DEPLOYMENT

Apparatus and Companies
Response Time Definitions

• Total Response Time (Research Definition) – The time from flaming ignition to fire department action.
• Total Response Time (Standards Definition) – The Time from when the alarm is received to the arrival and action of the fire department.
• Travel Time – Basically Wheel Stop to Wheel Stop, or from the times the unit rolls to the time it arrives at the incident scene.
• Note: Typically Fire Station Location analysis are based on the Travel Time Definition.
Standards and Regulations

- NFPA – Establishes Standards based on intensive research through partnerships with various organizations, agencies and major Universities.
- OSHA – Develops and enforces regulations based on research, adopts and enforces NFPA Standards.
- ISO – Develops Standards and Insurance Requirements based on Research, adopts NFPA and OSHA Standards and Regulations
Fire Company Types

- **Engine Company** – Utilizes a Fire Engine, typically a Multi-Hazard Response Vehicle, carries specific equipment and performs certain defined tasks at a Structure Fire.

- **Service Company** – Utilizes a support vehicle commonly referred to as a Squad or Rescue, and carries specific equipment and performs certain defined tasks at a structure fire.

- **Ladder or Truck Company** – Utilizes a truck with an aerial device, carries specific equipment and performs certain defined tasks as a structure fire.

- Although it is frowned upon in the Standards, at OFD we cross train our personnel with the ability to handle the duties of all company types.
NFPA 1710

Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments
A Basic Life Support, Fire Department Based First Response will respond within a 4 minute travel time 90% of the time.
NFPA 1710 Deployment
Response Time – Structure Fire

• A Fire Engine, Staffed and Equipped to perform Engine Company Duties, will respond within a 4 minute travel time 90% of the time.

• The remaining required compliment to a structure fire on the initial alarm will arrive within 8 minutes 90% of the time.
ISO (Insurance Rating)

• Engine Companies are to be so deployed as to have a primary response area no larger than 1.5 road miles from the Fire Station, and/or to have a response time of not greater than 4 minutes.

• Service and/or Truck Companies as required, are to be so deployed as to have a primary response area no larger than 2.5 road miles from the Fire Station.

• All initial alarm required units must be at the scene within 8 minutes.
How is Compliance Determined?

1. GIS Mapping, Road Miles
2. GIS Mapping, Estimated Response Times
3. GIS Mapping, Plotting Actual Response Times
OBD Deployment

Station #1
- Command Officer
- Engine 1
- Rescue 1
- Ladder 1
- Reserve Engine 11

Station #2
- Engine 2
- Reserve Ladder 12

Station #3
- Engine 3
- Reserve Engine 13

Station #4
- Engine 4
- Reserve Engine 14

Station #5
- Engine 5
- Ladder 5
- Reserve Rescue 5
OFLD 1.5 Road Mile Deployment
76.86% Coverage by Road Miles
Goal: 90%
Station Location
Engine Co. Deployment

Avg Resp Time Last 3 Years

GOAL
Engine Co. within 4 minutes travel time for 90% of the area

Actual
Response Time at or below 5 minutes for all calls for service types = 81.2%

Average Response Time for All Call Types for the Last Three Years Combined = 4:58 Min

Note that this response time is from time of dispatch to arrival
To compare this directly with the travel time requirement, we typically assume an average turn out time of 60 seconds. Therefore, we can assume that this is close to the actual 4 minute travel time amount. Summary: For Engine Co. deployment we are 13% outside the ISO road mile requirement, however only currently 9% outside the NFPA 1710 Standard for actual response time.
Ladder/Service Deployment

• A Service Company is required within a road mile maximum of 2.5 miles.

• A Service Company must be a Ladder Company in the following situations:
  – There are 5 or more buildings in the zone 3 or more stories in height, or at a total height of 55 feet or more.
  – There are 5 or more buildings that have a needed fire flow (NFF) at or greater than 3500 gpm.
  – Or at least 5 buildings that meet any combination of the above.
Ladder/Service Deployment

• In some instances, a response zone that does not have a primary Service or Ladder Company for initial response (within the 2.5 mile zone), can utilize such a Company from another zone.

• This is no longer valid when/or if:
  – The area outside the 2.5 mile zone reaches more than 50% of the total response area for that Station.
  – The area outside the 2.5 mile zone has more than 10% of the area with a response time of greater than 8 minutes for that Service or Ladder Company.
The City has been using the exemption for many years as the East Side of the City has grown. We have been lucky as ISO has a “built upon land” exemption to NFPA 1710.

While we have technically been in the Service Co. requirement for a few years, the addition of the Hospital, Menards, Miejer, Courtyard, the Assisted Living, and the 54 Tif area will place us in the Ladder Service Requirement parameters.
Response Criteria Percentiles

- Insurance Rating Goal 90%
- Owensboro Fire Department Goal 85%
- Current Road Mile Percentile 77%
- Current Actual Response Percentile 81%
Deployment Questions

Step #1

Has the response area zones on the East and Southeast side of the City, currently covered by Station 2 and Station 4, reached the point where 50% or more of the area is outside current Ladder/Service Response Zones?

YES

= Service Co Required

Step #2

In the response zone(s) for the East and Southeast side of the City, currently covered by Station 2 and Station 4, that our outside the current Ladder/Service Response Zones, are there currently or expected to be 5 or more structures that are 3 or more stories or at a total height of 55” or more; or are there currently or expected to be 5 or more buildings with a needed fire flow of 3500 gpm or more; or are there currently or expected to be any combination of the above?

YES

= Service Company must be a Ladder Company
Deployment Questions

Step Three in the process is looking for Critical Infrastructure in the area of question. Since the requirement is met with only the first two steps Step #3 is not needed, however the answer in Step # 3 would also be “Yes.”
Filling in the East/SE Gaps
East Side Ladder Truck At Station #2
Deployment

Staffing
# Staffing

**NFPA 1710**
- Engine Company – minimum of 4 on duty personnel
- Ladder/Service Company – minimum of 4 on duty personnel
- Total Personnel on initial alarm – Depends on structure type and size with a minimum of 16.

**ISO**
- Engine Company – minimum of 5 on duty personnel
- Ladder/Service Company – minimum of 6 on duty personnel
- Total Personnel on initial alarm – Depends on structure type and size with a minimum of 17.

**OFD**
- Engine Company – minimum of 4 on duty personnel
- Ladder Company – minimum of 1 on duty personnel
- Rescue/Service Company – minimum of 2 on duty personnel
- Total Personnel on initial alarm – Depends on structure type and size with a minimum of 12.
Staffing Percentiles

• Insurance Rating Goal = 100%
• OFD Staffing Percentile = 76%

What would it take to get OFD to the 85 percentile as per the OFD Goal?

9 Additional personnel not to include the East Side expansion.

What would that cost?

$528,000 in salary and benefits annually, plus normal entry level start up costs.
OPTIONS
ISO Recommendation

1. Consider a redeployment of Stations to reach the 90% coverage requirement.
3. Add a Service Company to the West/NW Side of the City.
4. Maintain a Reserve Ladder Apparatus.
5. Increase Staffing on all Ladder Companies

Immediate Planning Focus: #2 and #4.
OPTIONS

Do not keep up with City Growth: Do Nothing.

Keep up with City Growth:
• Add a Third Ladder Company to the City, placing it initially at Fire Station #2
  • Purchase a 75’ to 80’ single axle Quint Ladder Truck Apparatus
  • Hire 6 personnel for 24 hour coverage of 2 per day (50 percentile)
  • Maintain one reserve aerial apparatus

Meet 90 percentile:
• Would require considerable investment

It is very important to understand that the recommendation to place a Ladder/Service Company in service at Fire Station #2 is not considered an enhancement or improvement in service. This action is simply maintaining the same level of service as the City Grows.
Does this improve the Response and Staffing Percentiles?

• Slows the bleeding from growth, keeps the response percentile from continuing to drop for that section of the City
• Maintains the status quo
• Is not an enhancement of service
• Does improve the portion of the response percentile that deals directly with service/ladder companies.
• Does not improve staffing percentile.
Disadvantages of Delay

- The exemption is no longer valid, thus the area in question will not have the same level of service as the “inner loop” area of the City.
- Increased risk for the property owners and occupants.
- Increased work load on Fire Units outside the response zone.
- Continued prolonged response times to the area in question.

RISK:

Risk is covered by the insurance industry. The lower the risk, the lower the insurance rates; the higher the risk, the higher the insurance rates. Delaying this action will have some affect on the overall insurance rating of the City, but not quite as much as the area in question. ISO will look at individual commercial and industrial properties in the area, and adjust the individual ratings as needed. For example, the City could have a 2 rating, but ISO would drop certain properties in the area of question to a 3 or 4. This would raise insurance rates 20% or more.
PROPOSED TIMELINE

- March 2017 – Develop specifications for Ladder 2
- May 2017 – Order Ladder 2
- November 2017 – Begin Hiring process
- March 1, 2018 – New Personnel start training
- May 1, 2018 – New Ladder Truck Delivered
- July 1, 2018 – Ladder 2 placed in service
Who Establishes the Level of Service?

- Elected Officials establish Level of Service through the budget process
- City Manager and Fire Chief determine the best way to utilize the fiscal means to provide services to the Community