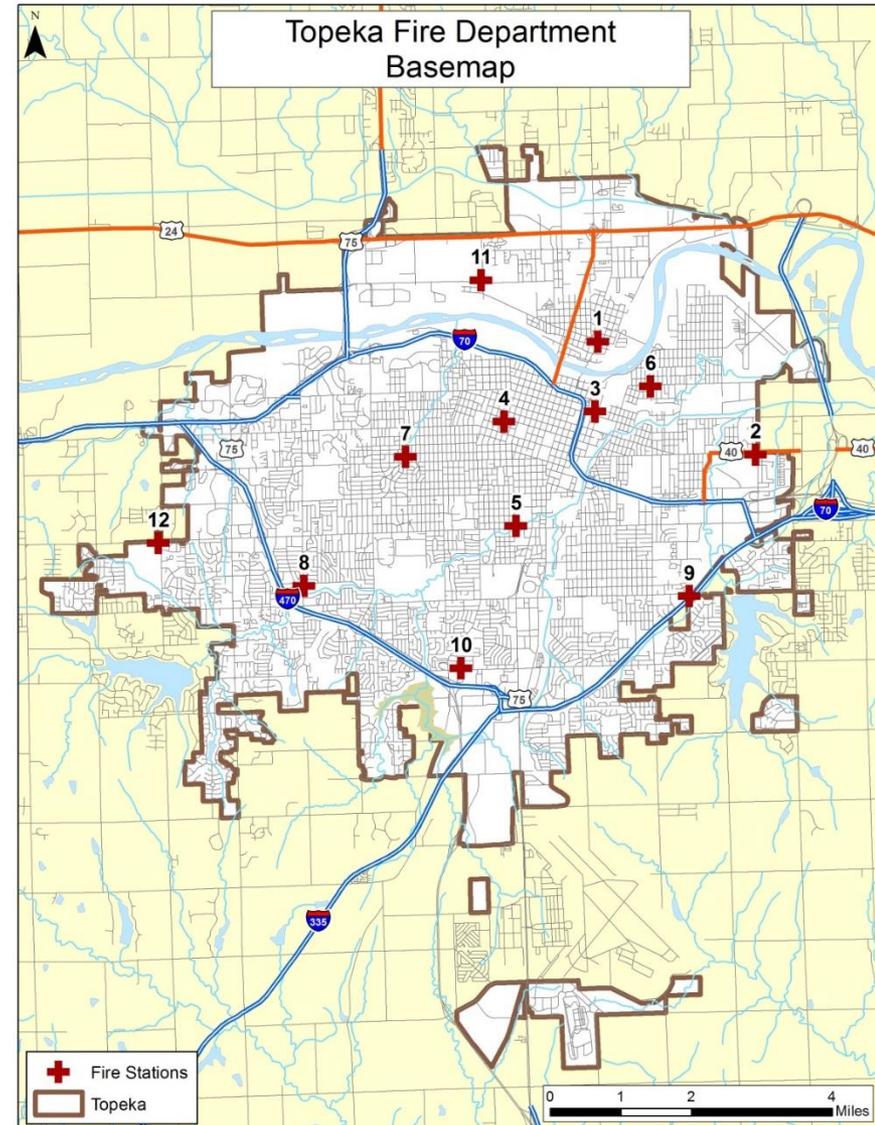
Intent

- Locate Future Fire Station Locations
- Improve Efficiency through Redeployment of Existing Resources



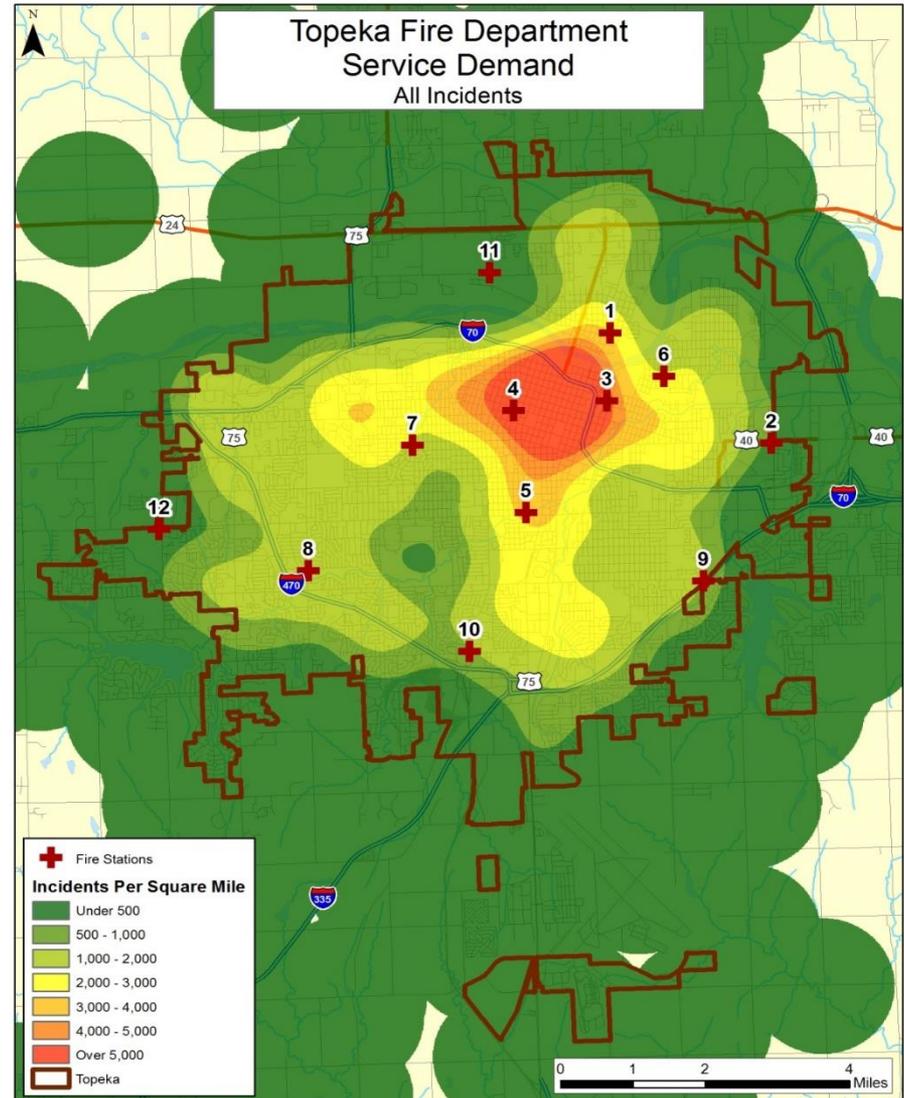
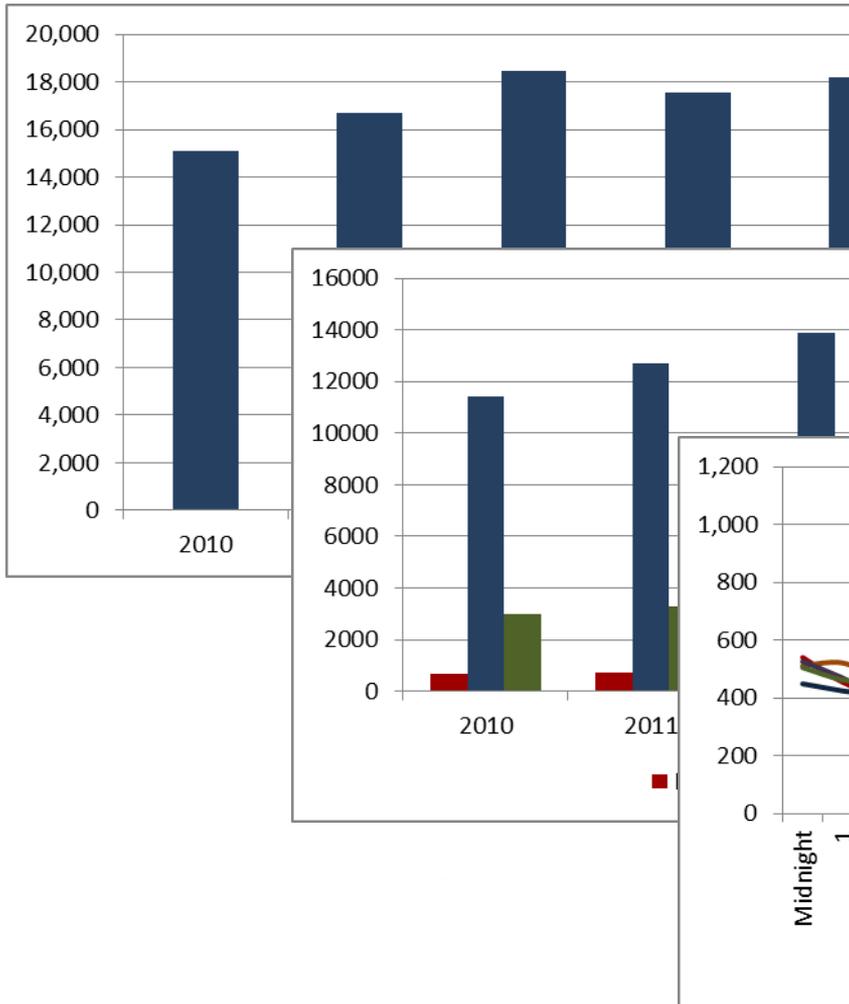
Evaluation of Current Conditions

- **Organization Overview**
 - 61.5 square miles
 - 127,215 population
 - 12 Stations



Review of Current Conditions

- Service Demand

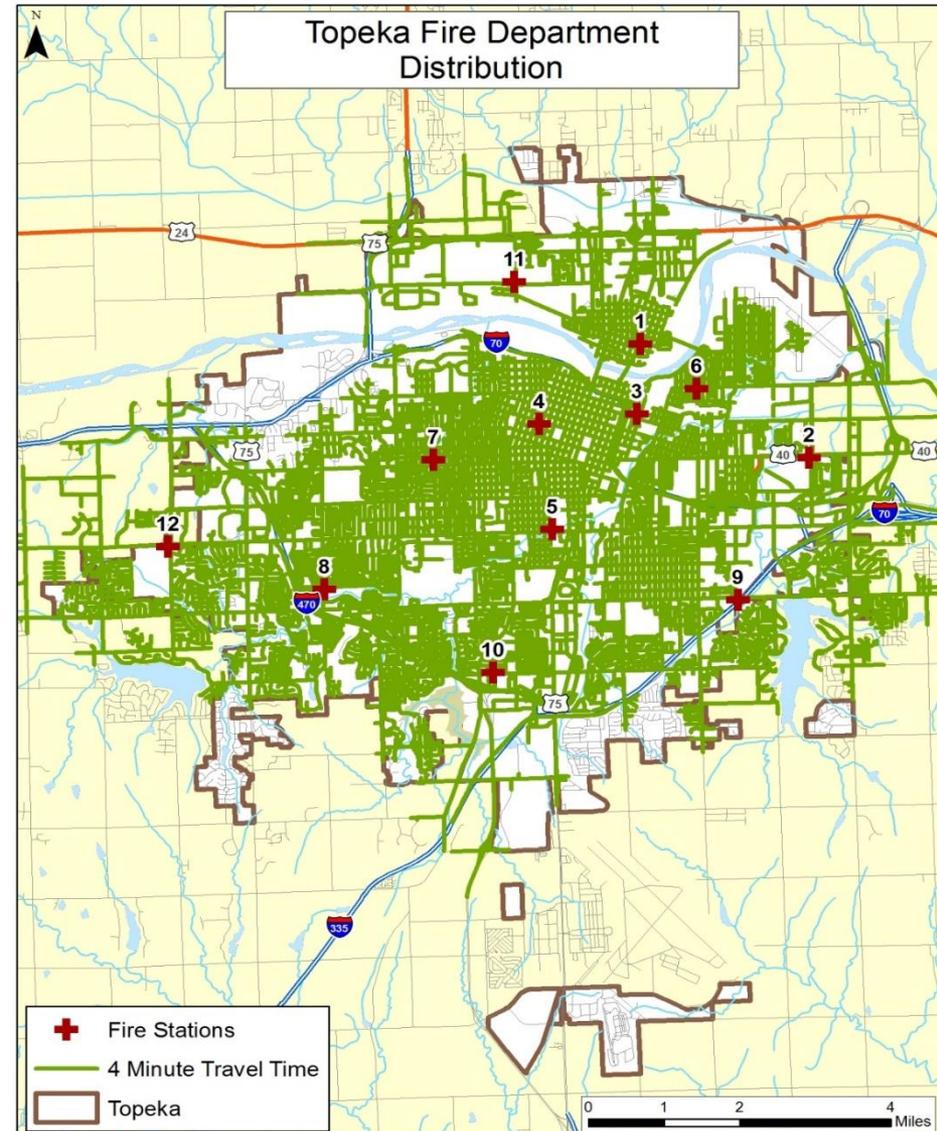


Review of Current Conditions

- **Resource Distribution**

- Adequately Covered
- Some areas outside Four-minute model

Based on NFPA 1710



Review of Current Conditions

- Reliability
 - Utilization
 - Concurrency

Task Force	Total Commit Time	UHU
TF01	1454:01:00	0.03
TF02	1420:20:55	0.03
TF03	1972:04:58	0.04
TF04	2788:23:44	0.05
TF05	3201:14:33	0.06
TF06	1123:00:42	0.02
TF07	3589:40:15	0.07
TF08	3190:27:22	0.06
TF09	2823:48:57	0.05
TF10	3202:52:38	0.06
TF11	993:23:39	0.02
TF12	1996:05:09	0.04

	1	2	3	4	5	6	7	8	9	10	11
2010	55.8%	31.4%	9.7%	2.3%	0.5%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%
2011	52.1%	32.0%	11.3%	3.1%	0.9%	0.3%	0.2%	0.1%	0.1%	0.0%	0.0%
2012	50.9%	33.1%	11.6%	3.2%	0.6%	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%
2013	53.4%	32.4%	10.9%	2.7%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
2014	52.1%	32.9%	11.6%	2.6%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%

Review of Current Conditions

- **Response Performance**

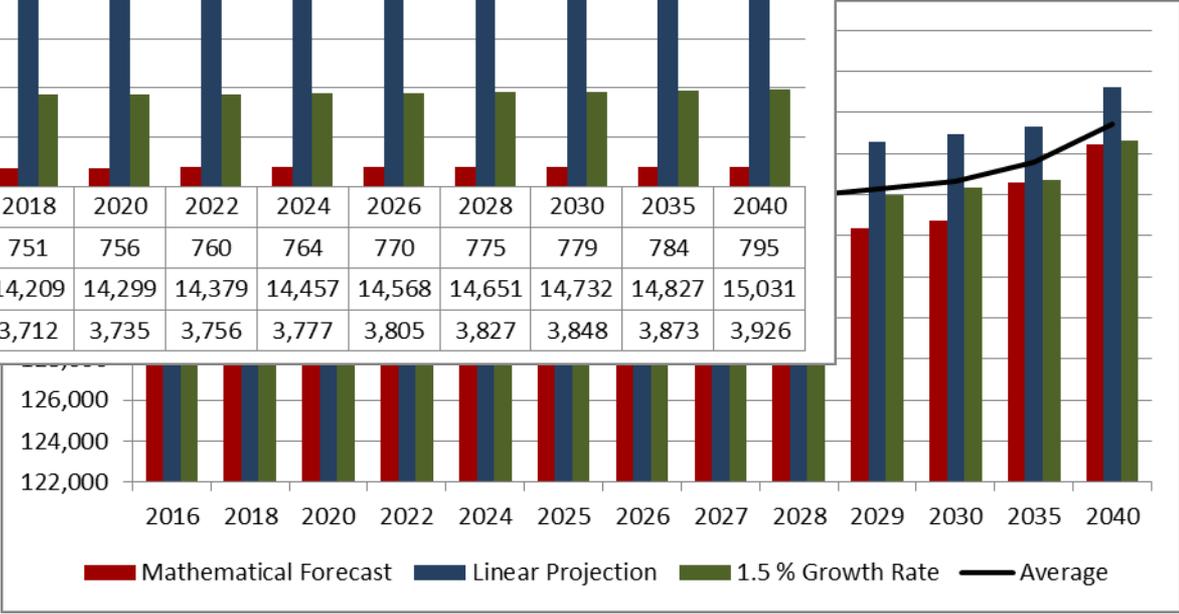
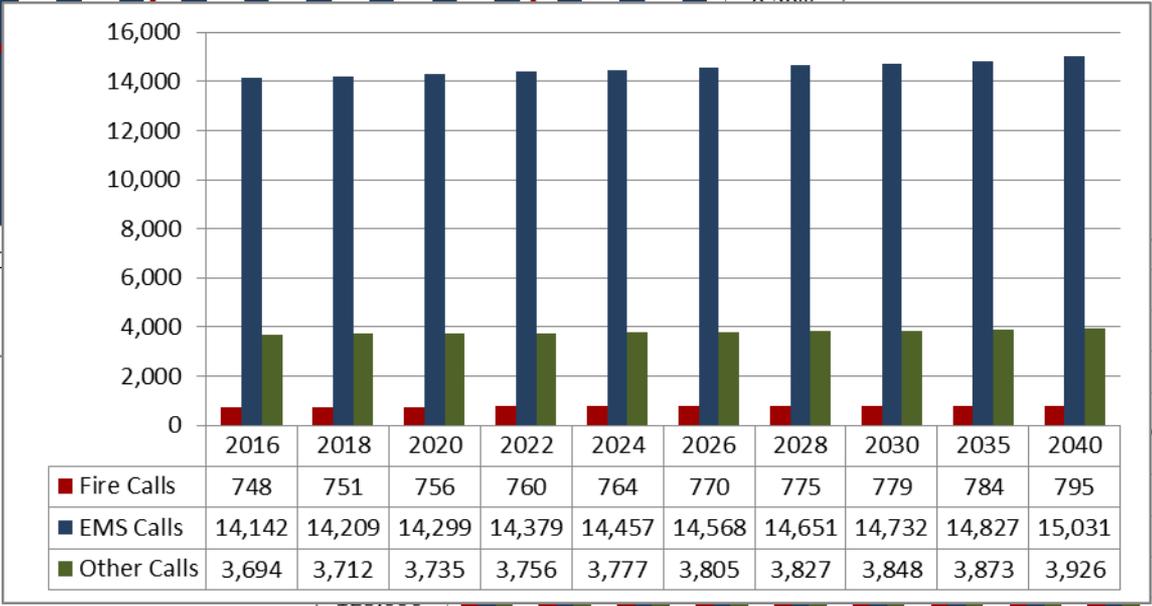
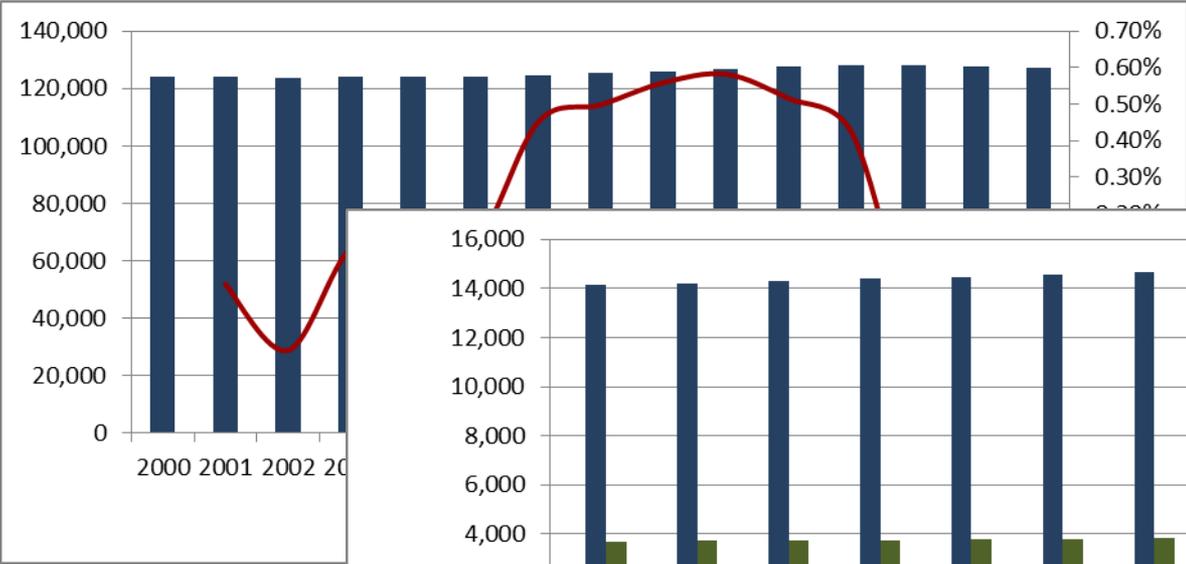
- Call Processing
- Turnout
- Total Response

	Average	90th Percentile
2010	00:00:30	00:01:10
2011	00:00:31	00:01:12
2012	00:00:30	00:01:11
2013	00:00:31	00:01:12
2014	00:00:31	00:01:11

	Average	90th Percentile
2010	00:01:41	00:02:27
2011	00:01:43	00:02:30
2012	00:01:42	00:02:30
2013	00:01:44	00:02:33
2014	00:01:47	00:02:37

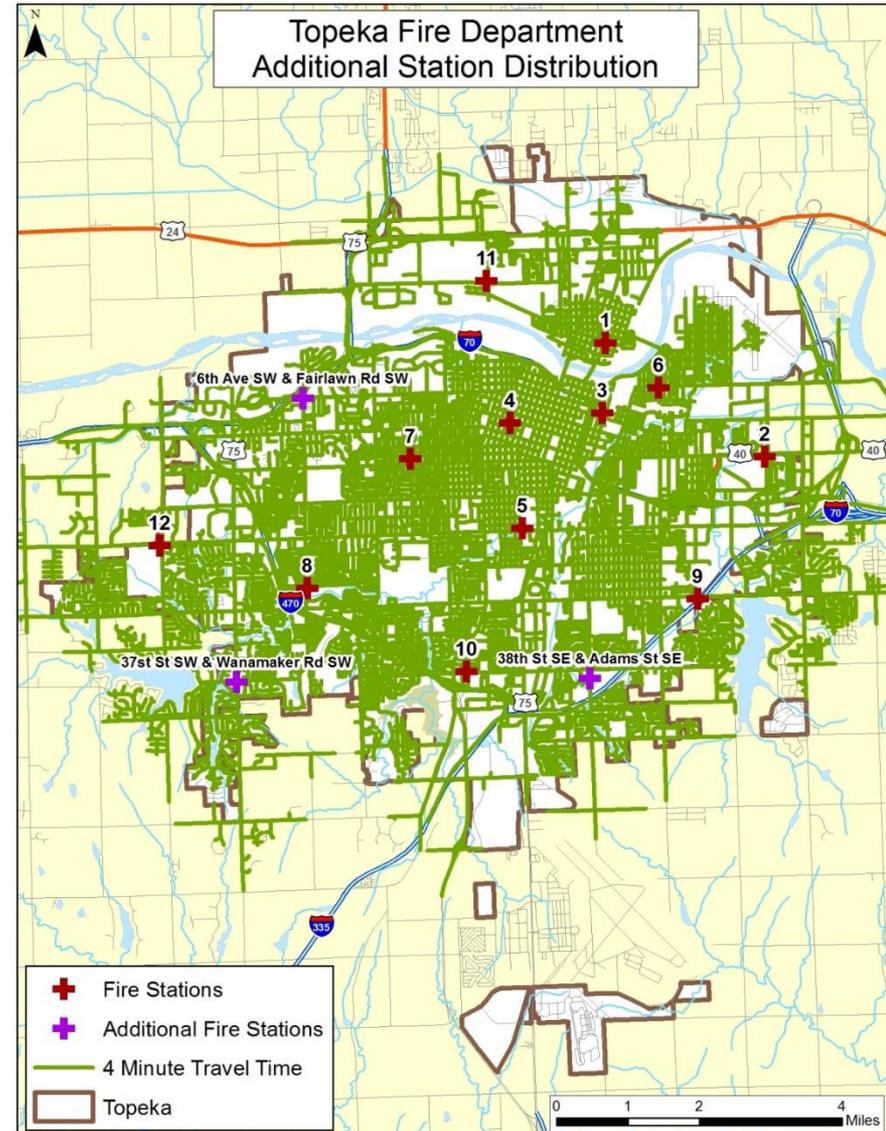
	Average	90th Percentile
2010	00:04:45	00:06:53
2011	00:04:50	00:07:02
2012	00:04:38	00:06:54
2013	00:04:46	00:07:04
2014	00:04:51	00:07:08

Future System Demand



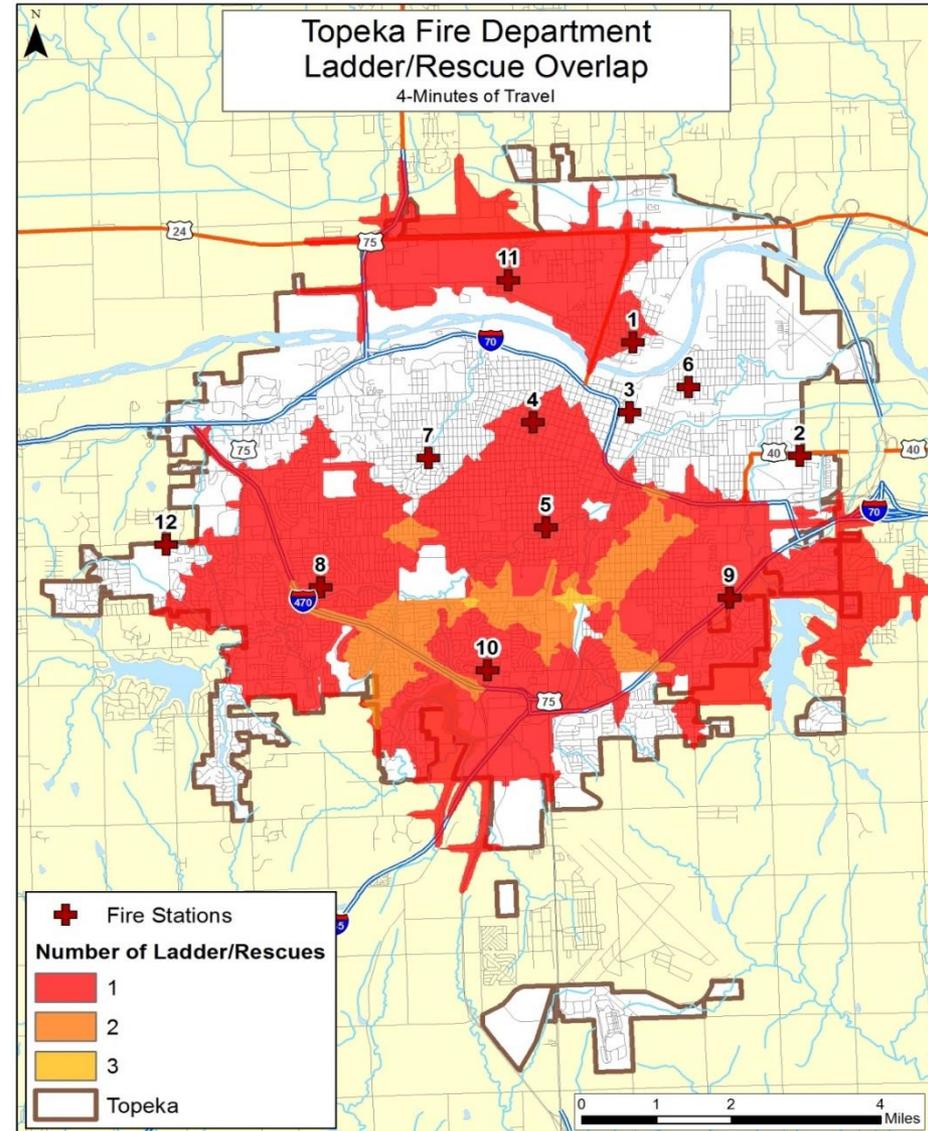
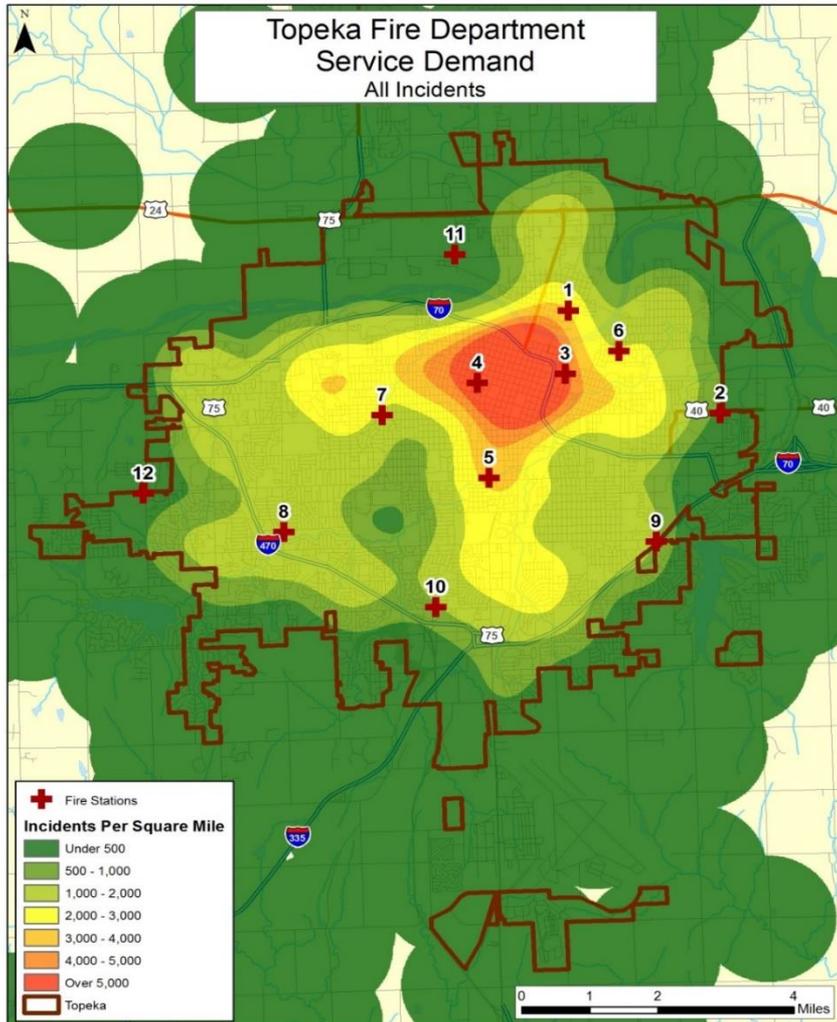
Future Delivery System Models

- Close Gaps



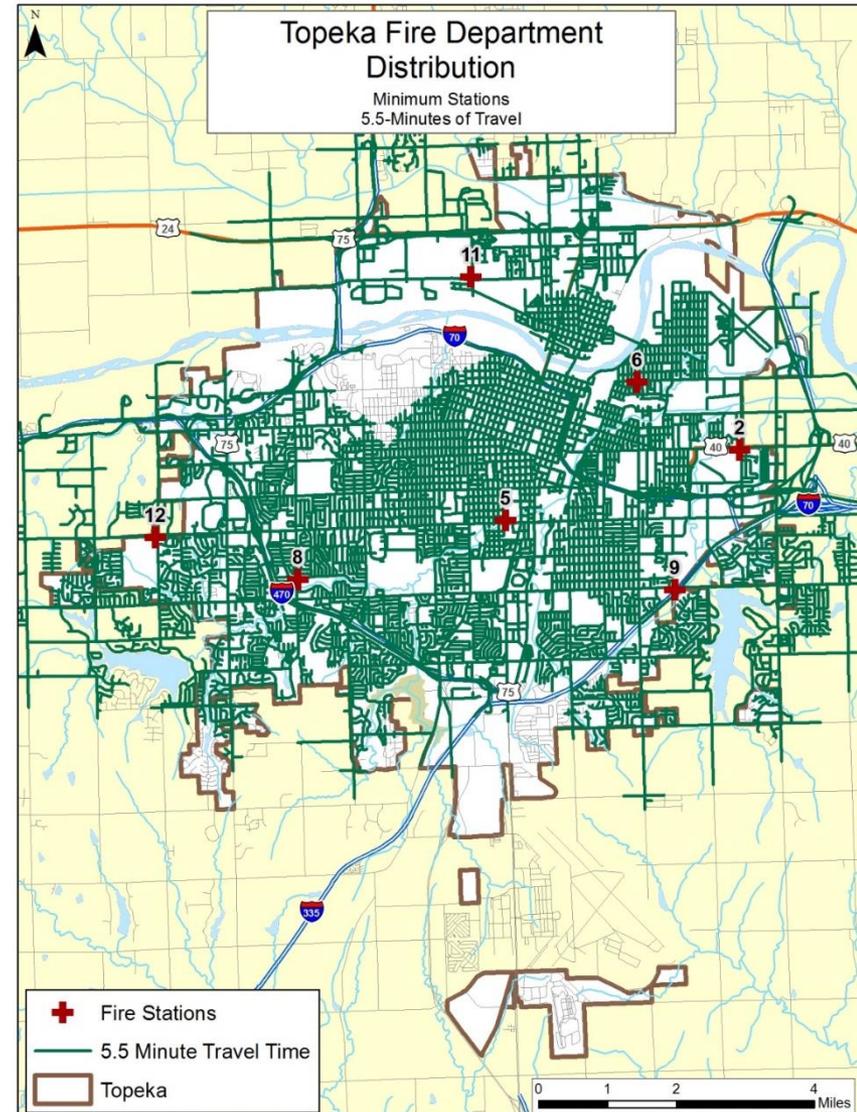
Future Delivery System Models

- Reduce Redundancy



Future Delivery System Models

- **Minimum Stations**
 - 90 Percent of Parcels within 5 ½ Minutes of Travel
 - Not recommended

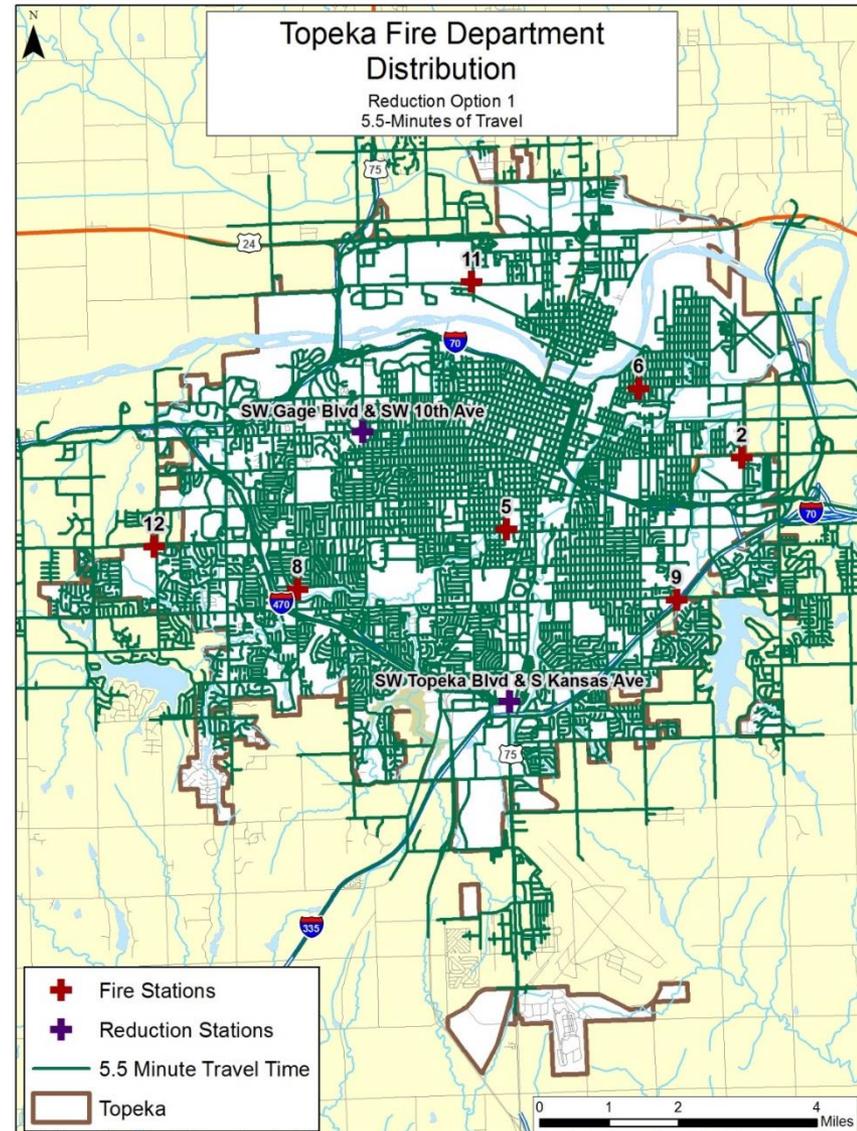


Future Delivery System Models

- **Redistribution Option 1**

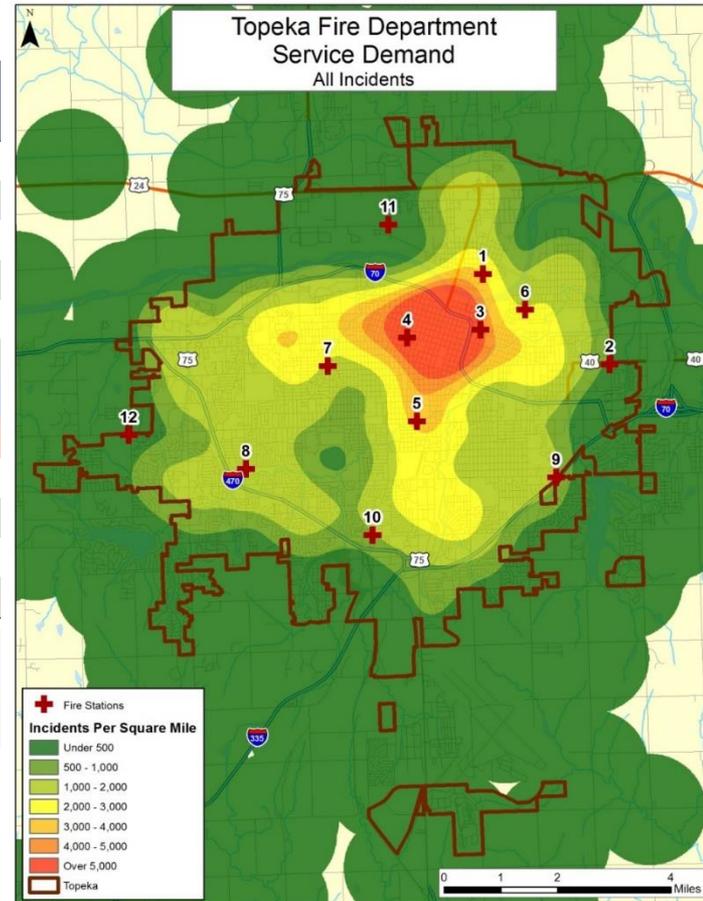
- 98 Percent of Parcels within 5 ½ Minutes of Travel
- Close Stations 1, 4, 7, and 10
Not recommended to close Station 3
- New Stations
SW Gage Blvd & SW 10th Ave*
SW Topeka Blvd & S Kansas Ave

*SW 6th Avenue between SW Fairlawn Road and SW Wanamaker



Future Delivery System Models

Station	Station Territory						
	1	2	3	4	5	6	7
1	76.64%	0.08%	13.49%	2.25%	0.25%	1.60%	0.25%
2	0.12%	68.12%	19.34%	2.35%	2.83%	1.03%	0.07%
3	1.68%	2.67%	73.61%	7.25%	2.61%	3.15%	3.30%
4	0.07%	0.18%	6.23%	70.37%	8.82%	0.04%	9.05%
5	0.65%	0.22%	10.28%	30.65%	34.64%	0.31%	3.96%
6	2.83%	3.32%	4.29%	0.28%	0.12%	82.17%	0.09%
7	0.02%	0.34%	2.39%	17.60%	12.10%	0.21%	59.65%
8	0.17%	0.03%	0.20%	0.46%	15.08%	0.01%	12.14%
9	0.03%	2.27%	5.54%	0.16%	13.30%	1.98%	0.18%
10	0.12%	0.04%	2.02%	5.56%	4.17%	0.02%	7.37%
11	19.60%	0.00%	0.96%	8.49%	1.16%	0.33%	2.64%
12	0.00%	0.00%	0.51%	1.72%	9.01%	0.00%	2.60%



Findings and Recommendations

1. Turnout time performance is higher than expected and should be monitored to ensure that personnel are getting en route to incidents in a timely manner. This will further reduce overall response time.
2. In order to maintain the current level of service, it is possible to close several stations and relocate others, as noted below:
 - a. Close Stations 1, 4, 7, and 10
 - b. Construct two new stations at:
 - i. SW Gage Blvd & SW 10th Ave*
 - ii. SW Topeka Blvd & S Kansas Ave

Findings and Recommendations

3. An additional engine would be necessary at Station 5 to complement the ladder already housed there
4. An additional engine would be necessary at Station 11 to complement the current resources and provide sufficient coverage to the northern areas of the City
5. In order to reduce gaps in ladder/rescue coverage, the City should consider adopting an eight minute travel model for those resources
6. Since a majority of the department's workload is medical in nature, the City should consider alternatives to the current response protocol including implementation of smaller response vehicles for non-structural response.
7. Adopt a response performance objective of 7:00 minutes when measured at the 90th percentile.



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Further Discussion

