LIBERTY TOWNSHIP FIRE DEPARTMENT

COMMUNITY RISK ASSESMENT/STANDARDS OF COVER 2022

Introduction

This Community Risk Assessment and Standards of Cover (CRA/SOC) serves as the Liberty Township Fire Department (hereto in referred to as the department) Community Risk Management Plan. The Commission on Fire Accreditation International (CFAI) defines the process known as "deployment analysis" as "creating a written procedure that determines distribution and concentration of the fixed and mobile resources of an organization." The CRA/SOC will assist the department in ensuring a safe and effective strategy in its prevention of and response to fires, emergency medical response, rescues of various natures, HazMat and any other human and natural disasters within the jurisdiction.

Creating an CRA/SOC requires that several areas be researched, studied, and evaluated. The following report begins with an overview of the community, the agency, and the community's expectations of the agency. Following this overview, the CRA/SOC discusses the following areas:

- Assessing community fire and non-fire risks
- Conducting critical task analyses
- Defining service-level objectives
- Evaluating distribution and concentration measures
- Documenting reliability studies and historical performance through charts, graphs, and mapping tools
- Adopting benchmark and baseline emergency response performance standards
- Strategic planning relative to the delivery system

Key elements in the development of the CRA/SOC include:

- A community risk assessment identifying the fire and non-fire risks common and unique to the area
- A determination of the service levels to be provided within the jurisdiction
- An analysis of response capability in terms of time and on-scene performance for personnel and equipment

The CRA/SOC concludes with a description of the process used to develop and provide recommendations on how resources should be allocated and deployed in the future to the current response effectiveness throughout the jurisdiction.

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Executive Summary

The department is seeking accreditation for the first time. The department recognizes accreditation as a tool to achieve and continue a path of excellence and the never-ending pursuit of self-improvement. The citizens of Liberty Township and Powell expect and deserve no less.

The Commission of Fire Accreditation International (CFAI) explains the Standards of Cover as policies which are internally developed and based on an agency's systematic performance, specifically related to distribution, concentration, and reliability of resources. The department's risk/hazard assessment is based upon comprehensive scoring methodology which includes an extensive risk assessment of occupancies in combination with incident frequency, occupancy density, fire density and response travel times.

Available resources have been allocated to equally distribute coverage throughout the jurisdiction, as well as providing redundancy of coverage to high incident frequency areas. Travel time catchment maps were developed based on the National Fire Protection Association (NFPA) 1710 industry standard travel time benchmark to identify areas of noncompliance. Individual station response, by way of planning zone maps, were analyzed to evaluate noncompliance more thoroughly. Performance gap charts provide a look at the department's level of service delivery.

The department conducted a four-year reliability study of its current emergency service capabilities and performance. Although the department currently provides effective services to the community, opportunities for improvement have also been identified. Travel times have been analyzed for both first arrival and effective response force for all types of emergency incidents according to their specific risk classification.

Based on capabilities, critical tasking, and historical performance, the department has developed response performance objectives as part of this Community Risk Assessment: Standards of Cover. These time sensitive objectives were designed to provide realistic expectations for each type of service provided by the department and as previously stated, relative to a specific risk classification. The goal of the Standards of Cover is to develop credible and realistic recommendations for improvement. The recommendations included have been designed to address various noncompliant areas of the jurisdiction in a fiscally responsible way to better protect the lives and property of its residents.

Expectations

Expectations should be met by the department that align with publics expectations of service delivery and fiscal responsibility. This document is designed to show community expectations and where the department is now and where it will strive through continuous improvement to be in the future.

The taxpayers' money is spent in the best interests of firefighter and community safety, and that the fire department will provide the services that are needed to keep citizens safe, will respond in a timely manner with personnel who are trained and experienced. Services will change to meet growing demand because of an increase in population.

The fire chief will inform local authorities of what their options are and what the consequences of their decisions will be and that the fire department is a partnership with local government in community protection.

The fire chief will manage the department in compliance with local, state, and federal laws and regulations.

The apparatus and equipment purchased will meet the needs of the public today and in the future.

The fire department has mutual-aid agreements with other agencies and departments for those calls that require greater resources than the fire department has on-hand and is part of a regional response network for infrequent but important response situations such as hazardous materials response or technical rescues.

The fire chief is accountable for the money they give to the fire department, and the fire chief has a strategic plan for growth.

Alignment with Goals, Fire Service Practices and Fire Service Standards.

This document is aligned with the Fire Department's Strategic Plan and addresses the department's community risk and disaster assessment requirements as outlined in the following standards:

• NFPA 1600 – 2016 Ed., Standard on Disaster/Emergency Management and Business Continuity Programs, §5.3 regarding risk assessment

• NFPA 1710 – 2020 Ed., Standard for The Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public By Career Fire Departments, §4.2 regarding community risk management

In addition, the department through its Self-Assessment has addressed many other facets that are directly tied to emergent and non-emergent response including:

• Risk Assessment

• Incident Documentation

• Media/Political Considerations

• Standards

• Legal Mandates

• Capability Assessment

• Damage Assessment

• Emergency Operations

• Integrated Emergency Management System (IEMS)

• Multi-Agency Coordination Systems (MACS)

• Emergency Operations Center (EOC)

• Emergency Information Systems

These additional items were applied to the Community Risk Assessment/Standards of Cover Document to re-affirm and strengthen data and qualitative/quantitative evaluations.

Acknowledgments

On behalf of the department, I would like to acknowledge the following individuals who participated in the development of this Standard of Cover. Without their assistance and belief in the process this entire project would not have been possible, nor would it be a document that sets forth a dynamic plan for the next five years. As the community changes and grows, departmental leaders now have a valuable tool to assist with strategic planning. This ongoing process will help the department meet or exceed the needs of our beloved community and ensure a safe, efficient, and effective response force for the all-hazards risks found throughout our jurisdiction.

Chief Thomas J. O'Brien

Lt. Timothy R. Jensen, Accreditation Manager

Battalion Chief William Piwtorak

Battalion Chief Jim Reardon

Battalion Chief Duane Price

Firefighter/Paramedic Josh Barnhart

Firefighter/Paramedic Matt Bowman

Lt. Brian Niemet

Lt. Ryan Hanf

Lt. Ben Lovell

Firefighter/Paramedic Jason Miller

Inspector Shad Gilbert

Rick Karr, Liberty Township Fiscal Officer

Lee Ann Weer, Liberty Township Assistant Fiscal Officer

Firefighter/Paramedic Scott Simmons, President IAFF L3754

Brenda Lindeboom, Administrative Assistant to the Fire Chief

Cathy Buehrer, Human Resource Generalist

Delaware County 911

Del-Co Water Company

Section 1-Documentation of Area Characteristics

Liberty Township

Powell

1.1-Community History

Nestled between the Olentangy and Scioto Rivers, Liberty Township was first settled in 1801 by Nathanial Carpenter, a revolutionary war veteran. Originally known as Middlebury and Hall's Corner, the Village of Powell was re-named in 1857 after a Delaware City Judge Thomas Powell assisted with the establishment of a local post office.

Liberty Township is transected by several state routes including S.R.'s 750, 315 (a recognized scenic by-way) and 257. A portion of U.S. Route 23 cuts diagonally across the northeastern corner of the Township.

The CSX Railroad operates two rail lines that bifurcate the Township and City of Powell. Through the end of the 1980's, Liberty Township and the Village of Powell were considered rural with a combined population of less than 5,000. With the 90's came an explosion of residential, educational and commercial development.

In 1969 the Del-Co Water Company was established in Liberty Township to provide dependable and safe drinking water to southern Delaware County. Today, this private water company provides service to over 44,000 customers. (https://delcowater.org/about/) (Del-Co Water Company, 2020) Serving one third of Delaware County's residence, Liberty Township hosts one of the Delaware County Regional Sewer District plants.

Liberty Township is 33.4 (32.8 land and .5 water) square miles and is in southern Delaware County. The City of Powell is 4.93 square miles (U.S. Census Bureau) of Liberty Township. The Township is bordered by the City of Delaware on the north and by Franklin County and the Cities of Columbus and Dublin on the south.

1.2- Governance

Liberty Township is governed by a Board of three elected Trustees, each serving a four-year term. The Board has the responsibility to maintain township roads, cemeteries, and parks and provide for safety services and zoning as residents deem necessary. This governance is provided through the Ohio Revised Code Section 505. The township is responsible for road maintenance, cemetery management, and fire protection and emergency medical services, and zoning.

Every other year, half of the township officials are up for election. For example, in 2021, two township trustees are up for election. In 2023, the remaining township trustee and the fiscal officer will be up for election.

Township trustees and fiscal officers serve four-year terms, unless an official retires or steps down, at which point someone is appointed to carry out the remainder of the term. Term of office for a township trustee begins Jan. 1 following election, and township fiscal officers start April 1 after election.

Township trustees and fiscal officers must take an oath of office. That oath is administered by an elected or appointed official.

Current Officials

Shyra Eichhorn – Board President

Bryan Newell- Trustee

Scott Donaldson- Trustee

Rick Karr- Fiscal Officer

1.3 Fire Department History

On September 11th, 1947, the Liberty Township Trustees passed unanimously a resolution to establish a fire department and Liberty Township Fire District's #1 and #2 were created. Fire District #2 (later changed to Liberty A) provided protection for "portions of the township south of Rathbone Road or G.I.S. Road (Home Road) and including the Village of Powell". Fire District #1 (later changed to Liberty B) provided protection for properties north of Home Road. For a period, District #1 was a part of the Stratford Fire Department. It was also known as the Five Township Fire Department. The five townships were Brown, Berlin, Troy, Delaware, and Liberty. Fire District #1 stored a fire truck on Stratford Road adjacent to the intersection of U.S. Route 23 and S.R. 315. During the day, the building served as an automotive repair garage the fire truck was pulled outside. After hours it was placed inside.

Fire District #2 was located 44 North Liberty Street in the heart of Powell. The fire station served until 1990 and today serves as the *Powell Innovation Center.*

With the relocation of the Stratford fire station to the north, and a determination by the State of Ohio auditor regarding Liberty Township's separate funding for the two districts not being legal, the decision was made to combine Liberty A and Liberty B into a single volunteer fire department.

Service Milestones

09/11/1947 – Resolution to establish fire department

North of Home Road (G.I.S./Rathbone) fire district #1

South of Home Road (G.I.S./Rathbone) fire district #2

07/19/1948 – Tax Levy for operations and district names changed

North of Home Road is LTFD "B"

South of Home Road is LTFD "A"

08/12/1948 – Resolution for 44 North Liberty Street property for fire station and fire truck

11/15/1948 – Contract with Brown, Berlin, Troy & Delaware Townships to service Liberty "B".

Bob Rae was Fire Chief, Red Blair and George Pinney were Asst. Chiefs

05/23/1949 – Purchase John Bean fire truck ($8,228)

09/07/1949 – Purchased 44 North Liberty Street (Canfield's Garage)

11/11/1949 – Purchased 2 gas masks, siren, and fire extinguisher

02/1951 – First Emergency Squad was purchased from Devore Funeral Home (Sunbury)

- Mr. Dennison donated an Emerson Inhalator-Resuscitator
- Purchased Ford truck for grass fires

03/1952 – Delaware County Firefighters Association started by LTFD

03/1952 – Departments begins providing early EMS service

11/01/1953 – Liberty and Berlin Township dropped out of the "5 Townships" Central Fire Department

1959 – 2nd used medic was purchased

First Aid training wasn't enough, so they held EMT class (Squad Training)

1964 – New Ford fire truck purchased

1966 – New squad purchased

1973 – Chief Fred Reeves retires. Mel Morgan becomes the fire chief

1975 – New squad purchased (yellow and white Dodge van)

1976 – New fire truck purchased, "Big Yellow Machine" – FMC John Bean Company

1980 – Tom Brown becomes the departments first Paramedic

1982 - Rescue Truck/Sutphen $47,000

1988 - Purchased Sutphen Engine

1989 - October, First Full-Time Fire Chief; John Bernans

1990 - January, first full-time firefighters hire: Lt. Tom Stewart, Tom Brown.
- February, additional full-time firefighters hired: Tim Jensen, Paul Renzetti, Mike Wells

1991 - Purchased E-One 75' aerial device and 2000-gallon tanker truck

1995 - Established full-time Fire Prevention Bureau; Lt. Tim Jensen

1998 - Purchased Sutphen Engine

2001 - March, Lt. Sally McCann-Mirise hired to Fire Prevention Bureau

2003 - April, FPB created new inspector's job, Jim Reardon appointed to position

-August, construction begins on Fire Station 322, located at 10150 Sawmill Pkwy.

2004 - June, Fire Station 322 opens for business (06/28/04)

- Fire Prevention Bureau moves to FS322

- June, FPB created new inspector/public educator position. Jack Allen appointed

2006 - Purchased 2 Ford Explorers (Fire Chief & Safety Captain)

2007 - Purchased Dodge Durango (EMS Supervisor)

2008 - Purchased Sutphen Engine (E322)

- Purchased Horton Medic (M321)

2009 - Chief John Bernans retires

- Timothy R. Jensen appointed Fire Chief

2013 - Purchased Horton Medic (322 Freightliner)

-Created Battalion Captain Positions (Bill Piwtorak, Duane Price, Jim Reardon)

2016 - Purchased Sutphen Engine (322)

-Purchased Horton Medic (321)

-Battalion Captain title change to Battalion Chief

-William “Billy” Fields was appointed as Interim Fire Chief

-Thomas J. O’Brien appointed Fire Chief

2017 - Purchased new Battalion Chief and Fire Chief vehicles.

2018 - M322 remounted on new Ford F-550 chassis

2019 - Purchased new Engine/Rescue 321 and ordered new Sutphen 100-foot platform

2020 - Hired 10 new firefighters via Assistance to Firefighters Grant (AFG)

2021 - Became a Candidate for Accreditation

- Initiate design work to replace current Station 321

1.4 - Fire Protection Class Rating

The Insurance Services Office (ISO) serves the insurance marketplace with statistical, actuarial, underwriting, and claims data, policy language, information about specific locations, fraud identification, and information for marketing, loss control and premium audit. Through their Public Protection Classification (PPC) program, ISO evaluates municipal fire protection efforts in communities throughout the United States.

The Insurance Services Office PPC is no longer being used by all insurance companies, as some insurance companies are using statistical information based on zip codes. Insurance Services Office provides two primary support roles to the fire department in hazard analysis and needs assessment. The Municipal Fire Suppression Rating\ Schedule evaluates three major areas of the fire department operation:

• Fire Department,

• Water Supply, and

• Receiving and Handling Fire Alarms.

When completed, the process provides an assessment of each area, complete with ratings which are translated into an insurance rate for the community. The process also facilitates the development of improvement statements, indicated deficiencies, and needed improvement in staffing, water supply, equipment, apparatus, pumping capacity, aerial capacity, etc.

The rating is based on a scale of Class 1 to Class 10 (Class 1 being the best). The lower the rating, the lower the insurance premium cost. The last such evaluation was conducted in 2019. The department is rated a public protection Class 3 for insurance rating purposes and reflects that community fire suppression services are improving in the face of the demands of a changing environment.

1.5 - Current Level of Service, Personnel and Staffing

An effective response force is the minimum staffing and equipment required to reach an emergency scene within a prescribed travel time. An effective response force should handle fires that occur shortly after they start and are within the maximum travel time for the full assignment of fire companies according to the structure's risk level. An effective response force for EMS incidents should occur shortly after the medical incident occurs and are within the maximum travel time for the full EMS assignment.

The community's ability to reduce to zero fire risk or zero medical risk is not realistic. The community must establish a level of protection based on the public desires and its financial ability. The department recommends that staffing and facility coverage be based on the most likely events that occur within its jurisdiction and not based on the most severe risks. The department should deliver an effective response force for the most likely events that occur, from the expected to the unexpected and provide the community with an all-hazards approach to customer needs.

The department is considered by the industry as a full-service provider of emergency and non-emergency services. All response provides advanced life support services, and all paramedic vehicles provide patient transport. Services are provided from two fixed locations (fire stations) which are strategically located throughout the community. Operations are currently handled by personnel working a traditional 24-hour shift, with 48-hours off, with earned time off given to avoid an automatic overtime cost. A Battalion Chief is responsible for the assignment of personnel at all Fire Stations. Each shift is funded for 17 full-time firefighters plus two part-time paramedic/firefighters. However, with accrued leaves staffing is typically at a minimum of 14 on-duty personnel which by contract cannot drop below 12. To ensure the proper staffing and distribution of personnel, the Department has identified the minimum staffing level of the various types of units operated.

Staff	Station 321	Station 322
18	Battalion 321- 1 Engine/ Rescue 321-4 Ladder 321/ Medic 323- 3 Medic 321-3	 Engine 322- 4 Medic 322- 3
17	Battalion 321-1 Engine/ Rescue 321-4 Ladder 321/ Medic 323-3 Medic 321-3	 Engine 322-3 Medic 322-3
16	Battalion 321-1 Engine/ Rescue 321-3 Ladder 321/ Medic 323-3 Medic 321-3	 Engine 322-3 Medic 322-3
15	Battalion 321-1 Engine/ Rescue 321-3 Ladder 321/ Medic 323-3 Medic 321-2	 Engine 322-3 Medic 322-3
14	Battalion 321-1 Engine/ Rescue 321-4 Medic/ Ladder 321-3	 Engine 322-3 Medic 322-3
13	Battalion 321-1 Engine/ Rescue 321-3 Medic/ Ladder 321-3	 Engine 322-3 Medic 322-3
12	Battalion 321-1 Engine/ Rescue 321- 3 Medic/ Ladder 321-3	 Engine 322- 3 Medic 322-2

1.6- Resource Deployment

Located at 7761 Liberty N, Station 321 it was built in 1990 to meet the needs of the growing community. It is dedicated to the late Fire Chief John Bernans, who was the first full-time fire chief in Liberty Township. His strong leadership built the award-winning organization it is today. This station houses Battalion 321, Engine Rescue 321, Ladder 321, Medic 321, Grass 321, and the Water Response trailer. This station has the primary responsibility for serving our planning and response zone one.

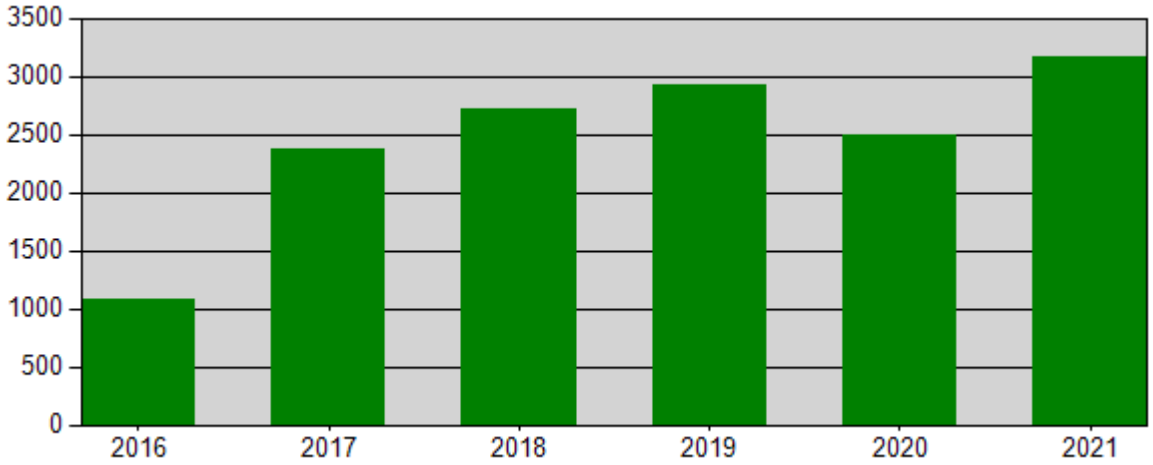
In 2004 Liberty Township Fire Station 322 was built to increase response times to the most densely populated areas of Liberty Township and the City of Powell. Located at 10150 Sawmill Pkwy, this station houses the Liberty Township Fire Prevention Bureau, as well as Engine 322, Medic 322, and the Fire Safety Trailer. This fire station is dedicated to Dr. Robert Cape, DVM, who worked tirelessly as a Liberty Township trustee to ensure the successful future growth and development of our community for many years, building a solid foundation for the future growth and development in the township. This station has the primary responsibility for serving our planning and response zone two.

1.7 Funding (Financial Basis)

Operating funds for the fire department are derived from property taxes and billing for emergency medical services. The levied property taxes are voted and approved by both the residents of Liberty Township and City of Powell. Powell residents pay the same 5.9 milage as Township residents. For the fiscal years of 2018-2023, the levy provides 97% of the operating funds while EMS Billing and Fire Prevention Bureau permits constitute the remaining 3%. A Tax Increment Financing Agreement for development in the City of Powell provides an additional $70,000 plus of revenue. For Fiscal Year 2019-2020 the budget was $9,714,460.00.

1.8 - Request for Service (Call Volume Trend)

The department is a full-service department. It responds to a multitude of requests for service from the community. Most responses are for medical incidents which are 69.35% of total responses annually.



YEAR	INCIDENTS
2016	1074
2017	2370
2018	2713
2019	2920
2020	2487
2021	3163

DEPARTMENT CHARACTERISTICS IV - CALL VOLUME DATA			
Call Volume - General	**2021**	**2020**	**2019**
a. Fires	37	39	37
b. How many EMS-BLS Response Calls	333	347	353
c. How many EMS-ALS Response Calls	821	647	807
f. Vehicle Extrications	3	0	3
g. How Many Community Paramedics Calls	0	0	0
h. Other Rescue	2	5	6
i. Hazardous Condition/Materials Call	1	0	1
Call Volume for Emergency Medical Services	**2021**	**2020**	**2019**
a. Total calls Requiring transport, exclusive of scheduled transport\declared above	479	358	426
b. All Other Calls and Incidents not declared above, including fire, good intent, etc.	2190	1846	2165
Call Volume for Fire Department	**2021**	**2020**	**2019**
a. Fires - NFIRS Series 100	37	39	37
b. Overpressure Rupture, Explosion, Overheat (No Fire) - NFIRS Series 200	6	2	6
c. Rescue & Emergency Medical Service Incident - NFIRS Series 300	1949	1588	1887
d. Hazardous Condition (No Fire) - NFIRS Series 400	98	107	95
e. Service Call - NFIRS Series 500	134	143	189
f. Good Intent Call - NFIRS Series 600	137	111	137
g. False Alarm & False Call - NFIRS Series 700	306	208	239
h. Severe Weather & Natural Disaster - NFIRS Series 800	2	5	0
i. Special Incident Type - NFIRS Series 900	0	1	1

Call Volume for Fires:	**2021**	**2020**	**2019**
a. Of the NFIRS Series 100 calls, how many are “Structure Fires” (NFIRS Codes 111-120)	23	21	13
b. Of the NFIRS Series 100 calls, how many are “Vehicle Fires” (NFIRS Codes 130-138)	0	3	6
c. Of the NFIRS Series 100 calls, how many are “Vegetation Fires” (NFIRS Codes 140-143)	8	11	12
d. What is the total acreage of all vegetation fires?	0	0	0
Call Volume for Rescue and Emergency Medical Service Incidents:	**2021**	**2020**	**2019**
* How many responses per year by category? (Enter whole number only. If you have no calls for any of the categories, Enter 0)			
a. Of the NFIRS Series 300 calls, how many are “Motor Vehicle Accidents” (NFIRS Codes 322-324)	140	93	114
b. Of the NFIRS Series 300 calls, how many are “Extrications from Vehicles” (NFIRS Code 352)	2	0	1
c. Of the NFIRS Series 300 calls, how many are “Rescues” (NFIRS Codes 300, 351, 353-381)	2	3	4
d. How many EMS-BLS Response Calls	328	345	350
e. How many EMS-ALS Response Calls	817	646	802
h. How many Community Paramedic Response Calls	0	0	0
Call Volume for Mutual and Automatic Aid:	**2021**	**2020**	**2019**
a. How many times did your organization receive Mutual Aid?	21	20	23
b. How many times did your organization receive Automatic Aid?	155	131	139
c. How many times did your organization provide Mutual Aid?	88	43	42
d. How many times did your organization provide Automatic Aid?	406	240	287
e. Of the Mutual and Automatic Aid responses, how many were structure fires?	33	45	30

1.9 Mission, Vision and Value Statements

Mission

The Liberty Township Fire Department is here to **Protect** the quality of life for our residents, employees and those who visit our community by providing the highest quality Emergency Service Management for Fire, Hazardous Materials, Emergency Medical Services and Disaster Emergencies. **Preserve** the quality of life through the effective and efficient delivery of emergency services in the assigned mission areas of fire suppression, rescue services, emergency medical support, and the mitigation of special hazards that threaten public safety. **Prevent** or minimize harmful effects of fires, medical emergencies, and other types of dangerous events through education.

Vision

Our vision is to focus on quality, cost-effective, all-risk service delivery. We are a responsive and progressive organization with a commitment to excellent leadership and professional accountability. We will achieve this through effective training, technology and adapting to the changing needs of the community.

Values

Professionalism – We will treat our peers and the public with a positive and professional attitude consistently.

Respect – We will respect our personnel and hold the people we serve in high regard.

Integrity – We are honest, trustworthy, and reliable.

Dedication – We expect our service to be worthy, vigorous, resourceful, and courteous.

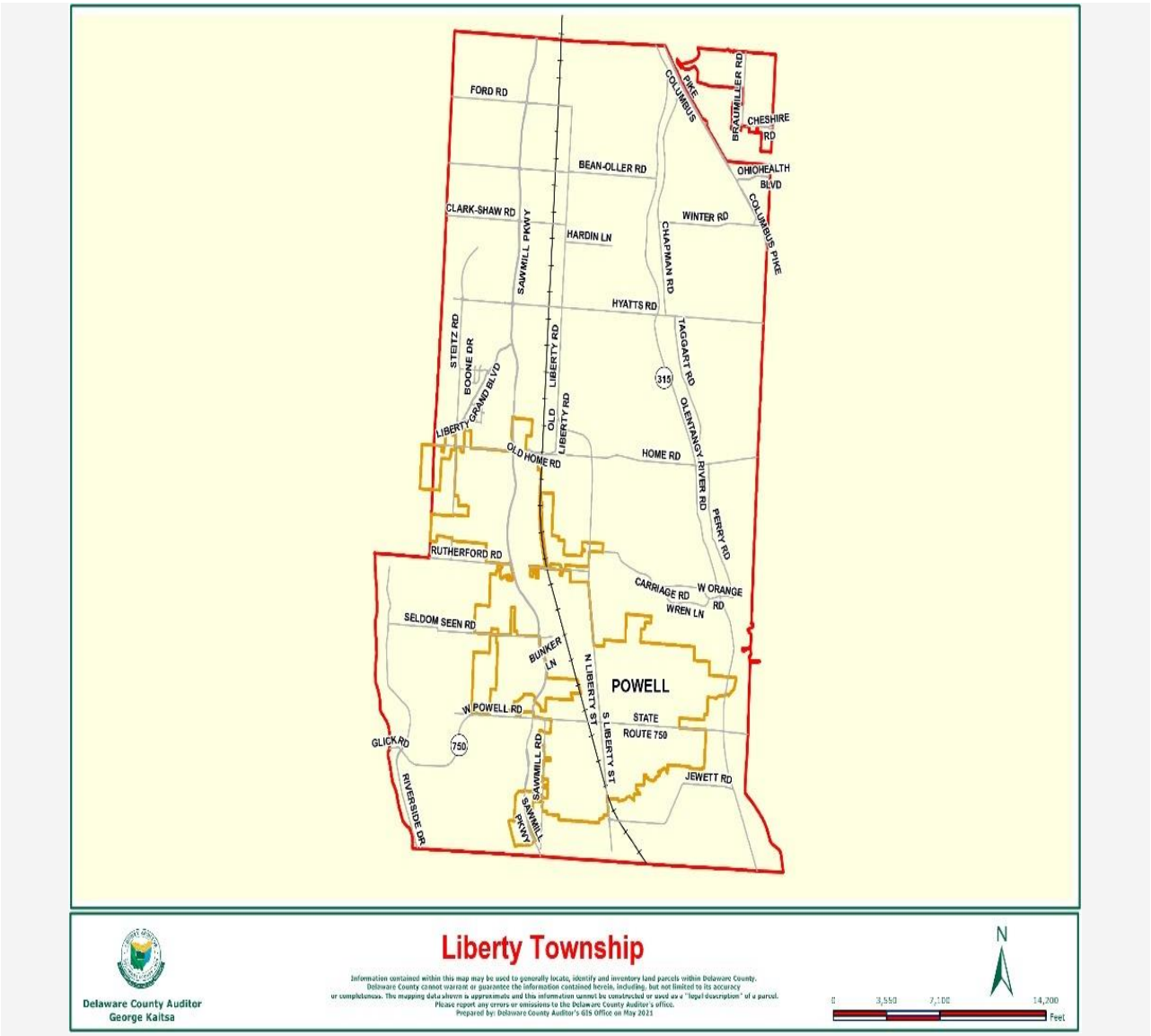
Excellence – To demand the best of ourselves and to recruit/retain the best people, we believe we must maintain an environment that will support innovation, experimentation and taking of appropriate risks.

SECTION 2 A- Assessment and Planning

Liberty Township Fire Department has legally established boundaries adopted by the authority having jurisdiction (AHJ {Liberty Township}) and the City of Powell. The department provides emergency response from two stations or response zones. Automatic aid exists on all run card (Fire Zone areas) for additional units and support to improve the reliability of Liberty Township units. Geographical barriers, traffic, population density and historical data determine the zones. The department uses OVAP scores, 3 axis model for risk assessment, historic data, and county GIS services to establish and continually evaluate response area characteristics. The department can collect and analyze current incident data through the various means which allows the department to develop and evaluate planning goals and objectives created in the Strategic Plan. All fire data is reported to National Fire Incident Reporting Software (NFIRS) which contains property, life, injury, and other associated losses. This section will discuss how the department collects data that is directly correlated to our legally defined services areas and how the data utilized to assist in organizing and developing services.

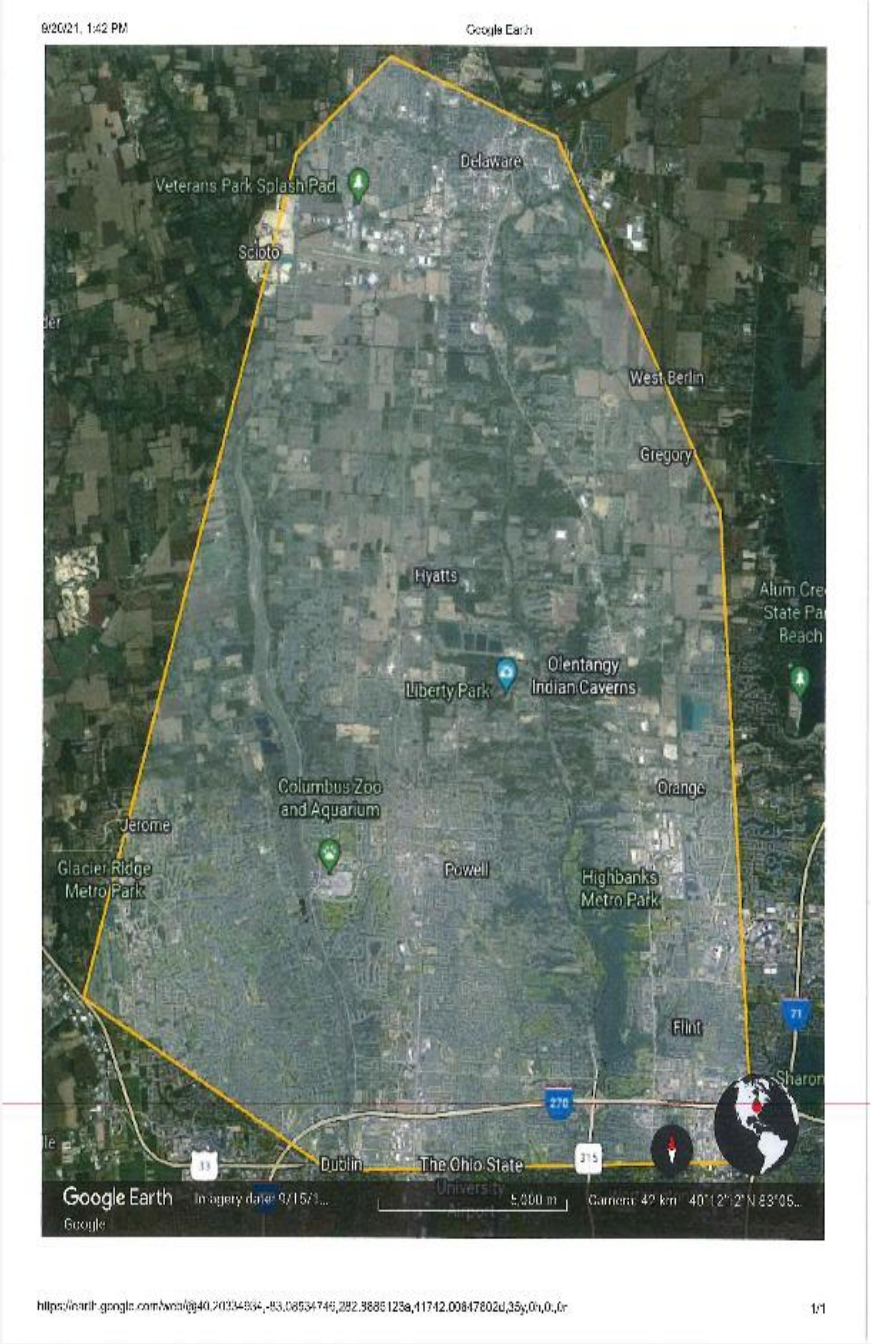
2.1A- Service area boundaries

In Ohio, the township predates our state government. The townships' size and shape were determined by the Congressional Act Land Ordinance of 1785 which established the various land grants. Within each of the Ohio land grants, Congress set aside sections of land for the use of schools and the support of religious institutions. Liberty Township boundaries were established in 1804 and the City of Powell boundaries were established in 1876 and then became a municipal corporation in 1947. Boundaries today are determined by the county commissioners and state legislature.



2.2A- Boundaries for service areas

The department continues to identify and document any annexations that are approved by the authority having jurisdiction (AHJ) and includes them in the service area boundaries for the township. Automatic aid is provided by an agreement through the county or via contractual agreements, such as with the City of Columbus. The Department is a member of Delaware County Fire Chiefs association which is comprised of thirteen (13) fire departments. The Operations Division coordinates with other member agencies, which allows the sharing of resources. Intergovernmental agreements between two other departments increase available resources and provide for a two-way response area.



2.3A-Planning zones

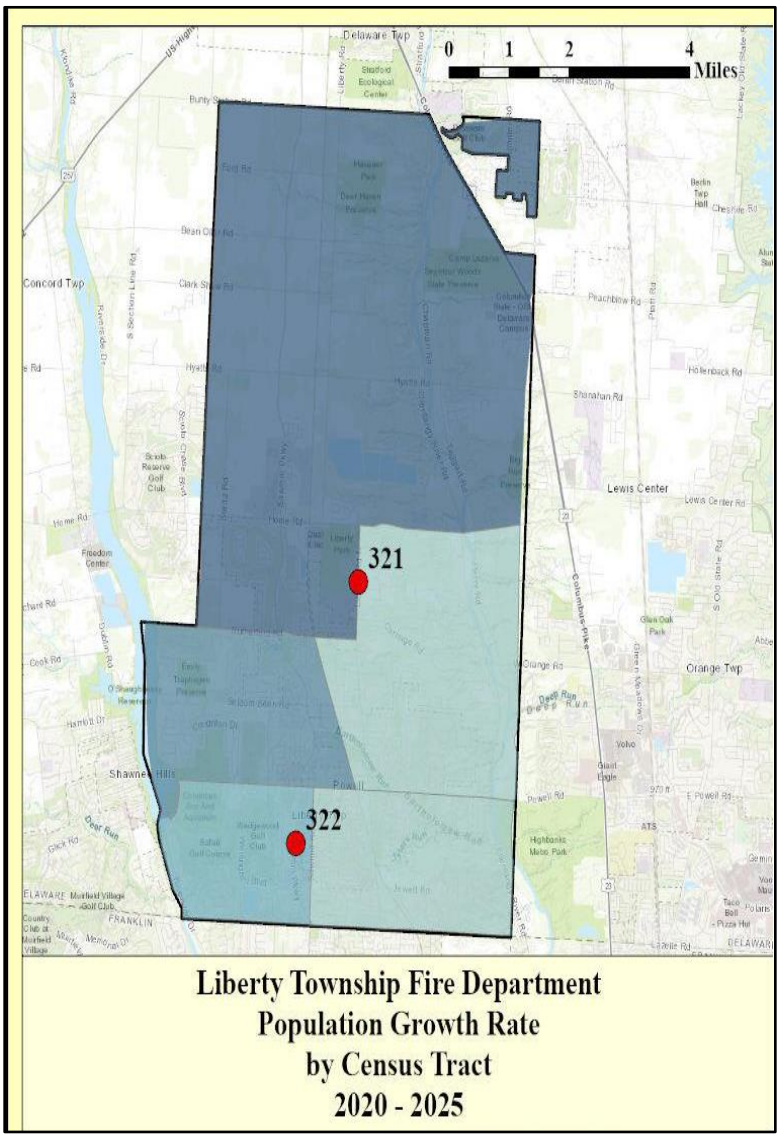
The department has developed a response plan based on the geographical boundaries of the response area. The overall jurisdiction is divided into zones representing first due for station 1 and first due for station 2. Each station zone is then divided into risk management zones, locally known as response zones. The zones are designed to allow additional subdivisions as land use changes over time. Service zones act as a planning tool for evaluating standards of coverage and risk.

The service zones provide a spatial relation to act as service demand zones as defined by historical need for service, physical occupancies within the zone, and population residing within the zone. Service zones are scaled to allow undeveloped land to have applicable historical tracking and perceived risk in relation to their physical area.

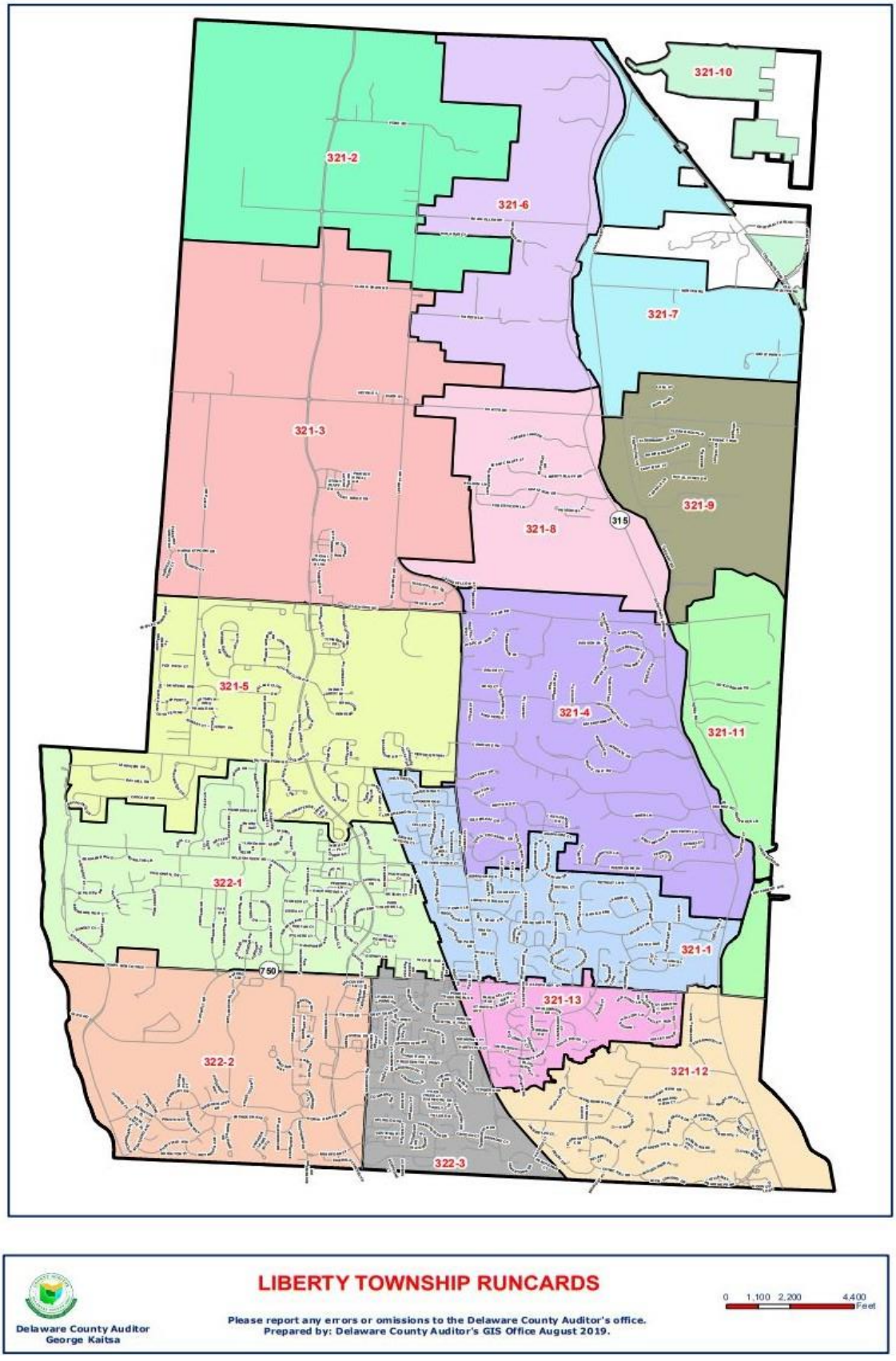
These service zones give the department a more accurate avenue for identifying potential risk, other than relying on census tract data. This tiered effect of service zones allows for more focused planning than would be offered by a polygon of a predetermined size surrounding a fire station.

The department continually addresses the service zone system to ensure accuracy and make changes as annexations occur, land use changes, or historical data evaluation indicates a need for reassignment or change in the physical shape or size of a service zone.

The department has two geographic planning zones (GPZ) based on two fire stations. Zones are determined by geographical barriers, traffic, population density and historical data. GPZs are further segmented down into 16 emergency response zones (ERZ) allowing risk assessments to be more detailed and specific to certain areas. These zones allow the data to be managed, processed, and evaluated in manageable segments. These zones allow the data to be managed, processed, and evaluated in manageable segments. The map depicts the area that is assigned to each of the department's corresponding fire stations.



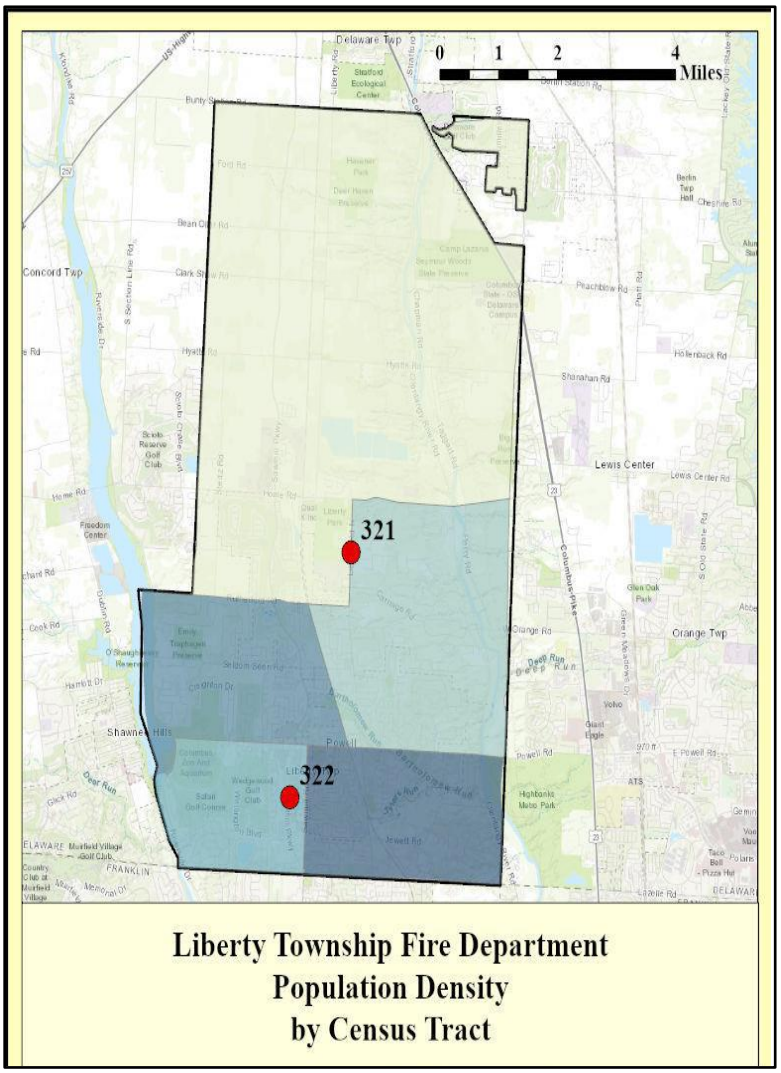
The department has legally established boundaries adopted by the authority having jurisdiction (AHJ) and the City of Powell. Automatic aid exists on all run card (Fire Zone areas) for additional units and support to improve the reliability of Liberty Township units. The department provides emergency response from two stations or response zones. Geographical barriers, traffic, population density and historical data determine the zones. The department uses OVAP scores, historic data, and county GIS services to establish and continually evaluate response area characteristics. The department can collect and analyze current incident data through the various means which allows the department to develop and evaluate planning goals and objectives created in the Strategic Plan. All fire data is reported to National Fire Incident Reporting Software (NFIRS) which contains property, life, injury, and other associated losses.


321-10
321-2
321-6
321-7
321-3
321-9
321-8
315
321-5
321-4
321-11
322-1
321-1
750
321-13
322-2
321-12
322-3
LIBERTY TOWNSHIP RUNCARDS
Please report any errors or omissions to the Delaware County Auditor's office.
Prepared by: Delaware County Auditor's GIS Office August 2019.
Delaware County Auditor
George Kaitsa
0 1,100 2,200 4,400
Feet

2.4A-Population density

Based upon population density the Township is Suburban and the City of Powell is Urban. The area has experienced a continued growth rate of 114% for the township since 2000 and 17% for the city since 2010. The total service is divided into two geographic response zones with a primary first due fire station for each of the two zones. Population density is considered when moving/adjusting these boundaries and station staffing, as needed, to ensure population growth does not out pace any first responding unit's reliability for service.

As illustrated by this population density map, the population concentration is spread throughout the Southern end of the response area. The most populated areas are spread east and west, but mostly to the east.



Liberty Township and Powell have several institutions that house large numbers of "at risk" populations. There are high-rise and single assisted living facilities are spread throughout the response area.

Several general observations can be made regarding development categories and age in various sections of the township. Downtown Powell consists mainly of masonry constructed businesses and smaller older homes. Age of these structures varies from older, historic buildings to new construction. The areas outside of the core "four corners' contain newer construction and large square foot homes and multi-use businesses.

Population factors are considered when establishing and developing response zones and time of travel for each area.

2.5A- Loss and preservation

Annually the department reports data concerning any loss of property, life, injury, and other types of losses and compares it to assets that have been saved. This reporting allows the department to analyze the data of all calls to assure that service outcomes are being met. Community expectations have been clearly stated and by continually reviewing this type of data the department can make any needed adjustments to asset preservation. The department is currently averaging almost a 90% asset save.

Total Losses and Pre-Incident Values for Zone for Date Range

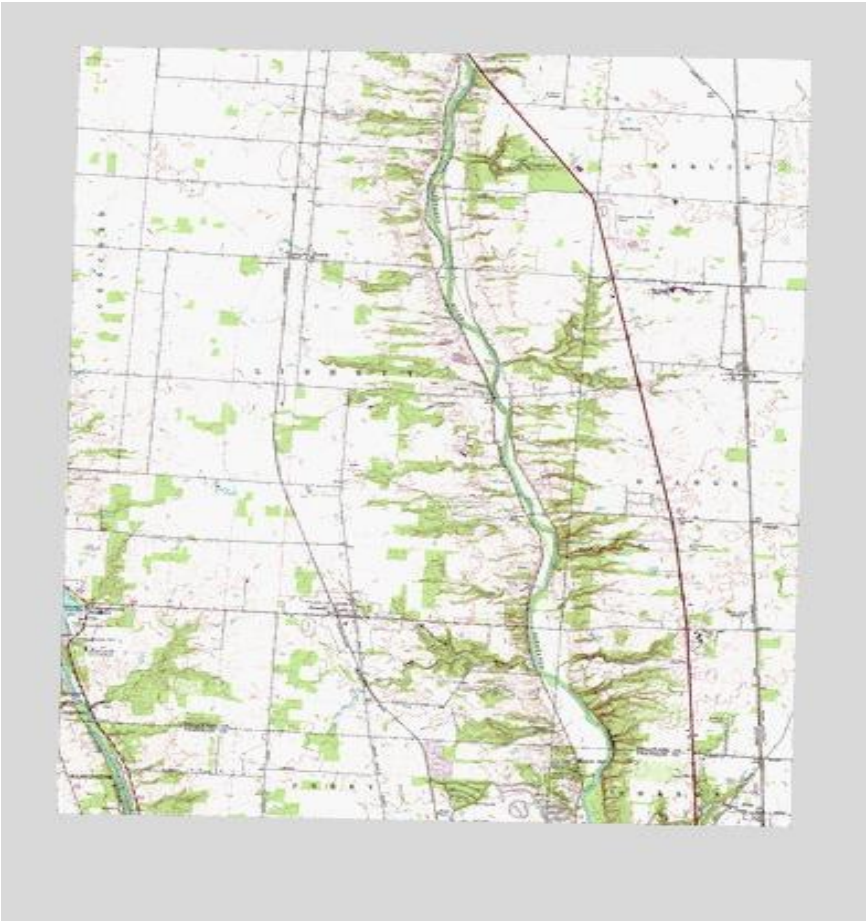
Zone(s): All Zones | Station(s): All Stations | Start Date: 01/01/2019 | End Date: 12/31/2021

LOSSES		PRE-INCIDENT VALUES	
PROPERTY	**CONTENTS**	**PROPERTY**	**CONTENTS**
$72,000.00	$37,500.00	$1,282,300.00	$235,000.00
$5,000.00	$1,000.00	$271,500.00	$50,000.00
$50,000.00	$25,000.00	$708,700.00	$200,000.00
$10,000.00	$500.00	$10,000.00	$2,000.00
$29,869.00	$5,000.00	$104,869.00	$30,000.00
$20,000.00	$5,000.00	$1,271,600.00	$5,000.00
$155,800.00	$60,000.00	$191,900.00	$100,000.00
$180,000.00	$6,350.00	$1,613,700.00	$60,350.00
$15,000.00	$500.00	$570,000.00	$100,000.00
$800.00	$0.00	$800.00	$0.00
$3,000.00	$500.00	$677,400.00	$1,000.00
$440,400.00	$20,000.00	$896,300.00	$110,000.00
TOTAL LOSSES:	**$1,143,219.00**	**TOTAL PRE-INCIDENT VALUES:**	**$8,492,419.00**

2.6A- Planning zone characteristics

Topography

Liberty Township has an elevation of 276 meters above sea level. It sits between the Scioto and Olentangy Rivers, about 14 miles (21.5 km) north of the state capital of Columbus. The city of Powell which lies within Liberty Township is centered on the intersection of State Route 750 and C.R.9; known as Liberty Street within the City of Powell. This intersection is commonly referred to by residents as the *Four Corners*. Liberty Township, the site of the first settlement in Delaware County, Ohio.



Climate

Ohio has a humid continental type of climate (Köppen climate classification Dfa, Dfb) in much of the state and a humid subtropical climate (Köppen Cfa) in the extreme south. The warmth increases from north to south regions, with typically hot summers and cold winters. Ohio lies in

the Great Lakes region of North America. Michigan in the northwest, Lake Erie in the north, Pennsylvania in the east, West Virginia in the southeast, Kentucky in the south, and Indiana in the west, border the state. The high latitudes, lack of high mountain ranges, and proximity to the Great Lakes are major players that dominate the climate.

Summers are hot and humid in Ohio, with average high temperatures rising to 90°F (32.2°C) at the peak of July. Lake Erie moderates' temperatures in the northeast coastal region during spring and summer by a few degrees. Polar air masses from the north and hot tropical air from the south clash to produce frequent changes in the cold season. Winters are cold and verge on being bitter, with nights below 15°F (-9.4°C) in the north during January. Lake effect snowstorms occur on Lake Erie's southeast shore. Spring has warm temperatures but is prone to tornadoes and thunderstorms. Autumn has cloudy skies but pleasant temperatures and less rain.

The average annual rainfall in Ohio is 38" (965.2mm) and occurs throughout the year. Cyclones contribute to the rainfall from October to March, while thunderstorms are significant contributors during the rest of the year. The average monthly rainfall is between 2" (50.8mm) to 5" (127mm), with October the driest and April the wettest. Snowfall varies from 16" (406.4mm) in the south to 35" (889mm) in the northwest and 90" (2286mm) in the extreme northeast. The growing season lasts up to 200 days in coastal areas due to the beneficial effect of Lake Erie. The relative humidity level throughout the year is 75 percent. September and October are prone to dense fog as is January, with visibility under one-fourth of a mile. Ohio receives 2200 hours of sunshine annually. The record high temperature for Ohio is 113°F (45°C), set in Gallipolis on July 21, 1934, while the lowest recorded temperature is -39°F (-39.4°C), set in Milligan on February 10, 1899." (Weather Atlas, 2020)

2.7A- Significant socio-economic and demographic characteristics

The department has evaluated significant socio-economic factors such as key employment types and centers, assessed values, blighted areas, and population earning characteristics. Additional factors identified include our coverage areas age, sex, median household income, education level, median home value and unemployment rates.

Delaware County was the 22nd fastest-growing county in the USA by percentage of growth according to the 2010 Decennial Census and was #87 in the fastest-growing counties in the US according to the Census Bureau's population estimates from 4/2010 to 7/2018 with 17.6% growth.

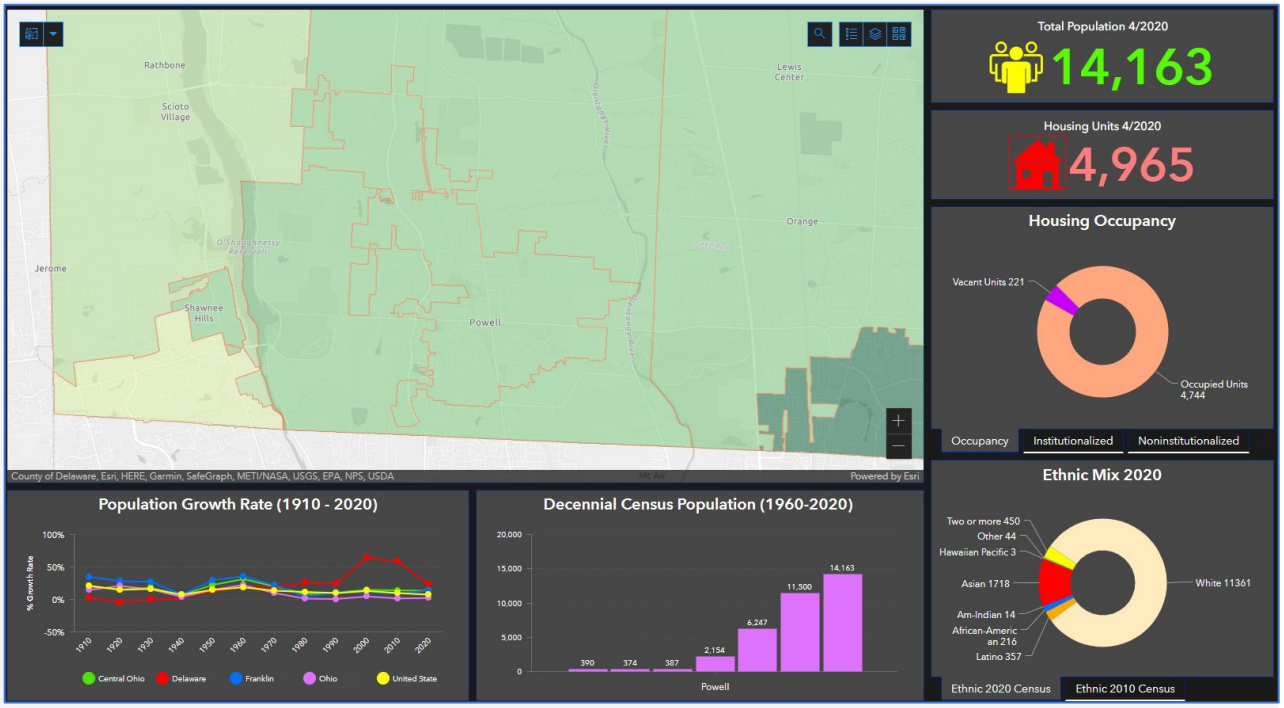
Delaware County is also the No. 1 fastest-growing county in the state of Ohio in the 2010 Decennial Census, the Census Estimate between 2010 and 2018, and No. 1 between 7/2017 to 7/2018.

Between 4/2000 and 4/2010, the growth rate of Central Ohio (13.96%) was higher than the United States (9.71%) and the State of Ohio (1.62%), as well as other Ohio metropolitan areas. From 2013 to 2014, Ohio experienced the highest annual growth rate compared to the previous three years.

Liberty Township's Population is 32,434 including the City of Powell's Population at 14,1463 based upon US Census estimates for 2019. With an area of 33.4 square miles, the population density in Liberty Township in 2018 was approximately 880 people per square mile, which corresponds to a suburban area, per NFPA 1710 definition. Assuming the current population growth rate, Liberty Township has the potential to become an urban area soon.

Liberty Township

City of Powell



2.8A- Safety and Remediation.

The department identifies and documents all safety and remediation programs. These programs include public education events, fire inspection and code enforcement, community development plan reviews, community CPR, childcare seat education and installation, fire extinguisher training and smoke detector programs. The department also utilizes available social services to assist in identifying needs of our community and linking resources to those needs. Activities on these programs are reviewed as part of the monthly and annual reports.

The Fire Prevention Division is staffed by two Lieutenants and one firefighter who function as Fire Prevention /Investigators, The Fire Prevention Division is responsible for the inspection of commercial/industrial property, enforcement of fire prevention codes and ordinances concerning the properties, presenting talks and demonstrations relative to fire prevention and public education, investigating activities and related follow-up to arson investigations, and reviewing all plans for construction to ensure compliance with the proper fire and life safety codes within the jurisdiction.

The Administration Division consists of the Fire Chief and an Administrative Assistant. While working 24-hour shifts, each Battalion Chief also serves as part of the administrative staff. The Administration prepares and administers the Fire Department budget, formulates financial policies,

and establishes and administers the department capital improvement plan. The division also provides clerical, data processing, and other administrative support to all other divisions within the department.

2.9A-Critical infrastructure

The department identifies all critical infrastructure within the geographic and emergent response zones. The critical infrastructures are analyzed within the Standard of Cover which includes descriptions and maps. All buildings are evaluated using the Occupancy Vulnerability Assessment Profile (OVAP). The OVAP then determines the building's risk; Low, Medium, Significant, and Maximum (base on the criteria set forth in OVAP). In addition to the building assessment, the department has assessed the risk of all utilities, and identified all transportation routes.

ID	OCCUPANCY	ADDRESS	ZONE
CRITICAL INFRASTRUCTURE: Banking & Finance			
499	Citigroup Columbus Data Center	306 Greif PKY	321-7
499-1	Citigroup Columbus Data Center	305 Greif PKY	321-7
CRITICAL INFRASTRUCTURE: Emergency Services			
104	City Hall & Powell P.D.	47 Hall ST	322-5
1097	Liberty Township Fire Station 321	7761 Liberty N RD	321-4
563	Liberty Township Fire Station 322	10150 Sawmill PKY	322-2
CRITICAL INFRASTRUCTURE: Energy (Electricity)			
163 - 83	Columbus Zoo - Polar - Microgrid Solar Array	4850 Powell RD	322-2
1158	Ohio Power Company - Hyatt Station	2877 Hyatts RD	321-3
CRITICAL INFRASTRUCTURE: Information Technology			
867	R & L Carriers Delaware Data Center	268 Greif PKY	321-7
CRITICAL INFRASTRUCTURE: National Monuments & Icons			
163	Columbus Zoo	4850 Powell RD	322-2
CRITICAL INFRASTRUCTURE: Postal & Shipping			
33	U.S. Postal Service	40 Grace DR	321-1

CRITICAL INFRASTRUCTURE: Public Health			
440	Alum Creek Central Maintenance Facility	10333 Olentangy River (S.R.315) RD	322-4
1156	Liberty Park Sanitary Sewer Pump Station	7462 Liberty RD	321-5
107	Ohio Health Liberty Free Standing ED & MOB	4141 North Hampton DR	322-2
113	Olentangy Environmental Control Center	10333 Olentangy River (S.R.315) RD	322-4

CRITICAL INFRASTRUCTURE: Telecommunications			
182	Cellular One	3221 Seldom Seen RD	322-1
745	Verizon Cell Tower	3118 Home RD	321-3

CRITICAL INFRASTRUCTURE: Transportation			
299-11	Olentangy Schools Bus and Maintenance Facility	3580 Home RD	321-3

CRITICAL INFRASTRUCTURE: Water			
163 - 84	Columbus Zoo - Facilities / Water Treatment Plant	4850 Powell RD	322-2
163 - 77	Columbus Zoo - Water Tower Plant	4850 Powell RD	322-2
329 - 3	DelCo Water Company, Inc.	6773 Olentangy River (S.R.315)	321-8
329 - 4	DelCo Water Olentangy Plant	6682 Olentangy River (S.R.315) RD	321-8
329 - 1	DelCo Water Tower	3141 Home RD	321-5
329 - 2	DelCo Water Tower	280 W Case ST	322-1

Section 2B- All Hazard Risk and Response

The department has identified and assessed the nature and magnitude of all hazards and risks within the township and city. The department has evaluated each risk type based on the probability, resources needed and the consequences of an incident. The assessment also considered such factors as cultural, economic, historical, and environmental values, and operational characteristics.

The response area has been divided into different zones. The assessment based on the use of dividing the larger zones into smaller zones allows the department to conduct analysis using more manageable sections of the response area. Properties have been assessed and categorized to determine the risk to the community, based upon occupancy, fire flow, fire protection, construction type, number of floors, square footage, occupant load, occupant mobility, and economic impact utilizing Occupancy Vulnerability Assessment Profile (OVAP) score for zone building fire potential. Each fire and non-fire hazards of recognized or potential risk to the response area are assessed utilizing a three-axis methodology. The risk assessment is a foundation for the Community Risk Assessment and Standards of Cover.

2.1B- Risk classification

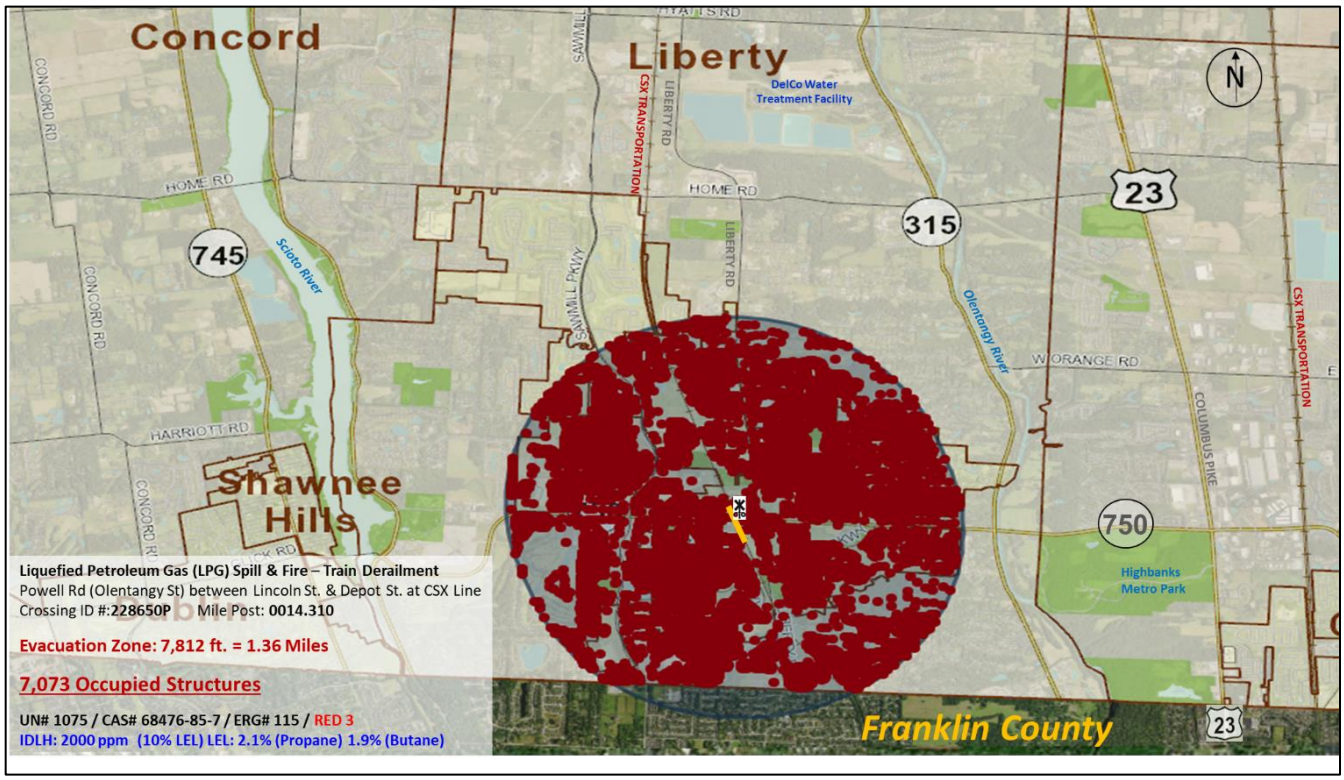
The Department practices an all-hazards approach to emergency management and planning. Risk is defined locally as the likelihood of occurrence, the potential for life loss or injury, local impact, and monetary cost. Risk is then identified by using historical data, zoning classifications, and OVAP scoring and the three -axis method. To glean more qualitative information to support the quantitative risk factors, other risk assessment models are applied utilizing a random sample of available data. Property, life, injury, environmental, and other associated losses, as well as the human and physical assets preserved and/or saved, are recorded. These profiles identify higher risk structures and areas within that station's response area, including such things as high occupancy, large square footage, access issues, and on-site hazardous materials to name a few. These factors combine to allow the Department to identify and prepare for all emergencies and situations that

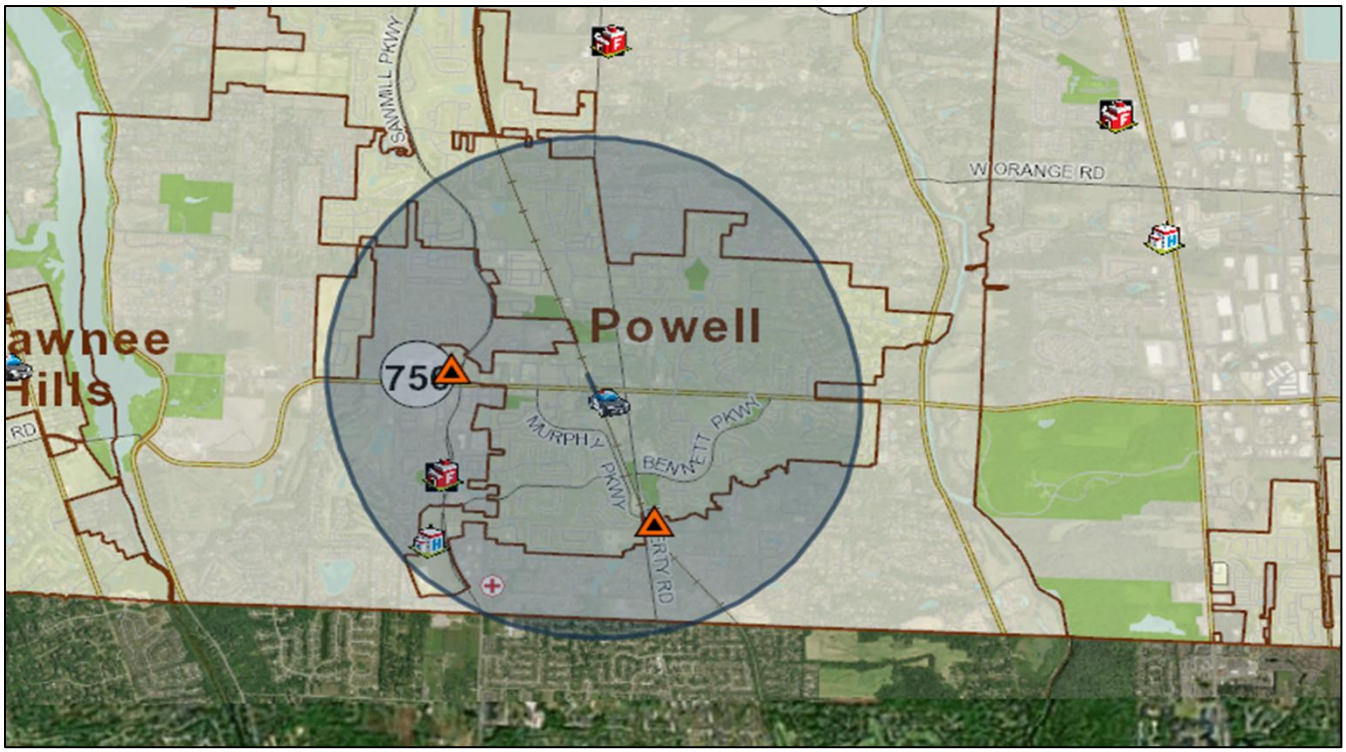
have a potential to occur within the jurisdiction, with an emphasis placed upon the likelihood of occurrence.

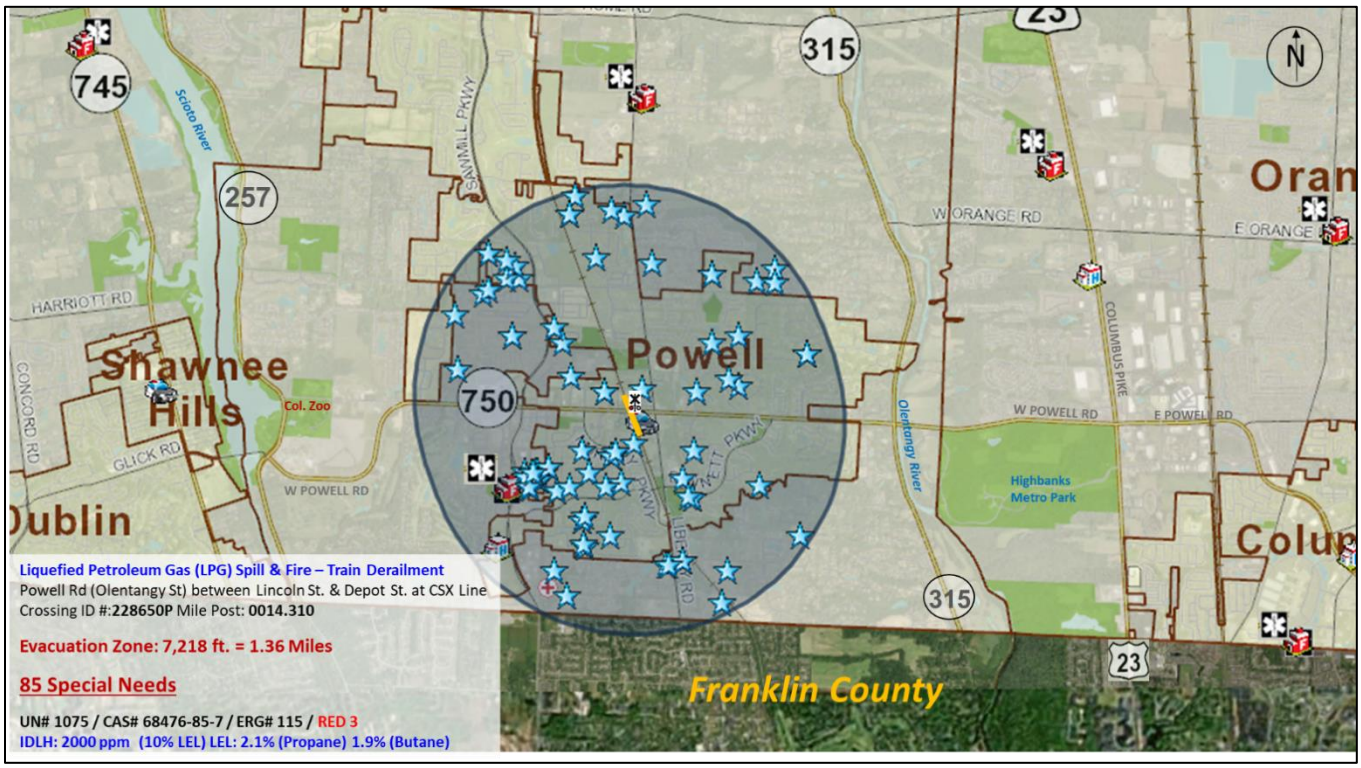
Distinctive to the community is the Columbus Zoo and Aquarium, and Zoombezi Bay Water Park. One of the largest of its kind in the country, the Zoo and water park attract 2.9 million visitors annually. Through its own accreditation process, the Zoo has in place written procedures for emergency incidents, incident command, security and EMS protocols, and animal handling practices. The department participates in response drills such as the annual snake bite and animal escape exercises. It actively involved with new construction plan review, building inspection, fire safety and planning, and the Zoo's on-sight, non-transport EMS staff. The Zoo, and the water park afford the department a unique training opportunity for both water and technical rescue. Due to the complexity and potential incident nature of the Zoo, it has its own designated response zone.

The department recognizes the need and preparation for active aggressor incidents. As a leader in Delaware County, the department-initiated training using the Rescue Task Force response model. Today, the department assists with training other first responders and is a part of a multi-department and law enforcement effort to develop a county-wide response plan.

There are multiple rail lines that run the response area. These lines carry multiple products. Of the products carried, Anhydrous ammonia, chlorine, crude oil, ethanol and LPG pose the most significant risks. A rail analysis was completed by the local Emergency Management which supplied local jurisdictions with evacuation zones at major intersections for any potential derailment. The department has utilized this risk assessment in establishing needed equipment and manpower for any potential rail mishap. Examples of population, needs and various facilities in dealing with a rail issue can be seen below.


Concord
Liberty
DelCo Water Treatment Facility
CSX TRANSPORTATION
HOME RD
745
Scioto River
315
23
W ORANGE RD
Olentangy River
HARRIOTT RD
Shawnee Hills
750
Highbanks Metro Park
Liquefied Petroleum Gas (LPG) Spill & Fire – Train Derailment
Powell Rd (Olentangy St) between Lincoln St. & Depot St. at CSX Line Crossing ID #:228650P Mile Post: 0014.310
Evacuation Zone: 7,812 ft. = 1.36 Miles
7,073 Occupied Structures
UN# 1075 / CAS# 68476-85-7 / ERG# 115 / RED 3
IDLH: 2000 ppm (10% LEL) LEL: 2.1% (Propane) 1.9% (Butane)
Franklin County


SAWMILL PKWY
W ORANGE RD
Powell
MURPHY PKWY
BENNETT PKWY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Shawnee Hills
Col. Zoo
CONCORD RD
GLICK RD
W POWELL RD
Powell
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COLUMBUS PIKE
Olentangy River
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Highbanks Metro Park
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Franklin County
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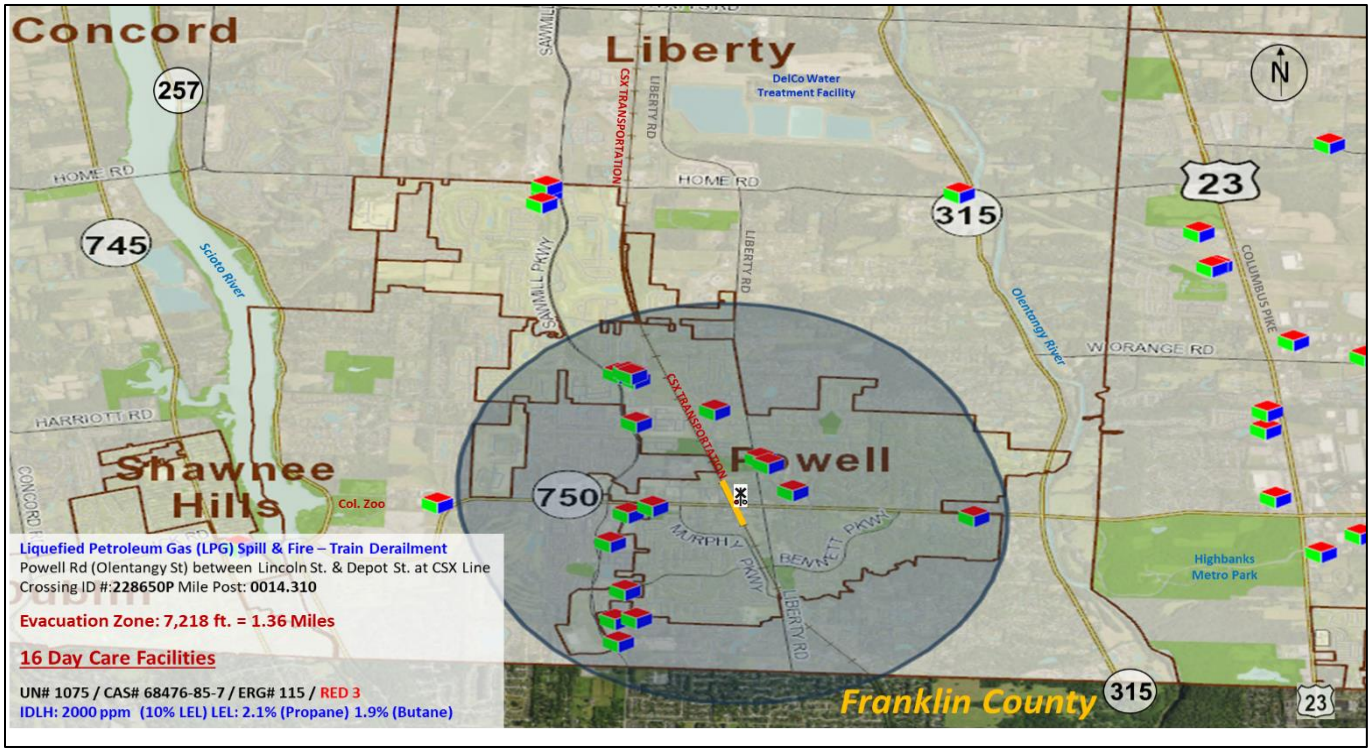
Liquefied Petroleum Gas (LPG) Spill & Fire – Train Derailment
Powell Rd (Olentangy St) between Lincoln St. & Depot St. at CSX Line
Crossing ID #:228650P Mile Post: 0014.310
Evacuation Zone: 7,218 ft. = 1.36 Miles
85 Special Needs
UN# 1075 / CAS# 68476-85-7 / ERG# 115 / RED 3
IDLH: 2000 ppm (10% LEL) LEL: 2.1% (Propane) 1.9% (Butane)


Concord
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HOME RD
Scioto River
Liberty
DelCo Water Treatment Facility
CSX TRANSPORTATION
LIBERTY RD
SAWMILL PKWY
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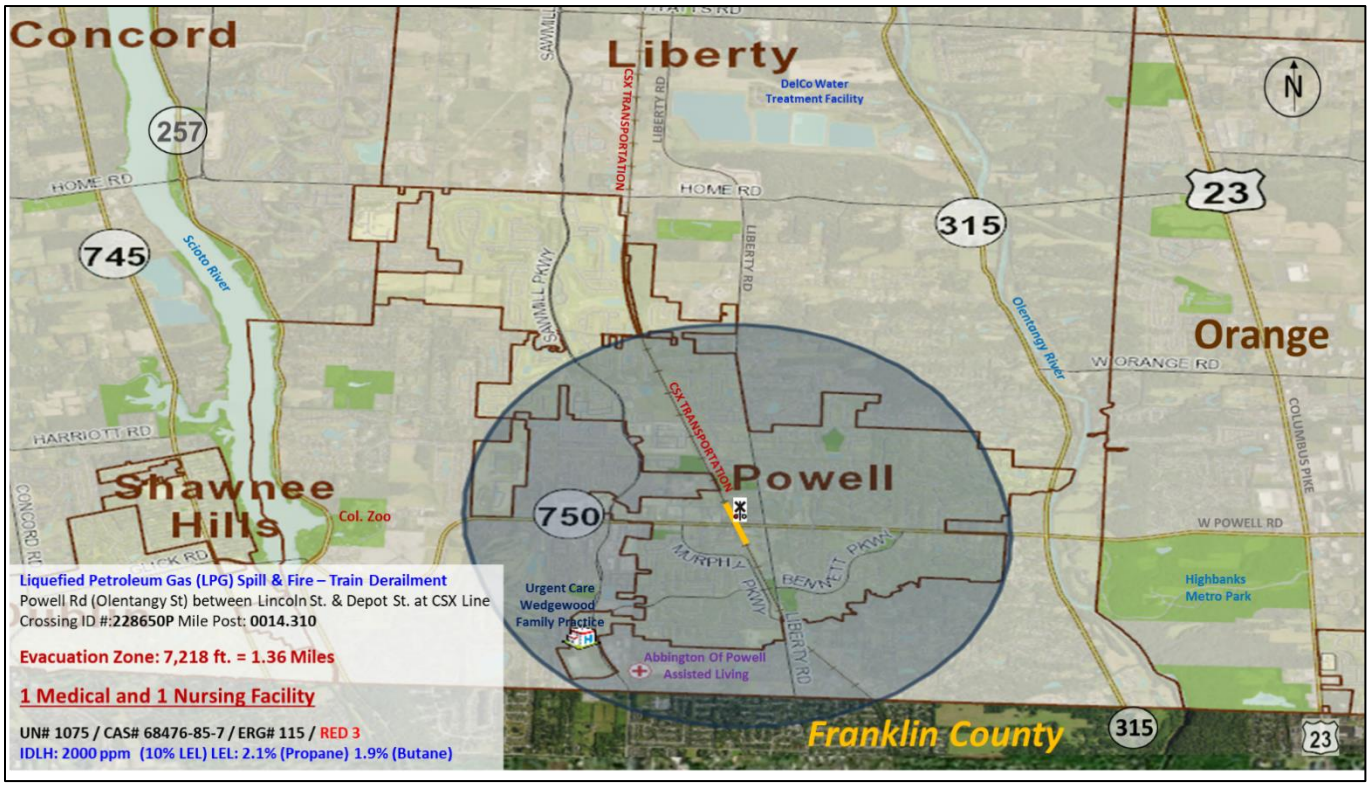
23
COLUMBUS PIKE
Olentangy River
W ORANGE RD
HARRIOTT RD
Shawnee Hills
Col. Zoo
750
Powell
MURPHY
BENNETT PKWY
Highbanks Metro Park
Franklin County
N
Liquefied Petroleum Gas (LPG) Spill & Fire – Train Derailment
Powell Rd (Olentangy St) between Lincoln St. & Depot St. at CSX Line
Crossing ID #:228650P Mile Post: 0014.310
Evacuation Zone: 7,218 ft. = 1.36 Miles
16 Day Care Facilities
UN# 1075 / CAS# 68476-85-7 / ERG# 115 / RED 3
IDLH: 2000 ppm (10% LEL) LEL: 2.1% (Propane) 1.9% (Butane)


Concord
Liberty
Orange
Powell
Shawnee Hills
Col. Zoo
DelCo Water Treatment Facility
CSX TRANSPORTATION
HOME RD
SAWMILL PKWY
LIBERTY RD
Scioto River
Olentangy River
W ORANGE RD
COLUMBUS PIKE
HARRIOTT RD
W POWELL RD
MURPHY PKWY
BENNETT PKWY
Highbanks Metro Park
Urgent Care Wedgewood Family Practice
Abbington Of Powell Assisted Living
Franklin County
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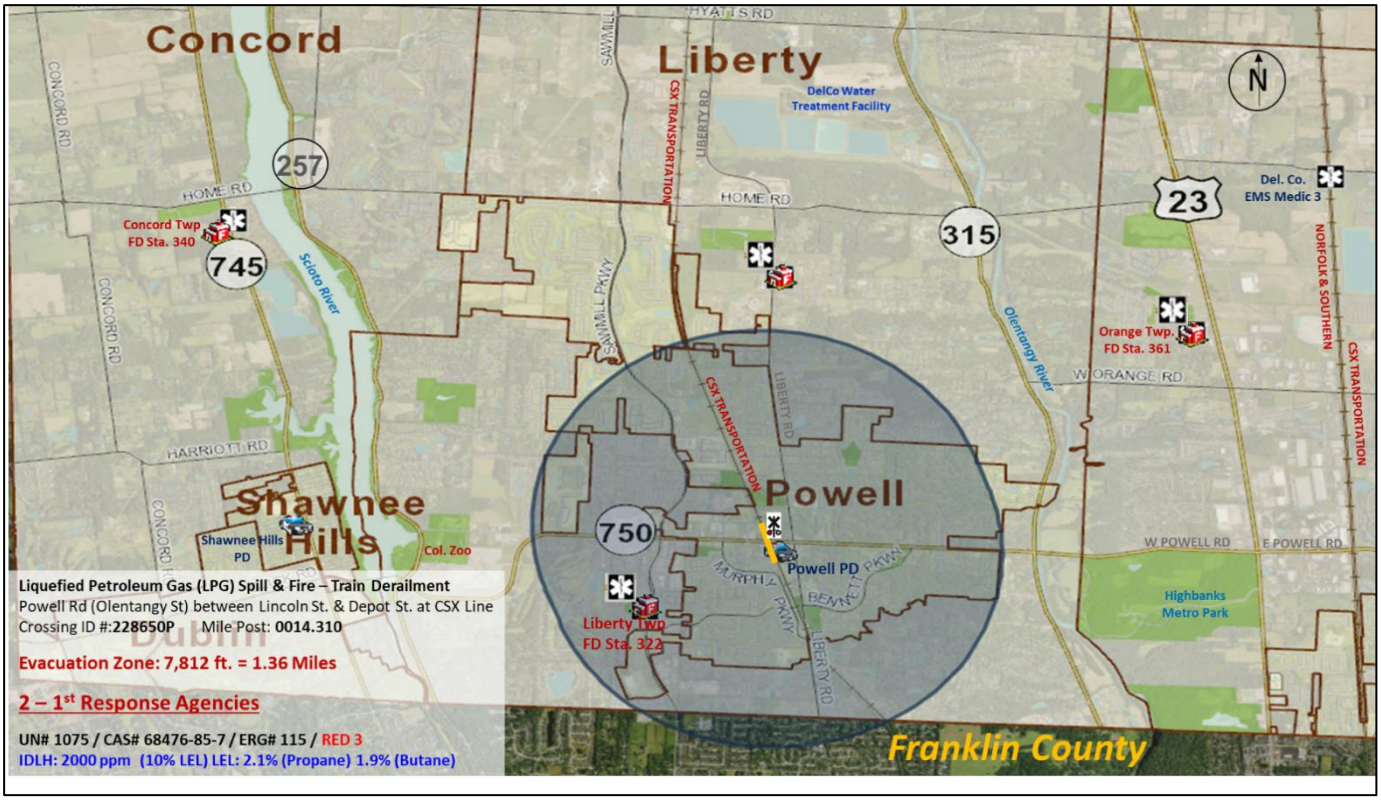
Liquefied Petroleum Gas (LPG) Spill & Fire – Train Derailment
Powell Rd (Olentangy St) between Lincoln St. & Depot St. at CSX Line
Crossing ID #:228650P Mile Post: 0014.310
Evacuation Zone: 7,218 ft. = 1.36 Miles
1 Medical and 1 Nursing Facility
UN# 1075 / CAS# 68476-85-7 / ERG# 115 / RED 3
IDLH: 2000 ppm (10% LEL) LEL: 2.1% (Propane) 1.9% (Butane)


Concord
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Col. Zoo
DelCo Water Treatment Facility
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SAWMILL PKWY
LIBERTY RD
Scioto River
Olentangy River
W ORANGE RD
HARRIOTT RD
W POWELL RD
E POWELL RD
MURPHY PKWY
BENNETT PKWY
NORFOLK & SOUTHERN
Highbanks Metro Park
Concord Twp FD Sta. 340
Del. Co. EMS Medic 3
Orange Twp. FD Sta. 361
Shawnee Hills PD
Powell PD
Liberty Twp FD Sta. 322
Franklin County
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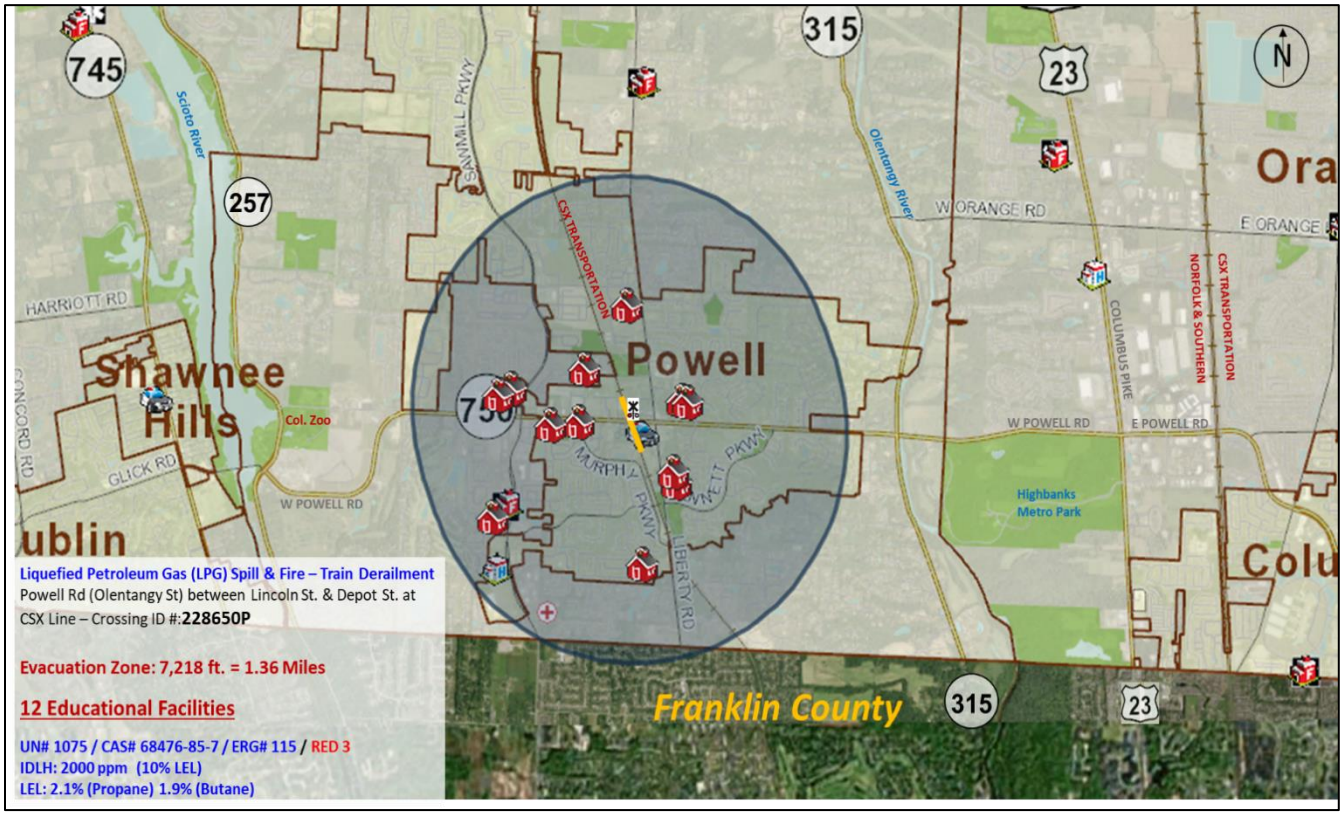
Liquefied Petroleum Gas (LPG) Spill & Fire – Train Derailment
Powell Rd (Olentangy St) between Lincoln St. & Depot St. at CSX Line
Crossing ID #:228650P Mile Post: 0014.310
Evacuation Zone: 7,812 ft. = 1.36 Miles
2 – 1st Response Agencies
UN# 1075 / CAS# 68476-85-7 / ERG# 115 / RED 3
IDLH: 2000 ppm (10% LEL) LEL: 2.1% (Propane) 1.9% (Butane)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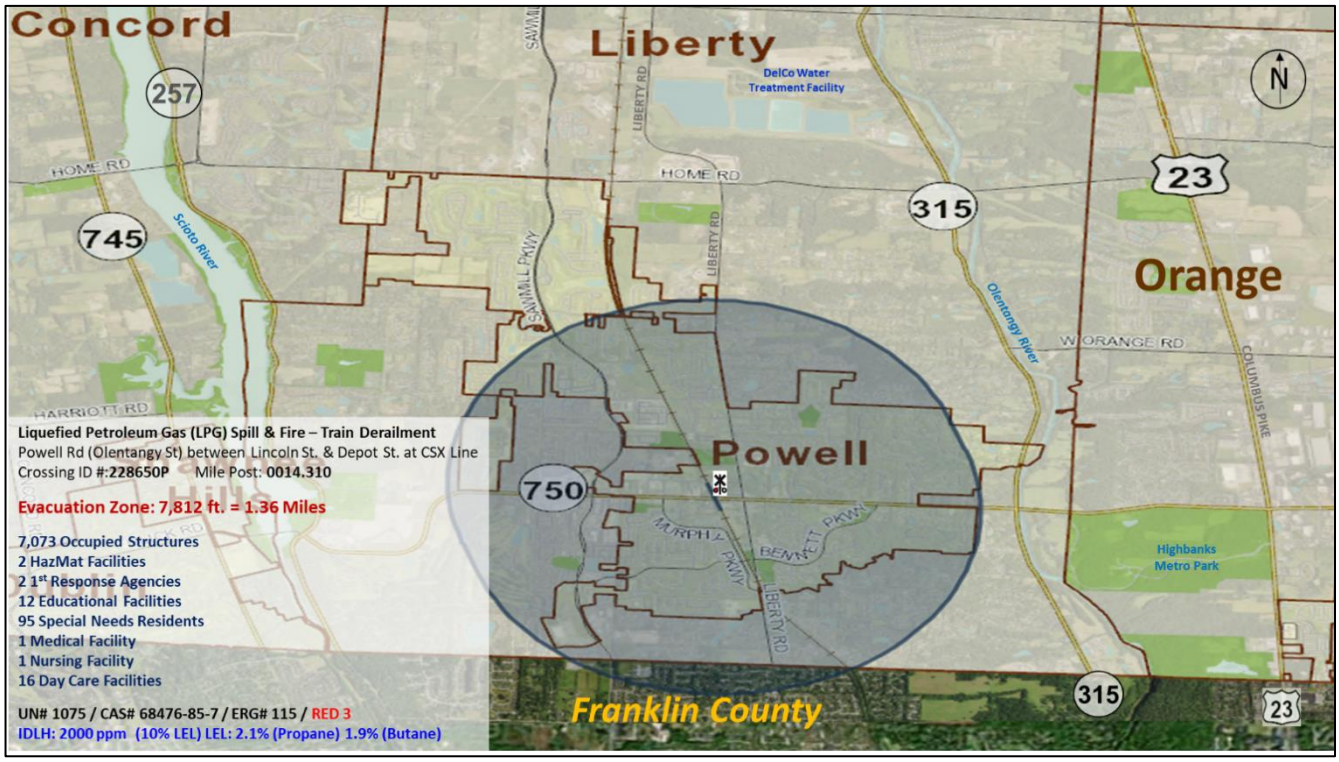
HARRIOTT RD
CSX TRANSPORTATION
NORFOLK & SOUTHERN
COLUMBUS PIKE
Shawnee Hills
Col. Zoo
GLICK RD
W POWELL RD
E POWELL RD
MURPHY PKWY
BENNETT PKWY
LIBERTY RD
Powell
Highbanks Metro Park
Franklin County
Liquefied Petroleum Gas (LPG) Spill & Fire – Train Derailment
Powell Rd (Olentangy St) between Lincoln St. & Depot St. at
CSX Line – Crossing ID #:228650P
Evacuation Zone: 7,218 ft. = 1.36 Miles
12 Educational Facilities
UN# 1075 / CAS# 68476-85-7 / ERG# 115 / RED 3
IDLH: 2000 ppm (10% LEL)
LEL: 2.1% (Propane) 1.9% (Butane)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COLUMBUS PIKE
HARRIOTT RD
Powell
750
MURPHY PKWY
BENNETT PKWY
Highbanks Metro Park
Franklin County
Liquefied Petroleum Gas (LPG) Spill & Fire – Train Derailment
Powell Rd (Olentangy St) between Lincoln St. & Depot St. at CSX Line
Crossing ID #:228650P Mile Post: 0014.310
Evacuation Zone: 7,812 ft. = 1.36 Miles
7,073 Occupied Structures
2 HazMat Facilities
2 1st Response Agencies
12 Educational Facilities
95 Special Needs Residents
1 Medical Facility
1 Nursing Facility
16 Day Care Facilities
UN# 1075 / CAS# 68476-85-7 / ERG# 115 / RED 3
IDLH: 2000 ppm (10% LEL) LEL: 2.1% (Propane) 1.9% (Butane)

2.2 B- Predicting calls for service

As a starting point for risk assessment, historical calls for service are considered a predictor of future needs for service. The department has maintained historical data of response in either paper or electronic format since its inception. Current department reporting uses the National Fire Incident Reporting System (NFIRS). The department has electronically recorded the incident types, deployment of resources, and other pertinent data from in Firehouse brand software before migrating over to a new NFIRS Reporting software, called Emergency Reporting.

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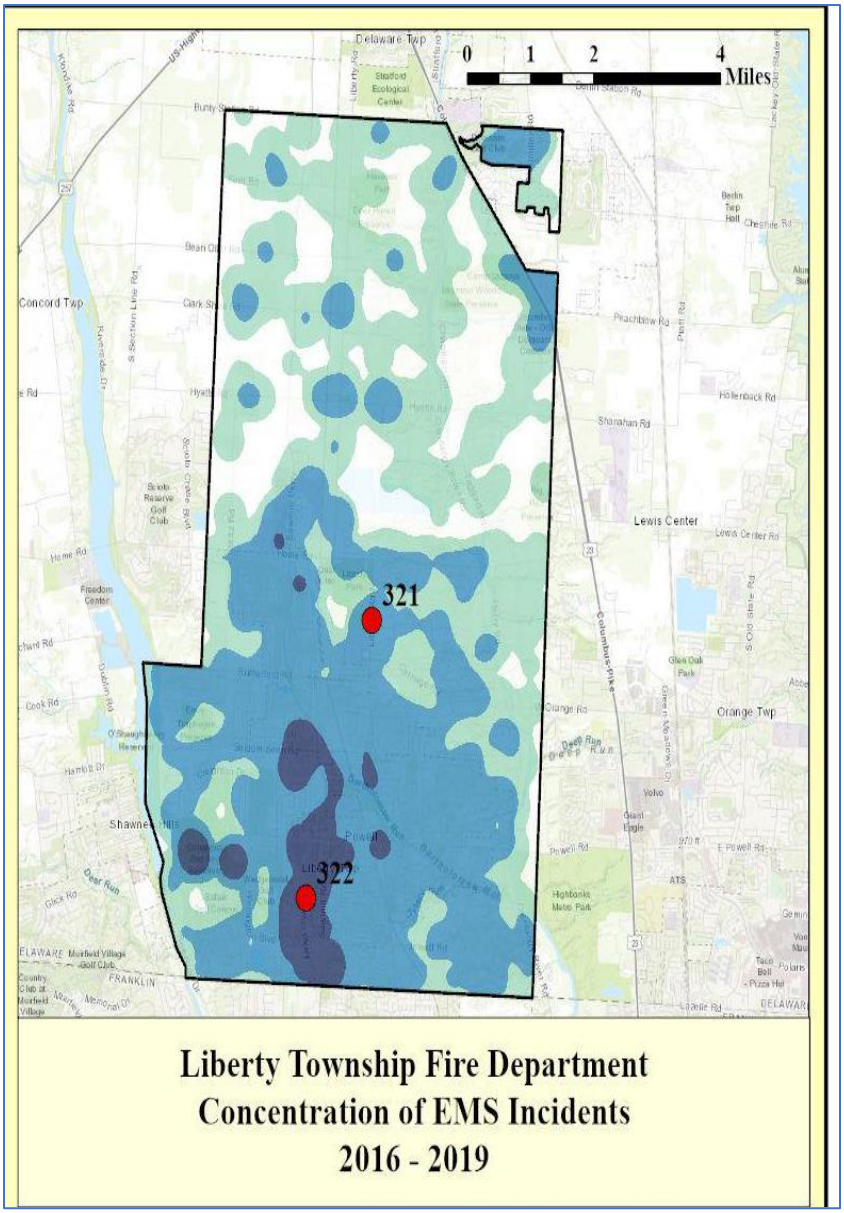
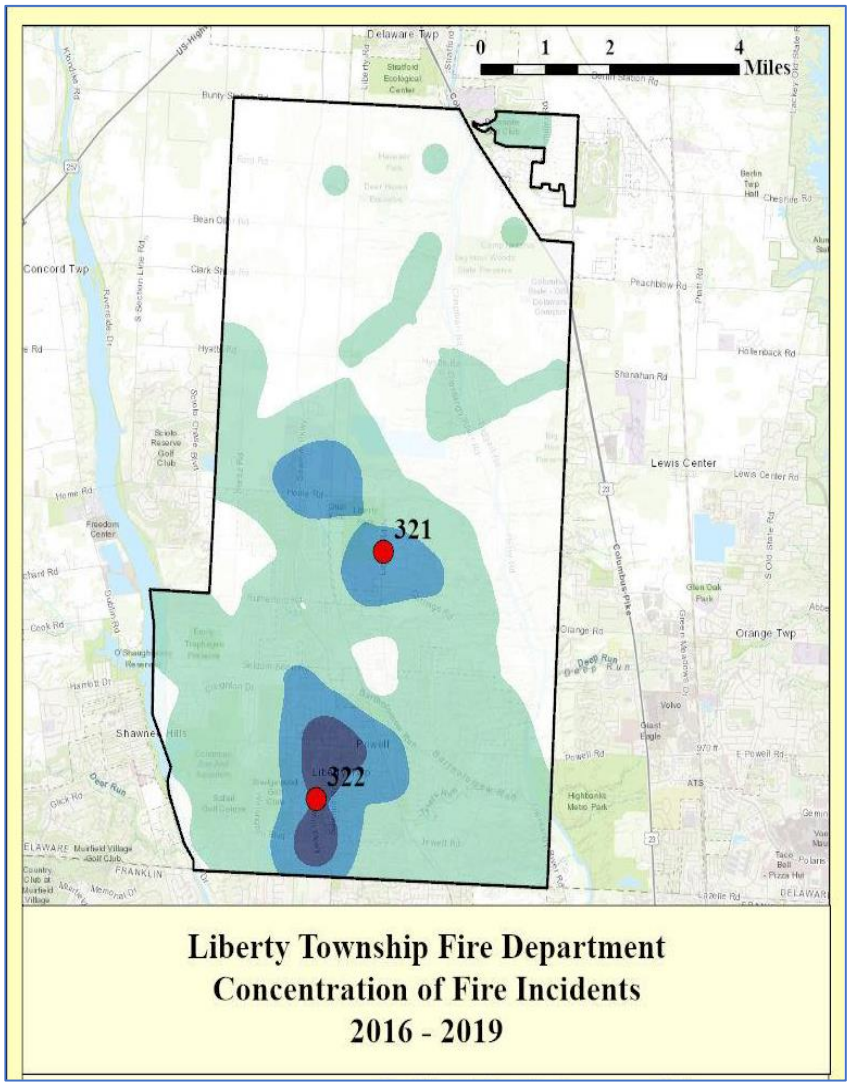


The department utilizes Emergency Reporting Record Management System (RMS) as its primary data collection system. The RMS collects data that includes, but is not limited to, property value and loss, life, injury, and environmental losses as well as assets saved. In addition to incident reporting, this system contains data including fire inspections, vehicle and equipment repair, daily work reports, fire hydrants, and personnel records. Data is routinely used to evaluate the department's performance against established baselines and is used to compile various reports. The current system is capable of exporting data in various formats which allows for data analysis and provides a central repository for information. The department uploads EMS reporting to the State of Ohio EMS Division utilizing NEMSIS and uploads data to the State Fire Marshal's Office monthly.

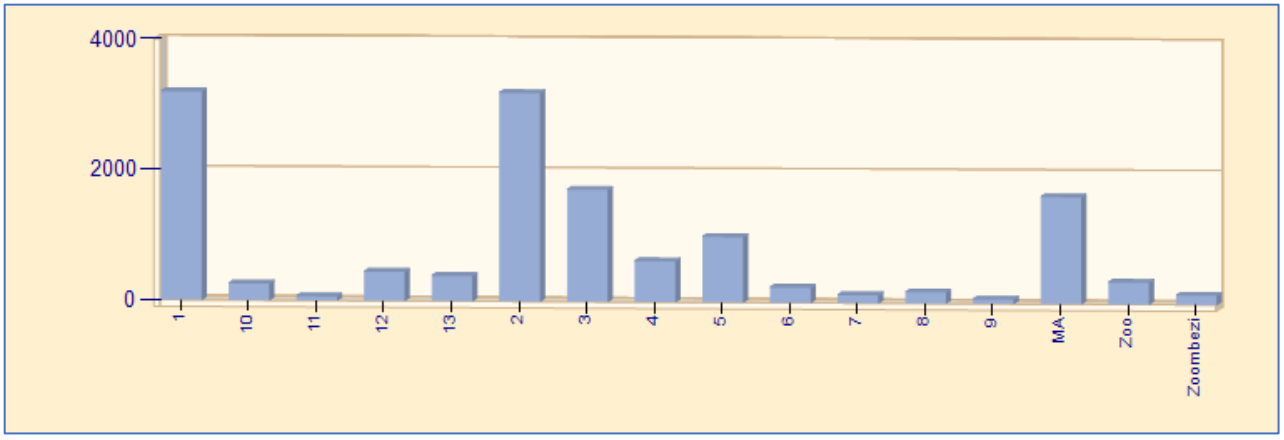


YEAR	Population	INCIDENTS
2016	29,471	1074
2017	29,678	2370
2018	31,132	2713
2019	31,802	2920
2020	32,005	2487
2021	32,434	3163

Incident Type	2017	2018	2019	2020	2021
Fire	693	766	918	807	949
EMS	1677	1947	2002	1679	2214
Total	2370	2713	2920	2486	3163

The department identifies and utilizes the response characteristics for different planning zones. These are referred to as geographic planning zones (GPZ) and emergency response zones (EPZ). The data includes information about the property uses, color-coded risk assessment for each building, transportation routes, and fire hydrant flow capabilities. The planning zone detail sheet provides additional information including the overall risk the zone poses, response analysis for the past 5 years, highest fire flow requirements, a list of the maximum-risk occupancies, worst case fire and non-fire scenarios, and any special hazards that exist.

Response Zone fire/ non



The department conducts historical analysis on service demand frequency for a minimum of three years or more. A detailed analysis is conducted as part of the budget process that includes projected responses based on response categories. An annual report is also published, which provides information on responses for the past year. Breaking down the response by zones assists with providing data for demand historically, and by taking this data the department can plug in future development to guide in determining increases in service demand.

The chart below shows known residential and commercial development that will have an impact on the departments service delivery. Monitoring of increases in service demand will enable the department to predict needs by combing historic growth and run volumes with a realized demand.

Occupancy Type	Occupancies
B, Business:	549
B & M, Business & Mercantile use	119
A-2,	84
U, Utility and Miscellaneous	78
A-3,	67
A-5,	37
M, Mercantile Use	48
Mixed, Occupancies of 2 or more not included in the same use	35
E, Educational: K-12 other than vocational/business training	30
S-1, Moderate-Hazard Storage Uses	21
S-2, Low-Hazard Storage Uses	25
A-4,	15
R-2, Multi-family with more than 3 dwelling units	11
R-3, Multiple single-family dwellings: Independent egress	5
A-1,	5
R-4, Residential occupancies shall include buildings arranged for occupancy as residential care/assisted living facilities including more than five but not more than sixteen occupants, excluding staff.	3
F-2, Factory/Industrial: Low-hazard	5
H-4, Occupancies that pose a health hazard	1
I-2, Hospital, Nursing Home, care of 6 or more	3
I-4,	2
F-1, Factory/Industrial: Moderate-hazard	1

2.3 B- Outcomes

The department records and analyzes the incident loss and save data which includes property, life, and injury losses. Data has been compiled, analyzed, and included in the SOC for the past four years. The department compiles an annual report about incident loss and save data which includes property, life, and injury losses.

Detailed Losses For Date Range

Start Date: 01/01/2019 | End Date: 12/31/2021

# INCIDENTS	TOTAL PRE-	TOTAL PRE-	TOTAL PRE-	AVG. VAL.	TOTAL	TOTAL CONT.	TOTAL LOSSES	AVERAGE
23	$7,624,069.00	$903,350.00	$8,527,419.00	$370,757.00	$1,006,869.00	$171,350.00	$1,178,219.00	$51,226.00

2.4 B- Documentation of categories and risk

The departments risk assessment demonstrates the methodology for identifying, analyzing, categorizing, and classifying risks and the determined risks are detailed in the SOC. The risk assessment methodology analyzes the various risks based on probability, consequences and resources needed. The departments fire risk analysis is categorized into Low, Medium, Significant, and Maximum as aligned with OVAP scoring. Each building in is also categorized based on these risks. An OVAP score is developed for each building which is based on the hazard, value to the community, and building fire and safety features. After establishing and evaluating the OVAP scores, each recognized or potential fire, EMS, HAZMAT, Tech rescue and other risks are analyzed using a three-axis profile methodology that assesses probability, consequence, and impact.

The OVAP (Occupancy Vulnerability Assessment Profile) calculator is tool assess the risk rating of an occupancy. The calculator considers 5 characteristics of the occupancy and calculates a risk score. The characteristics include: 1) Building 2) Life Safety 3) Risk 4) Water Demand and 5) Value the property will be assigned a risk rating depending on the risk score calculated. The breakdown of the risk score is as follows:

Low Risk <15

Moderate Risk 15-39

Significant Risk 40-59

Maximum Risk 60+

Below is an explanation of fields need to calculate the risk rating:

Building -The Building page contains the data elements specific to the exterior building characteristics.

Exposure Separation: Identify the distance to the nearest building.
Type of Construction: Identify the type of construction.
Height: Indicate the height of the building.

Access: Indicate the appropriate number of sides with fire department access. This is relative to the ability to advance interior attack lines, not the placement of apparatus.
Area: Indicate the area of the building.

Life Safety -The Life Safety page contains the data elements specific to those conditions affecting life safety and the ability of the occupants to leave the building safely.
Occupant Load: Indicate the occupant load of the building. For those buildings having more than one occupancy, indicate the occupant load of the occupancy with the highest occupant load.
Occupant Mobility: Indicate the mobility characteristics of the occupants relative to building height or relative to the freedom to exit the building. For those buildings not normally occupied, indicate that occupant mobility is not a factor. Buildings primarily used for the storage of equipment and only occupied at times when the equipment needs servicing would be rated as "Not a Factor".
Warning Alarm: Indicate the appropriate warning alarm installed in the building. For those buildings having more than one occupancy, indicate no alarm system unless all occupancies are protected by a warning alarm.
Existing System: Indicate if the existing system is conforming or nonconforming to applicable exit requirements.

Risk -Risk pertains to the frequency/likelihood of an event and the consequence of an event.

This is accomplished by looking at the range of regulatory activity in the occupancy, and the type of human activity that is likely to occur within the occupancy, and the third consideration is the actual experience for that type of occupancy.

Frequency/Likelihood

Regulatory Oversight: Indicate the degree of enforcement activity upon the premise.

Human Activity: Indicate the human activity relative to the ability to access the premise.

Experience: Indicate the frequency that fires occur in these types of occupancies, not the frequency of fires in this occupancy.

Consequence looks at:

1) The range between controlling a fire within the building of origin and a fire hazardous to fire-fighting activities.
2) Hazards in the building.
3) The fire load for that type of occupancy.

Capacity to Control- Indicates the degree of difficulty that can be expected during a fire-fighting activity in this building.

Hazard Index: Indicate the appropriate type of hazards found in this building.

Fire Load: Indicate the appropriate fire load characteristics of this building.

Water Demand- contains the data elements specific to fire flow, fire sprinklers, and fire flow availability.

Fire Flow: The fire flow needs for the occupancy.

Fire Sprinklers: Indicate if this building is protected with an approved fire sprinkler system meeting the NFPA standards.

Available Fire Flow: This is an optional field. Enter the available fire flow if known.

Water Flow Sufficient: Indicate if the required fire flow is available

Value -relates to the property value.

Property Value: Indicates that which most closely represents the value of this property to the community. The number of employees and sales revenue is considered when trying to differentiate among a business loss, moderate economic impact, or severe economic impact. Also considered is those businesses that have few employees and small storefronts but still generate a large amount of sales tax revenue. This information is obtained from various sources.

Risk Level	**OVAP Score**	**# of Occupancies**	**%**
Maximum	60 +	0	0.00%
Significant	40 - 59	3	0.57%
Moderate	15 - 39	522	98.86%
Low	0 - 14	3	0.57%
Average Score	26.62	-	

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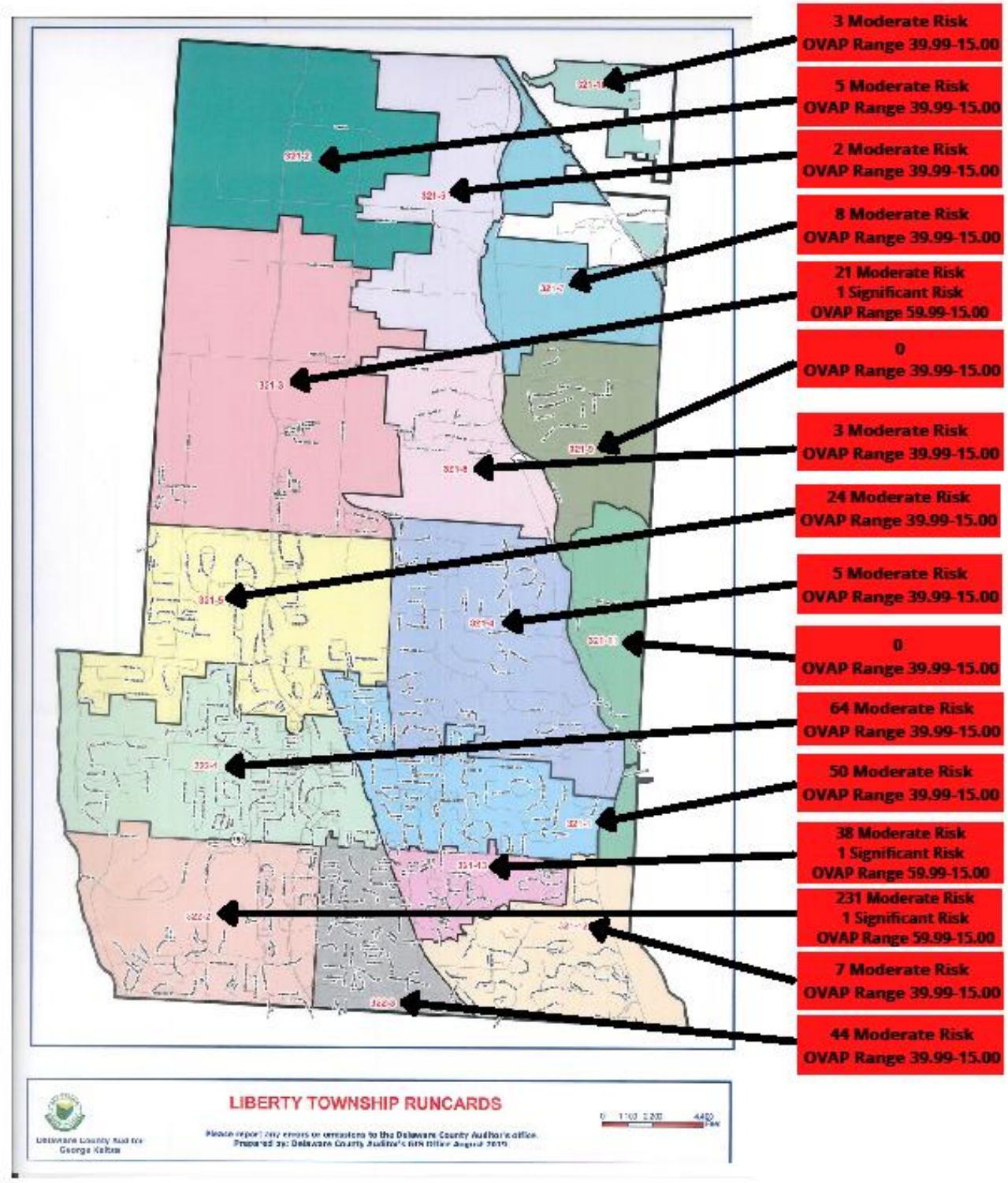
OVAP Score By Hazard Zone



The 3 Axis Methodology (Probability/Consequence/Impact) of Event Risk for all hazards takes a more comprehensive look at risks by incorporating impact as an assessment tool.

Definitions were created for each axis which yielded a subsequent risk assessment score.

Probability is the likelihood an incident would occur. To measure the probability of an incident, the department measured historical response data for a three-year period.

Consequence is defined as the effect of an incident on the community. To properly evaluate multiple ways an incident can impact the community, this agency segmented consequence into three areas: financial, life, and emotional. The financial consequence is defined as the financial drain on the community of the incident. The life consequence is the potential injury or loss of life because of the incident. The emotional consequence is defined as the number of citizens impacted by the incident.

Impact is defined as the number of companies needed to engage the critical tasks associated with mitigating a hazard. The inclusion of agency impact allows for the study of the overall effect an incident has on its resources. The department can truly measure risks throughout the community and better understand its ability to respond to other incidents.

P = Probability (Y Axis)

C = Consequence (X Axis)

I = Impact (Z Axis)

Breakdown of Structure Fires and Other Fires and Incidents: 2019 to 2021

			# Civilian Fire Casualties*		
	FIRES IN STRUCTURES BY FIXED PROPERTY USE (OCCUPANCY)	**NUMBER OF INCIDENTS**	**DEATHS**	**INJURIES**	**EST. PROP. DAMAGE**
1	Private Dwellings (1 or 2 family), including mobile homes (FPU 419)	78	0	1	$839,900.00
2	Apartments (3 or more families) (FPU 429)	19	0	0	$0.00
3	Hotels and Motels (FPU 449)	0	0	0	$0.00
4	All Other Residential (dormitories, boarding houses, tents, etc.) (FPU 400, 439, 459-499)	4	0	0	$36,000.00
5	**TOTAL RESIDENTIAL FIRES** (Sum of lines 1 through 4)	101	0	1	$875,900.00
6	Public Assembly (church, restaurant, clubs, etc.) (FPU 100-199)	10	0	0	$150,000.00
7	Schools and Colleges (FPD 200-299)	2	0	0	$800.00
8	Health Care and Penal Institutions (hospitals, nursing homes, prisons, etc.) (FPU 300-399)	1	0	0	$0.00
9	Stores and Offices (FPU 500-599)	3	0	0	$0.00
10	Industry, Utility, Defense, Laboratories, Manufacturing (FPU 600-799)	1	0	0	$0.00
11	Storage in Structures (barns, vehicle storage garages, general storage, etc.) (FPU 800-899)	7	0	0	$90,000.00
12	Other Structures (outbuildings, bridges, etc.) (FPU 900-999)	4	0	0	$0.00
13	**TOTAL FOR STRUCTURE FIRES** (Sum of lines 5 through 12)	129	0	1	$1,116,700.00
14a	Fires in Highway Vehicles (autos, trucks, buses, etc.) (IT 131-132, 136-137)	7	0	0	$15,369.00
14b	Fires in Other Vehicles (planes, trains, ships, construction or farm vehicles, etc.) (IT 130, 133-135, 138)	3	0	0	$10,000.00
15	Fires outside of Structures with Value Involved, but Not Vehicles (outside storage, crops, timber, etc.) (IT 140, 141, 161, 162, 164, 170-173)	20	0	0	$0.00
16	Fires in Brush, Grass, Wildland (excluding crops and timber), with no value involved (IT 142-143)	19	0	0	$0.00
17	Fires in Rubbish, Including Dumpsters (outside of structures), with no value involved (IT 150-155)	13	0	0	$800.00
18	All Other Fires (IT 100, 160, 163)	1	0	0	$0.00
19	**TOTAL FOR FIRES** (Sum of lines 13 through 18)	192	0	1	$1,142,869.00
20	Rescue, Emergency Medical Responses (ambulances, EMS, rescue) (IT 300-381)	5895	0	0	$35,000.00
21	False Alarm Responses (malicious or unintentional false calls, malfunctions, bomb scares) (IT 700-746)	797	0	0	$0.00
22	Mutual Aid Responses Given	173	0	0	$0.00
23a.	Hazards Materials Responses (spills, leaks, etc.) (IT 410-431)	254	0	0	$0.00
23b	Other Hazardous Responses (arcing wires, bomb removal, power line down, etc.) (IT 440-482, 400)	90	0	0	$0.00

24	All Other Responses (smoke scares, lock-outs, animal rescues, etc.) (IT 200-251, 500-699, 800-911)	1341	0	0	$350.00
25	**TOTAL FOR ALL INCIDENTS** (Sum of lines 19 through 24)	8742	0	1	$1,178,219.00

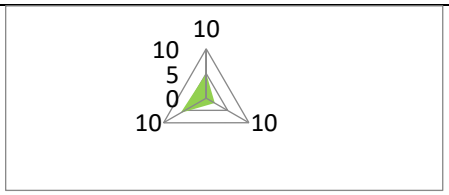
*There were 2 Firefighter injuries reported for this time period. Does not include COVID exposures.

Risk Assessment Methodology		
Probability	0	< 1 Times Annually
	1	> 1 Times Annually
	2	> 4 Times Annually
	3	> 6 Times Annually
	4	> 12 Times Annually
	5	> 24 Times Annually
	6	> 48 Times Annually
	7	> 120 Times Annually
	8	> 240 Times Annually
Consequences	0	No People/Vacant Property
	2	Individual/Single Residence or Business
	4	Multiple People/ Residence or Business
	6	Multiple People/ Residence or Business /Financial Impact to City
	8	Mass Quantity People/ Residence or Business /Financial Impact to Region
Resources Needed	0	No Response
	1	1 Piece of Apparatus
	2	2 Pieces of Apparatus
	3	3 Pieces of Apparatus
	4	4 Pieces of Apparatus
	5	5 Pieces of Apparatus
	6	6 Pieces of Apparatus
	7	7 Pieces of Apparatus
	8	8> Pieces of Apparatus
Risk Assessment Score	< 19.5	Low Risk
	19.6-44.0	Medium Risk
	44.1-78.3	Significant Risk
	> 78.4	Maximum Risk

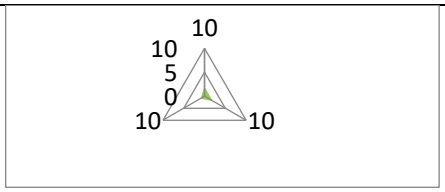
Incident responses to actual fire responses were analyzed and based on the past three-years of the NFIRS coding within the 100 series. The risk analysis classified the fire risk into three basic categories. These were structure fires, vehicles fire and all other fires. A detailed list of all fires for the three-year period is provided. Based on the probability, consequences and resources needed, the fire risk in the is a low risk. In most cases, the number of responses has remained consistent over the years, and through continued training and risk reduction activities, the demand for services is expected to remain consistent.

Fire			**3-Year Total**	**2021**	**2020**	**2019**
Fire		Building fire	81	21	35	25
Fire		Fires in structures other than in a building	2	0	2	0
Fire		Cooking fire, confined to container	27	14	6	7
Fire		Chimney or flue fire, confined to chimney or flue	8	3	2	3
Fire		Commercial Compactor fire, confined to rubbish	1	1	0	0
Fire		Fire in portable building, fixed location	1	0	0	1
Fire		Trash or rubbish fire, contained	9	6	3	0
Fire		Fire in Mobile Home	1	1	0	0
Fire		Mobile Property Other	1	0	0	1
Fire		Passenger vehicle fire	6	0	1	5
Fire		Off-Road vehicle or heavy equipment	2	0	2	0
Fire		Road freight or transport vehicle fire	1	0	0	1
Fire		Aircraft	0	0	0	0
Fire		Self-propelled motor home or recreational vehicle	0	0	0	0
Fire		Natural vegetation fire, other	14	4	4	6
Fire		Forest, woods or wildland fire	2	0	2	0
Fire		Brush, or brush and grass mixture fire	9	3	3	3
Fire		Grass fire	10	1	4	5
Fire		Outside rubbish, trash or waste fire	5	2	2	1
Fire		Garbage Dump	0	0	0	0
Fire		Dumpster or other outside trash receptacle fire	8	3	1	4
Fire		Outside Equipment fire	4	2	1	1
			192	**61**	**68**	**63**

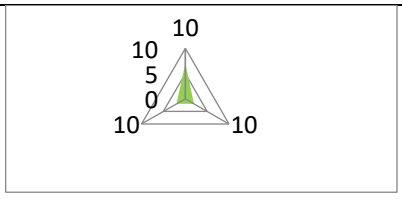
RISK	Structure Fire		
Probability of occurrence			**5**
Consequence to community			**2**
Impact on Fire Department			**6**
SCORE			**23.91652**



RISK	Vehicle Fire		
Probability of occurrence			**2**
Consequence to community			**2**
Impact on Fire Department			**1**
SCORE			**3.464102**



RISK	Fire- other		
Probability of occurrence			**5**
Consequence to community			**2**
Impact on Fire Department			**2**
SCORE			**10.3923**

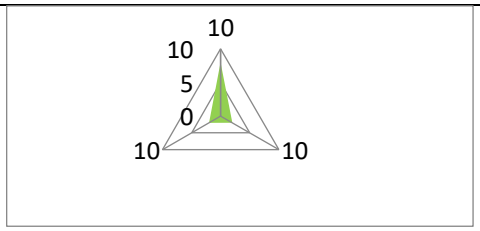


Emergency medical responses account for approximately 70% of the department's incidents. The calls are processed by the county 911 dispatch center and are coded and prioritized utilizing an emergency medical dispatching (EMD) system. Emergency medical dispatching applies a systems approach to ensure the quality management of emergency medical dispatch activities by allowing

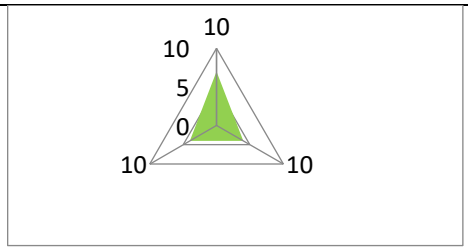
dispatchers to screen callers and determine a nature code. Based on the nature code and the risk, an appropriate assignment of apparatus and resources are sent to effectively manage the emergency. Responses can be upgraded or downgraded based on additional information received.

EMS/Rescue			**3-Year Total**	**2021**	**2020**	**2019**
EMS		EMS call, excluding vehicle accident with injury	5357	1987	1541	1829
Tech Rescue		Vehicle accident with injuries	396	151	111	134
EMS		Motor vehicle/pedestrian accident (MV Ped)	15	2	4	9
Tech Rescue		Motor vehicle accident with no injuries	35	21	6	8
Tech Rescue		Lock-in	2	0	1	1
Tech Rescue		Extrication	5	3	1	1
Tech Rescue		Search for person in water	1	0	1	0
Tech Rescue		Removal of victim(s) from stalled elevator	3	1	0	2
Tech Rescue		Confined Space Rescue	0	0	0	0
Tech Rescue		Ice Rescue	1	0	0	1
Tech Rescue		Trench/below grade rescue	1	0	1	0
Tech Rescue		High Angle Rescue	0	0	0	0
Tech Rescue		Swift water rescue	7	2	2	3
EMS		Rescue or EMS standby	2	0	0	2
			5825	**2167**	**1668**	**1990**

RISK	EMS		
Probability of occurrence			**8**
Consequence to community			**2**
Impact on Fire Department			**2**
SCORE			**16.24808**



RISK	Motor Vehicle Accidents		
Probability of occurrence			**7**
Consequence to community			**4**
Impact on Fire Department			**4**
SCORE			**30.19934**

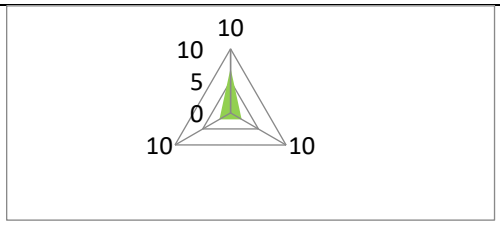


RISK	Technical Rescue		
Probability of occurrence	2		
Consequence to community	2		
Impact on Fire Department	6		
SCORE			**12.33**

Hazardous situations responses were analyzed and based on the NFIRS coding within the 200, 400 and 500 series. Dangerous situations include a myriad of emergencies including ruptures/explosions (200 series), flammable liquids/gas leaks, hazardous material incidents, electrical issues, building collapses (400 series) and assisting the public (500series). At times, some of these types of service request will result in multiple agency responses.

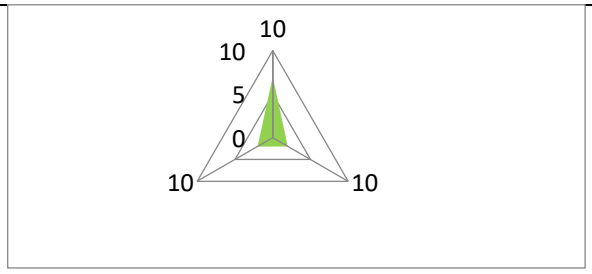
	Hazardous Condition		**3-Year Total**	**2021**	**2020**	**2019**
HazMat		Gasoline or other flammable liquid spill	6	3	1	2
HazMat		Gas leak (natural gas or LPG)	125	45	41	39
HazMat		Oil or other combustible liquid spill	2	1	0	1
HazMat		Chemical spill or leak	3	0	2	1
HazMat		Refrigerant Leak	1	1	0	0
HazMat		Carbon monoxide incident	117	37	37	43
Fire		Electrical wiring/equipment problem, other	12	5	4	3
Fire		Heat from short circuit (wiring), defective/worn	2	2	0	0
Fire		Overheated motor	11	4	3	4
Fire		Light ballast breakdown	1	1	0	0
Fire		Power line down	51	14	24	13
Fire		Arcing, shorted electrical equipment	11	2	5	4
Fire		Accident, potential accident, other	0	0	0	0
Fire		Vehicle accident, general cleanup	0	0	0	0
HazMat		Biological Hazard	1	1	0	0
Fire		Aircraft Stand-by	0	0	0	0
Fire		Explosive, bomb removal (for bomb scare, use 721)	1	0	0	1
Fire		Building Collapse	0	0	0	0
			344	**116**	**117**	**111**

RISK	Hazardous Conditions		
Probability of occurrence			**7**
Consequence to community			**2**
Impact on Fire Department			**2**
SCORE			**14.28286**



Service Call			**3-Year Total**	**2021**	**2020**	**2019**
Fire		Service Call, other	292	55	100	137
Fire		Person in distress, other	1	1	0	0
Fire		Lock-out	38	16	7	15
Fire		Water problem, other	2	1	0	1
Fire		Water or steam leak	2	1	0	1
Fire		Smoke or odor removal	12	9	2	1
Fire		Animal rescue	8	4	1	3
Fire		Public service assistance, other	32	17	5	10
Fire		Assist police or other governmental agency	5	4	0	1
Fire		Police matter	1	0	0	1
Fire		Public service	13	8	1	4
Fire		Defective Elevator, No Occupants	0	0	0	0
EMS		Assist invalid	21	18	2	1
Fire		Unauthorized burning	54	9	24	21
Fire		Cover assignment, standby, move-up	6	0	2	4
			487	**143**	**144**	**200**

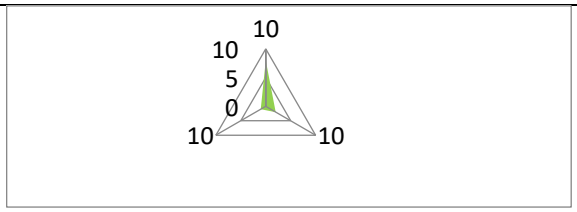
RISK	Service Calls		
Probability of occurrence			**7**
Consequence to community			**2**
Impact on Fire Department			**2**
SCORE			**14.28286**



Good Intent and False Call responses were analyzed and based on the NFIRS/OFRIS coding within the 600 and 700 series.

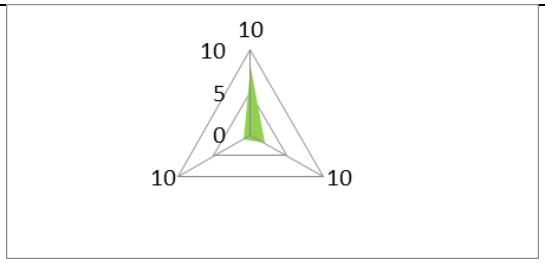
Good Intent			**3-Year Total**	**2021**	**2020**	**2019**
Fire		Good intent call, other	19	12	2	5
Fire		Dispatched & cancelled en route	737	257	217	263
Fire		Wrong Location	7	5	2	0
Fire		No incident found on arrival at dispatch address	25	12	7	6
Fire		Authorized controlled burning	4	0	4	0
Fire		Prescribed fire	0	0	0	0
Fire		Steam, other gas mistaken for smoke, other	0	0	0	0
Fire		Smoke scare, odor of smoke	40	12	14	14
Fire		Steam, vapor, fog or dust thought to be smoke	1	0	1	0
Fire		EMS Call, Party Tx non-fire	0	0	0	0
Fire		Barbecue, tar kettle	0	0	0	1
HazMat		Hazmat release investigation w/ no hazmat	3	1	1	1
			837	**299**	**248**	**290**

RISK	Good Intent Calls		
Probability of occurrence			**8**
Consequence to community			**2**
Impact on Fire Department			**1**
SCORE			**12.72792**



	False Call		**3-Year Total**	**2021**	**2020**	**2019**
Fire		False alarm or false call, other	26	14	4	8
Fire		Malicious, mischievous false call, other	10	5	1	4
Fire		Local alarm	6	5	1	0
Fire		Central station, malicious false alarm	4	2	0	2
Fire		Bomb scare - no bomb	1	1	0	0
Fire		System malfunction	7	6	0	1
Fire		Sprinkler activation due to malfunction	0	0	0	0
Fire		Extinguishing system activation due to malfunction	0	0	0	0
Fire		Smoke detector activation due to malfunction	52	28	8	16
Fire		Alarm system sounded due to malfunction	38	32	3	3
Fire		CO detector activation due to malfunction	41	22	11	8
Fire		Unintentional transmission of alarm, other	10	6	0	4
EMS		Medical Alarm, False, other	0	0	0	0
Fire		Sprinkler activation, no fire - unintentional	1	0	0	1
Fire		Smoke detector activation, no fire - unintentional	66	50	8	8
Fire		Detector activation, no fire - unintentional	31	23	6	2
Fire		Alarm system sounded, no fire - unintentional	474	117	170	187
Fire		Carbon monoxide detector activation, no CO	26	11	10	5
			793	**322**	**222**	**249**

RISK	False Calls		
Probability of occurrence			**7**
Consequence to community			**2**
Impact on Fire Department			**3**
SCORE			**18.34394**

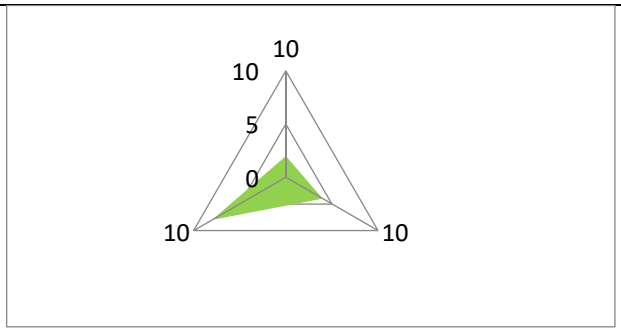


A natural disaster is a major adverse event resulting from a natural event. Hazards within the departments service boundaries may include but are not limited to, dam failures, droughts, flooding, severe summer storms, severe winter storms, and tornadoes. A natural disaster can cause loss of life or property damage, and typically will create a lasting economic damage. The severity of the economic damage depends on the affected population's ability to recover and the infrastructure available.

Flooding, severe summer and winter weather are the most notable of community risks. High water due to heavy rains causes the Olentangy River to rise and creates flooding issues along its banks. While flooding is typically seen as part of severe summer weather events, prolonged rain or snow events in other seasons can cause flooding issues. Severe summer weather includes severe thunderstorms, high winds, extreme temperatures, and hail. While the area is susceptible to tornadoes, there have been none in recent times. Severe winter weather includes, snow, sleet, ice storms, extreme cold temperatures, high wind, and blizzards. These storms typically down trees, causes power outages, damage property, as well as cause injuries and fatalities.

Severe Weather			**3-Year Total**	**2021**	**2020**	**2019**
Fire		Lightning strike (no fire)	7	1	6	0
Fire		Severe weather or natural disaster standby	0	0	0	0
			7	**1**	**6**	**1**

RISK	Weather		
Probability of occurrence			**2**
Consequence to community			**4**
Impact on Fire Department			**8**
SCORE			**25.92296**



A snapshot of overall community risk based on defined risk categories shows the following:

	Probability	Consequences	Resources Needed				Risk Assessment Score	Risk
Structural Fires	5	2	6	50	72	450	23.92	Medium
Vehicle Fires	2	2	1	8	2	2	3.46	Low
Other Types Fires	5	2	2	50	8	50	10.39	Low
Emergency Medical Responses (NFIRS 300 Series)	8	2	2	128	8	128	16.25	Low
Motor Vehicle Accidents	7	4	4	392	128	392	30.20	Medium
Hazardous Conditions (NFIRS 400 Series)	7	2	2	98	8	98	14.28	Low
Service Calls (NFIRS 500 Series)	8	2	2	128	8	128	16.25	Low
Good Intent Calls (NFIRS 600 Series)	8	2	1	128	2	32	12.73	Low
False Calls (NFIRS 700 Series)	8	2	4	128	32	512	25.92	Medium
Natural Hazards	2	4	8	32	512	128	25.92	Medium

2.5 B-Fire protection and detection systems

Fire protection systems are identified and are considered in the risk assessment of each building. These systems include fire sprinkler systems, fire alarm and detection systems and fire flow/water availability ration. Using the departments record management system, each building is given an OVAP score which is affected by the presence or absence of these systems.

The township requires fire alarm systems to be installed and maintained in accordance with the National Fire Protection Association (NFPA) 72: *National Fire Alarm Code*, and sprinkler systems to be installed and maintained in compliance with NFPA 13: *Standard for the Installation of Sprinkler Systems* and NFPA 14: *Standard for the Installation of Standpipes and Hose Systems*. These requirements are listed in the adopted fire code. Fire protection and alarm systems are valued in the planning process because they provide a greater incidence of self-reporting in the case of an emergency and, at times, automatically begin extinguishment. Automation lessens the delay in fire detection, alarm transmission, and magnitude of emergencies by alerting occupants to potential loss problems and providing limited automatic response.

A secondary water supply for automatic extinguishing systems is considered in the planning process. As part of the plan review process and ongoing fire inspections, the availability of hydrant water supply is verified. Department Standard Operating Procedures (SOP) specify that apparatus will provide full support to installed sprinkler systems.

2.6 B-Critical infrastructure

The department assesses critical infrastructure within the planning zones for capabilities and capacities to meet the demands posed by the risks. Critical infrastructure includes utilities, (water,

electric, gas), water dams, and various transportation routes. The department identifies all critical infrastructure within the geographic and emergent response zones.

Response times are only one part of the overall risk assessment. As the primary component of infrastructure, water supply is also evaluated for risk. Water for firefighting is supplied by Del-Co Water, a 501(c)(12) corporation, which is a private water company with a service area that extends into seven central Ohio counties. As a public water supplier, Del-Co Water operates under the authority of the Ohio Environmental Protection Agency (Ohio EPA). A license (PWS-2101412) issued by Ohio EPA covers the operation and maintenance activities related to the four water treatment facilities, the network of underground piping and a series of thirty elevated storage tanks. Over the years Del-Co Water has increased the capacity of the water system in response to the rapid growth of population in the central Ohio counties. Currently the design capacity of the treatment facilities is thirty-three million gallons of drinking water per day. Del-Co Water is currently reviewing demographic projections with the expectation of continued growth of residential communities within the Del-Co Water service area. With this information, Del-Co Water is planning to keep pace with this further expansion by identifying and designing the key infrastructure elements. Del-Co Water has is one of the largest public water systems in the State of Ohio, with over 44,000 current customers. Operationally, Del-Co Water obtains its raw water from both surface and ground water sources. Alum Creek and the Olentangy River are the primary surface water streams utilized and an aquifer located in northern Morrow County and southern Knox County is the groundwater source. One unique feature Del-Co Water employs is the utilization of a series of six up-ground reservoirs. These structures provide an opportunity for Del-Co Water to accumulate raw water during periods of the year when streams and rivers are under full flow and then utilize this water during the hot, dry periods when stream flows reach minimum pool depths. The total capacity of the Del-Co Water reservoirs is 2.6 + billion gallons.

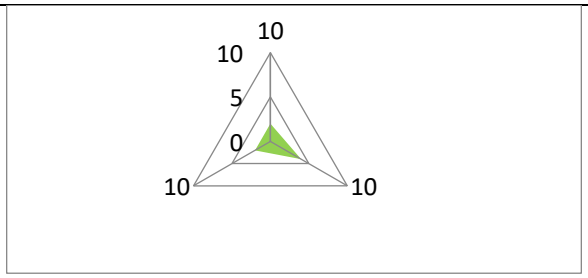
As a maximum separation distance, fire hydrants are placed no more than 500 feet apart within the developed areas. The water system also includes areas of planned development. Hydrant testing program verifies the adequacy of water supply for firefighting operations and proper operation of public and private hydrants.

The department equips its apparatus with a minimum of 1000’ of supply line hose on its engines. This is designed to allow connection to hydrants at twice the maximum spacing interval should a particular hydrant be out of service, or a longer supply line is needed for some of the residential

setbacks. Through automatic mutual aid, tankers are available to augment water supply, if necessary, in sparsely hydrant areas or in the event of catastrophic system failure.

When water outages occur regardless of scheduled/non-scheduled, Del-Co contacts the fire department. A brief overview of the impacted area is provided. Contact is then made when the water is restored. Water outages can go up to 8 hours when maintenance is being performed.

RISK	Water Outage		
Probability of occurrence			**2**
Consequence to community			**4**
Impact on Fire Department			**2**
SCORE			**8.485281**



Various identified facilities critical to infrastructure include:

- Del-Co Water Treatment Plant(s)
- Olentangy Wastewater Treatment Plant
- 48” High Pressure Natural Gas line
- AEP Electric Sub Stations
- Information Data Systems/Financial locations (3)
- O’Shaughnessy Dam
- Columbus Zoo and Aquarium
- Zoombezi Bay
- Columbus State Community Collage
- Fortune 500 business’s

2.7 B-Working with outside agencies

The department works with the Delaware County Engineer, City of Powell Zoning and Liberty Township Zoning and Fire Prevention on any infrastructure additions or improvements. In working with building officials, the department reviews plan and has authority for road width, hydrant placement and other response items. The Chief or his designee is responsible for assuring gaps or threats are identified during monthly or quarterly meetings. The department enjoys a good working relationship with other disciplines and groups. On the infrastructure side the department has established the most recent Ohio Fire Code and Supplements to give it authority for identifying infrastructure risk assessment and mitigation. The Fire Code has been adopted by the AHJ. The chief meetings have proven very effective to identify threats and risks.

Section 2 C- Current Deployment and Performance

The department provides response performance objectives and measurements, based on each service the department delivers and for each zone. The response performance objectives and measurements look at the fire, emergency medical services, technical rescue (which includes vehicle extrication and water responses). The department has developed procedures, practices, and programs to guide its resource deployment, considering the use of automatic mutual aid companies.

The department has identified the critical tasks required through practical applications to effectively mitigate each type of risk, resulting in the establishment of the effective response force (ERF) for each risk. Response time components for both the first due units and the ERFs have been utilized in developing baselines and benchmarks.

The department has distributed resources to provide a timely response to all areas of the jurisdiction. The response plan is designed to place an effective response force on the scene of all incidents within a practical timeframe. The NFPA has established response time standards for emergency services that are based on scientific data and reasonable expectations. Emergency operations are prioritized, training is conducted, and tactics are utilized - all to respond to incidents within a timeframe that will prevent the loss of life.

2.1 C-Methodology

The methodology of determining response levels to all programs includes an analysis of OVAP scores, three axis methodologies for all risks, critical tasking, social economic factors,

demographics, and response time reviews and the alarm room CAD dispatch system. With the potential for service demand increases due to potential growth and performance gap analysis it has given the department the ability to forecast current and potential service gaps.

All fire and EMS systems within the county operate from the single 911 PSAP Center. DelComm operates a Computer Aided Dispatch (CAD) system with the capability to dispatch incidents based on a run card. Within the CAD system are pre-determined response criteria based on the various nature codes. These types of responses and the order in which the apparatus respond is commonly referred to as Run Cards. Run cards assist in ensuring that the proper number and types of vehicles respond and to ensure an effective response force is dispatched. The CAD is also capable of overriding the run card based on the hazard of a specific address.
For each CAD nature code, the department has established the risk, effective response force and the reporting category. The dispatch nature codes are what the department uses in determining response time capabilities. As an example:

- EMS ALLERGIC Low -EMS CP Medium -EMS MASS Maximum
- Fire vehicle Low - Fire structure medium
- Hazmat CO / FUEL Low- Hazmat - Hazmat Train Maximum
- Technical Rescue MVA Medium - Technical Rescue RIVER Significant

The department currently defines different risk categories for responses.

Fire incidents –

- low risk includes fires except a structure fire, i.e., dumpster fires, car fires, open burning calls, non-hazmat large/semi-truck fires.
- medium risk includes residential structure fires, specifically one and two-family structures.
- significant risk incidents are defined as commercial/industrial structure fires or multi-family residential structure fires.
- maximum risk incidents are high-rise or large industrial/ warehouse fires.

EMS incidents are based on the type of incident.

- low-risk incident includes minor vehicle accidents or any general medical call.

- medium-risk incidents include chest pain, trouble breathing, fall victim, diabetic emergency, seizure, vehicle accident without extrication.
- significant risks include trauma and cardiac arrests and vehicle accidents with entrapment requiring extrication.
- maximum risk incidents are defined as mass casualty incidents.

HAZ-MAT

- low risk includes small spills/odors
- medium risk includes haz-mat responses handled by the department
- significant risk includes a haz-mat incident requiring a specialized team being requested
- maximum risk includes a train derailment or large-scale incident

Technical Rescue

- significant risk includes MVA
- maximum risk includes water, confined space or trench rescue

2.2 C-Monitoring response

The department methodology identifies response performance baseline and benchmark performances to the 90th percentile. Each morning the communications center generates a performance report that includes response data. Reports are developed and used to monitor response performance for each service type by zones.

Call Date	Call Time	DispDTMin	Nature	Unit	Dispatch	Enroute	On Scene	In Service	Clear	In Quarters
01/24/21	08:38:40	0:00:46	Injured From A Fall	M322	08:39:26	08:40:14	08:41:35	09:00:27	09:00:38	
01/24/21	08:38:40	0:00:34	Injured From A Fall	STA322	08:39:14					
01/24/21	10:42:14		Injury (Basic)	E322		10:44:10	10:46:47	10:56:17		
01/24/21	10:42:14	0:00:53	Injury (Basic)	M322	10:43:07				10:45:14	
01/24/21	11:04:24	0:01:5	Auto Accident Injuries	BN321	11:05:29	11:06:40		11:11:03		
01/24/21	11:04:24	0:01:5	Auto Accident Injuries	E321	11:05:29	11:06:49		11:10:50	11:12:15	
01/24/21	11:04:24	0:01:6	Auto Accident Injuries	E322	11:05:30	11:06:44	11:10:14	11:19:34	11:19:41	
01/24/21	11:04:24	0:01:6	Auto Accident Injuries	M321	11:05:30	11:06:13		11:10:58	11:12:15	
01/24/21	11:04:24	0:01:6	Auto Accident Injuries	M322	11:05:30	11:06:28	11:10:23	11:20:49		11:30:13

Zone	% of Incidents Meeting Goals	Goal (%)
321-1	0.828452	0.9
321-10	0.625	0.9
321-11	0.575758	0.9
321-12	0.451064	0.9
321-13	0.748691	0.9
321-2	0.728477	0.9
321-3	0.851563	0.9
321-4	0.84573	0.9
321-5	0.831283	0.9
321-6	0.517241	0.9
321-7	0.428571	0.9
321-8	0.796117	0.9
321-9	0.463415	0.9
322-1	0.788809	0.9
322-2	0.810073	0.9
322-3	0.794159	0.9
322-ZOO	0.715026	0.9
322-Zoombezi	0.728395	0.9
Mutual Aid	0.603774	0.9
Zoombezi Bay	1	0.9

2.3 C- Utilizing Alarms/Fire Protection Systems for Response

The department requires fire alarm systems to be installed and maintained in accordance with the National Fire Protection Association (NFPA) 72: *National Fire Alarm Code*, and sprinkler systems to be installed and maintained in compliance with NFPA 13: *Standard for the Installation of Sprinkler Systems* and NFPA 14: *Standard for the Installation of Standpipes and Hose Systems*. These requirements are listed in the adopted fire code Ohio Fire Code.

The department documents fire protection and detection systems in its preplanning and inspection processes. Each of the preplans is accessible to responding personnel on the mobile data terminal located in all apparatus. The department has developed a response strategy around structures with fire protection and detection systems to include a reduced response for automatic alarms within these structures. The department also incorporates fire protection and detection systems into its Fire Zones by identifying high risk occupancies and structures, and whether the building contains any type of fire protection.

2.4 C-Critical Task Analysis

The department has identified critical tasks for different types of events or incidents. The critical tasks are minimum guidelines, and incident command may request additional resources as needed to accommodate any incident. Currently the department's standard operating procedures (SOPs) include adequate resources on the initial dispatch to address all identified critical tasks and provide an effective response force (ERF). Due to incident frequency and level of risk, more resources than are required for an ERF are included in the residential, commercial/industrial, and high-rise structure fire dispatches. The risk classification details the level of risk and the number of critical tasks to define the corresponding Effective Response Force (ERF) and first response and ERF benchmarks. Critical tasks have documented through scenario and real response documentation and the use of each CAD nature code.

2.5 C-Total Response Times for All Service Delivery

The department has designed performance objectives that support its mission statement, industry standards and applicable legislation. Each performance objective contains response time benchmarks for the initial arriving apparatus and an effective response force, adequate resources to mitigate each incident, and the expected percentile measurement. With specific objectives the

department can quantify performance, develop methods to identify and improve performance weaknesses, and satisfy community expectations as expressed by external stakeholders as part of the strategic planning process.

The department provides both fire and emergency medical service to the community along with several specialty services to include extrication, hazardous materials response, technical rescue, and water rescue. The levels of service for each of the areas have also been clearly defined. As the number and types of incidents expand, the department will continue to review and develop new performance objectives and measures as needed.

Levels of risk have been clearly defined and corresponding risk categories assigned for the different levels of service provided. Several factors affect the process of setting measurable objectives including: the community expectations, risks identified in the risk analysis, resource availability, and national standards and laws that affect the fire and EMS industry.

The primary time-critical event at fire incidents is flashover. As defined by the International Fire Service Training Association (IFSTA) flashover is the point at which "the temperature in a compartment result in the simultaneous ignition of all the combustible contents in the space." Flashover is the stage that initial fire ground operations are designed to prevent. Practically speaking, once a fire has reached flashover the incident expands to the entire structure and virtually eliminates the possibility of victim survival. Most sources explain that flashover will occur between eight and ten minutes after the start of a structure fire, depending upon the materials and contents contained within the structure, as well as the size of the structure. If water can be applied to the fire room before flashover occurs, the exponential expansion of the incident can be prevented, and viable victims can be rescued.

Fire Growth

The Incipient Phase The first stage of any fire is the incipient stage. In this stage a high heat source is applied to a combustible material. The heat source causes chemical changes to the material's surface which converts from a solid and begins to release combustible gases. If enough combustible gases are released the material will begin to burn freely. This process is exothermic, which means that it produces heat. The heat being generated raises the temperature of surrounding materials, which in turn begin to release more combustible gases into the environment and begins a chemical chain reaction of heat release and burning. At this point the fire may go out if the first

object completely burns before another begins or the fire can progress to the next stage, which is called the Free Burning Phase.

The Free Burning Phase

The second stage of fire growth is the "free" or "open burning" stage. When an object in a room starts to burn, (such as the armchair in Figure 1, following page), it burns in much the same way as it would in an open area. In this phase of the fire, oxygen in the air is drawn into the flame and combustible gases rise to the ceiling and spread out laterally. Simultaneously, the materials that are burning continue to release more heat, which heats nearby objects and materials to their ignition temperature, and they begin burning as well. Inside a room, unlike in an open area, after a short period of time confinement begins to influence fire development. The combustible gases that have collected on the ceiling will eventually begin to support fire and will begin to burn. Thermal radiation from this hot layer begins to heat the ceiling, the upper walls, and all the objects in the lower part of the room which will augment both the rate of burning of the original object and the rate of flame spread over its surface. When this occurs, the structure fire reaches a critical point: either it has sufficient oxygen available to move on to the next stage or the fire has insufficient oxygen available to burn and it progresses back to the incipient stage. However, since structures are not airtight, there is a low likelihood of the fire depleting the available oxygen. During this stage of fire growth, toxic chemicals released by the fire and high heat are enough to burn people in the immediate area and disorient and/or incapacitate people in the structure. Without rapid response and aggressive intervention by an adequately staffed fire department, the fire will likely spread to the rest of the structure.

If there is sufficient oxygen, then the fire will continue to grow and the heating of the other combustibles in the room will continue to the point where they reach their ignition temperatures simultaneously. If this occurs, all combustible materials in the room will spontaneously ignite. This transition from the burning of one or two objects to full room involvement is referred to as flashover.

Flashover

Flashover, when it occurs, is the most significant event during a structure fire. As combustible gases are produced by the two previous stages, they are not entirely consumed and are therefore available fuels. These "available fuels" rise and form a superheated gas layer at the ceiling that

continues to increase, until it begins to bank down to the floor, heating all combustible objects regardless of their proximity to the burning object. In a typical structure fire, the gas layer at the ceiling can quickly reach temperatures of 1,200˚ F and higher. With enough existing oxygen at the floor level, flashover occurs, which is when everything in the room ignites at once. The instantaneous eruption of flames generates a tremendous amount of heat, smoke, and pressure. The pressure generated from this explosion has enough force to push fire beyond the room of origin and into the rest of the structure, as well as through doors and windows.

As has been noted, at the time of flashover, windows in the room will break. When these windows break, because of the increased pressure in the room, a fresh supply of air from the outside of the building is available to help the fire grow and spread. Based on the dynamics of fire behavior in an unprotected structure fire, any decrease in emergency unit response capabilities will correlate directly with an increase in expected life, property, and economic loss.

EMS Time-Critical Events

The time-critical event at EMS incidents is biological or brain death. As defined by Mosby-Jems, biological death is the "state of sustained oxygen deprivation after which recovery without brain damage is unlikely." Biological death is the event that medical operations are designed to prevent. Whether due to trauma, respiratory arrest, or cardiac arrest - biological death occurs between eight and ten minutes after adequate oxygen is denied to the brain causing irreversible brain damage. If effective cardio-pulmonary resuscitation and cardiac defibrillation can be provided before brain death occurs, the patient has a greater chance for survival.

Other Services

Rescue operations are designed to remove victims from the immediate hazard and deliver them to medical personnel before death or further injury occurs. Hazardous materials operations are designed to prevent an expansion of the incident by either preventing the release of the material or containing it to the area that has already been contaminated.

Time is a major factor in each of these incident types.

2.6 C-Program Outcomes

The department performs program evaluations that measure effective delivery and outcomes based upon various criteria. The criteria and expected outcomes vary dependent upon the program. The program evaluations explore areas such as fire and EMS response, fire prevention, technical rescue, and fire investigations.

One type of evaluation can be seen through the outcomes of cardiac arrest patients. As shown by the chart below from 2019 to 2021, the success rate for cardiac arrest and transports has risen significantly due to procedural changes of stopping at the Powell Stand Alone ER to stabilize patients along with responding to Powell ER to transport stabilized patients to Riverside for further cardiac care.

Incident Details for Cardiac Arrest - Patient Disposition Start Date: 01/01/2019 | End Date: 12/31/2021

DATE	INCIDENT #	AGE	DISPATCH TIME	DISPOSITION
01/02/2019	2019-14	67	1/2/2019 12:22:25 PM	Patient Treated, Transported by this EMS Unit
02/23/2019	2019-402	50	2/23/2019 3:26:01 PM	Patient Treated, Transported by this EMS Unit
02/23/2019	2019-404	50	2/23/2019 4:18:10 PM	Patient Treated, Transported by this EMS Unit
03/02/2019	2019-454	92	3/2/2019 10:50:02 PM	Patient Treated, Transported by this EMS Unit
04/16/2019	2019-777	91	4/16/2019 11:59:40 PM	Patient Treated, Transported by this EMS Unit
06/03/2019	2019-1151	64	6/3/2019 7:39:00 AM	Patient Treated, Transported by this EMS Unit
11/22/2019	2019-2631	53	11/22/2019 6:07:22 PM	Patient Dead at Scene-Resuscitation Attempted (With Transport)
12/07/2019	2019-2721	70	12/7/2019 11:35:07 AM	Patient Dead at Scene-No Resuscitation Attempted (Without Transport)
12/09/2019	2019-2737	62	12/9/2019 6:57:20 PM	Patient Treated, Transported by this EMS Unit
12/12/2019	2019-2758	52	12/12/2019 2:37:58 AM	Patient Dead at Scene-No Resuscitation Attempted (Without Transport)
12/12/2019	2019-2759	54	12/12/2019 6:44:48 AM	Patient Treated, Transported by this EMS Unit
03/13/2020	2020-473	98	3/13/2020 8:30:23 AM	Patient Treated, Transported by this EMS Unit
03/27/2020	2020-540	71	3/27/2020 9:18:26 AM	Patient Treated, Transported by this EMS Unit
04/25/2020	2020-688	59	4/25/2020 8:24:01 PM	Patient Treated, Transported by this EMS Unit
06/01/2020	2020-901	55	6/1/2020 3:31:00 PM	Patient Treated, Transported by this EMS Unit
06/01/2020	2020-902	55	6/1/2020 4:13:47 PM	Patient Treated, Transported by this EMS Unit
07/27/2020	2020-1326	61	7/27/2020 10:51:22 AM	Patient Treated, Transported by this EMS Unit
07/29/2020	2020-1343	76	7/29/2020 6:32:14 AM	Patient Treated, Transported by this EMS Unit
08/17/2020	2020-1493	47	8/17/2020 12:43:20 PM	Patient Treated, Transported by this EMS Unit
01/02/2021	2021-9	74	1/2/2021 3:12:51 PM	Patient Treated, Transported by this EMS Unit
01/18/2021	2021-96	74	1/18/2021 7:18:20 PM	Patient Treated, Transported by this EMS Unit
02/14/2021	2021-278	95	2/14/2021 9:36:38 AM	Patient Treated, Transported by this EMS Unit
06/05/2021	2021-1153	66	6/5/2021 11:18:13 AM	Patient Treated, Transported by this EMS Unit
06/24/2021	2021-1331	64	6/24/2021 11:07:36 AM	Patient Treated, Transported by this EMS Unit
07/04/2021	2021-1450	67	7/4/2021 10:37:09 PM	Patient Dead at Scene-No Resuscitation Attempted (Without Transport)
07/18/2021	2021-1580	65	7/18/2021 4:47:14 AM	Patient Dead at Scene-No Resuscitation Attempted (Without Transport)
07/28/2021	2021-1701	80	7/28/2021 10:02:56 AM	Patient Treated, Transported by this EMS Unit
10/29/2021	2021-5519	27	10/29/2021 6:40:34 PM	Patient Treated, Transported by this EMS Unit
11/03/2021	2021-5557	77	11/3/2021 10:01:54 PM	Patient Treated, Transported by this EMS Unit
11/14/2021	2021-5655	38	11/14/2021 6:34:28 PM	Patient Treated, Transported by this EMS Unit
12/22/2021	2021-5999	85	12/22/2021 10:17:49 AM	Patient Dead at Scene-Resuscitation Attempted (Without Transport)

2.7 C Response time components

To establish relevant performance objectives, it is important to recognize the source for such measurement. The department has established performance benchmarks in accordance with the mission statement and industry standards.

The department's performance has been measured against the NFPA 1710 travel time benchmark of four minutes at the 90th percentile for fire initial response and the travel time benchmark of eight minutes at the 90th percentile for fire ERF response.

The department identifies the total response time components for delivery of services in fire, EMS, hazardous materials, and technical rescue responses. The department defines the total response time to an incident based on the distribution and concentration of resources. The total response time is defined, as the time the alarm room receives an alarm to the arrival of the first mitigating unit (distribution) and for the arrival of the effective response force (concentration). As part of the total response time, the time is broken down to include dispatch processing, turnout time and travel time.

The department's **benchmark** performance objectives for fire incidents and specialty services have been written to encompass the total response time as designated by NFPA 1710 at **six minutes and 20 seconds** with one minute for alarm handling, one minute and twenty seconds for turnout time, and **four minutes** for initial response time (travel time); and the total full alarm response time benchmark at **ten minutes and twenty seconds** with one minute for dispatch, one minute and twenty seconds for turnout time, and **eight minutes** for full alarm response (travel time).

The department's **benchmark** performance objectives for EMS incidents have been written to encompass the total response time as designated by NFPA 1710 at **six minutes**, with one minute for alarm handling, one minute for turnout time, and **four minutes** for initial response time (travel time); and the total full alarm response time benchmark at **ten minutes**, with one minute for dispatch, one minute for turnout time, and **eight minutes** for full alarm response (travel time).

First arrival apparatus response is primarily a measure of distribution, and the effective response force is primarily a measure of concentration. Thus, the department's performance objectives have been developed in the same manner to provide a better understanding of the link between its actual performance and the established performance objectives. Consequently, the department's

performance objectives are each written at the current baseline performance as well as benchmark performance. Again, the department's response plan does not differentiate between service zones about population density classifications. Therefore, the department's performance objectives were developed to provide equal protection to all areas of the jurisdiction.

Operations

At the direction of the Fire Chief, the department provides emergency services through a scalar organizational structure which currently consists of three 24-hour shifts and the fire prevention/community risk reduction bureau that all work collectively to ensure a coordinated and comprehensive approach to providing excellence in services to the citizens of and visitors of Liberty Township and Powell.

The Divisions of the department are administered by three Battalion Chiefs with the assistance of an Administrative Assistant. These divisions include Operations (all service delivery responses and training), Logistics (vehicle maintenance and facilities), and Compliance (rules and regulations, safety). The departments on duty resources currently include two engine companies, one tower ladder, two Advanced Life Support (ALS) medic units and a Battalion Chief. The current daily minimum staffing level is 12 personnel. The Operations Division conducts all emergency operations of the department including emergency medical services, fire suppression, hazardous materials mitigation, vehicle extrication, technical rescue, and water rescue.

Emergency medical responses comprise approximately 70% of the total incidents. The department dispatches the closest and most appropriate units on all medical calls. Both the department's fire apparatus and medic units can provide advanced life support level, and all personnel are State of Ohio Paramedics. Fire and other incidents comprise approximately 30% of the total incidents. The department provides advanced fire suppression with all personnel certified to the NFPA Basic Firefighter/Firefighter II standard. The department offers an operations-level hazardous materials response to any reported hazardous materials incident. The department has one extrication capable engine located strategically at station 321, which is the geographical center of the township. Members assigned to the rescue engine have achieved certification in technical rescue in four different disciplines: rope, trench, confined space, and structural collapse.

The department has a water rescue team which consists personnel trained in various types of water rescue. The water rescue apparatus includes an enclosed trailer with various boats and water rescue equipment. On average, 60% of the responses every year were made by medic units and 33% by engines.

The department utilizes the Delaware County Emergency Communication (DelComm) for dispatching, DelComm is a Public Safety Answering Point (PSAP) in Delaware County, excluding the areas annexed into the Cities of Columbus, Dublin, and Westerville. This includes wireless, wireline, VOIP, and text to 9-1-1. DelComm dispatches for 13 fire departments, Delaware County Emergency Medical Services (EMS), Office of Homeland Security and Emergency Management (EMA), Delaware City Police, Powell Police, and Ohio Wesleyan Public Safety. Along with 9-1-1 responsibilities, they also maintain and manage the countywide Motorola 800MHz radio system, Motorola VHF radio system, and Aviat Microwave system. The system is made up of 12 tower sites in Delaware County. Emergency Communications also owns and maintains over 1,300 portable and mobile radios utilized by our public safety responders. DelComm is CALEA accredited. The Commission on Accreditation for Law Enforcement Agencies (CALEA) Accreditation program seals are reserved for use by those public safety agencies that have demonstrated compliance with CALEA Standards and have been awarded CALEA Accreditation by the Commission. DelComm is one of 58 9-1-1 standalone Public Safety Answering Points in the U.S. that have been accredited by CALEA.

EMERGENCY COMMUNICATIONS CENTER - METRICS

PERFORMANCE

Fire and EMS Call Dispatch Times

Year	Below 90 Seconds	Over 90 Seconds	120 Seconds
NFPA	90%	10%	99.00%
2014	86.65%	13.34%	94.66%
2015	86.43%	13.57%	97.46%
2016	93.51%	6.49%	98.10%
2017	94.43%	5.57%	98.78%
2018	95.98%	4.02%	98.69%
2019	96.90%	3.10%	98.99%
2020	95.97%	4.03%	98.58%
2021	95.97%	4.03%	98.58%

Year To Date Statistics	
Phone Calls	100,929
CAD Calls	93,354
Radio Push To Talk	5,467,330

System Performance: Fire

The following is a an explanation of the department's time benchmarks or goals as they relate to NFPA 1221: *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems* which calls for a 1 minute dispatch time, and NFPA 1710: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* which calls for a one minute turnout time, a four minute initial engine response time (travel time), and/or an eight minute full alarm assignment response time (travel time) 90% of the time to a fire suppression incident.

The initial response time benchmark is six minutes and 20 seconds: one minute for alarm handling, one minute and 20 seconds for turnout time, and four minutes for initial response time (travel time). The full alarm response time benchmark is ten minutes and 20 seconds: one minute for alarm handling, one minute and 20 seconds for turnout time, and eight minutes for full alarm response (travel time).

Benchmark – Low Risk (Car, Grass/Rubbish, Dumpster)

One pumping apparatus shall arrive on scene within 6:20 the initial dispatch with a minimum of three personnel, a minimum of 500 gallons of water, a 1000 gallons per minute or greater pumping apparatus capacity, and the capability of incident mitigation.

Fire – Low: Car, Grass, Rubbish, Dumpster	
Critical Task	**Personnel**
Fire Suppression	3
ERF	**3**

Low Risk - 90th Percentile Times - Baseline Performance			2019-2021	2021	2020	2019
Alarm Handling	Pick-up to Dispatch		1:18	1:11	1:14	1:22
Turnout Time	Turnout Time 1st Unit		2:08	1:56	2:23	2:10
Travel Time	Travel Time 1st Unit **Distribution**		7:21	7:07	7:35	6:54
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**		8:25	8:33	8:47	8:31
			n=53	n=18	n=18	n=17

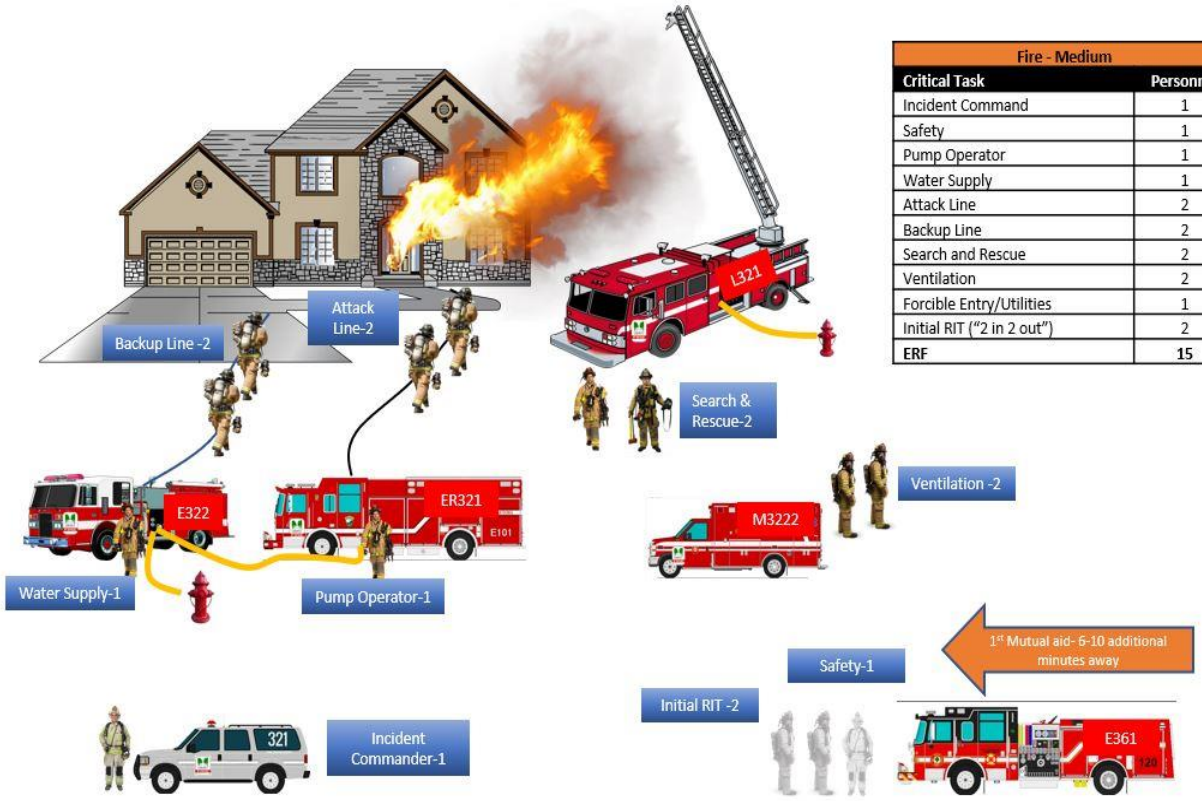
The department had a total of 53 low risk fire responses during the three most recent calendar years, with a 90th percentile travel time performance of 7:21 for first response and a total response time of 8:25.

Benchmark – Medium Risk (One- and Two-Family Residential Structures)

Three pumping apparatus, one ladders one chief, and one medic shall be dispatched. The first pumping apparatus shall arrive on scene within 6:20 of the initial dispatch with a minimum of three personnel, a minimum of 500 gallons of water, a 1000 gpm or greater pumping capacity, the capability of initiating command, rescue, and fire suppression efforts, establishing "two in - two out"; and/or the remaining effective response force shall arrive on scene within 10:20 of the initial dispatch capable of completing the remaining defined critical tasks.

Report of a House Fire in Liberty Township

Benchmark – Medium Risk (One- and Two-Family Residential Structures)



Fire - Medium	
Critical Task	**Personnel**
Incident Command	1
Safety	1
Pump Operator	1
Water Supply	1
Attack Line	2
Backup Line	2
Search and Rescue	2
Ventilation	2
Forcible Entry/Utilities	1
Initial RIT ("2 in 2 out")	2
ERF	**15**

Fire - Medium	
Critical Task	**Personnel**
Incident Command	1
Safety	1
Pump Operator	1
Water Supply	1
Attack Line	2
Backup Line	2
Search and Rescue	2
Ventilation	2
Forcible Entry/Utilities	1
Initial RIT ("2 in 2 out")	2
ERF	**15**

Moderate Fire Suppression - 90th Percentile Times - Baseline Performance		**2019-2021**	**2021**	**2020**	**2019**
Alarm Handling	Pick-up to Dispatch	1:13	1:10	1:04	1:19
Turnout Time	Turnout Time 1st Unit	1:30	1:15	1:33	1:28
Travel Time	Travel Time 1st Unit **Distribution**	6:21	7:35	6:34	4:53
	Travel Time ERF **Concentration**	9:03	9:36	8:38	9:06
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	13:28	10:27	13:04	14:53
	Total Response Time ERF **Concentration**	14:44	12:53	14:06	15:48
		n=24	n=8	n=12	n=4

The department had a total of 24 medium-high risk fire responses during the three most recent calendar years.

Benchmark – Significant Risk Fire (Commercial and Industrial Structures)

Three pumping apparatus, two ladders, two chiefs, and one medic shall be dispatched. The first pumping apparatus shall arrive on scene within 6:20 of the initial dispatch with a minimum of three personnel, a minimum of 500 gallons of water, a 1000 gpm or greater pumping capacity, the capability of initiating command, rescue, and fire suppression efforts, establishing "two in - two out"; and/or the remaining effective response force shall arrive on scene within 10:20 of the initial dispatch capable of completing the remaining defined critical tasks.

Fire – Significant Commercial/Industrial Structure	
Critical Task	**Personnel**
Incident Command	1
Safety	1
Pump Operator	1
Water Supply	1
Attack Line	2
Backup Line	2
Search and Rescue	2
Ventilation	2
Forcible Entry/Utilities	2
Initial RIT ("2 in 2 out")	2
Fire Department Connection (FDC)	2
ERF	**18**

The department has not had any of this type of response during the four most recent calendar years.

Benchmark – Maximum Risk Fires (High-rise and Hospitals)

Four pumping, two ladders, two district chiefs, and two medics shall be dispatched. The first apparatus shall arrive on scene within 6:20 of the initial dispatch with a minimum of three personnel, a minimum of 500 gallons of water, a 1000 gpm or greater pumping capacity, the capability of establishing command and initiating the Department's high-rise procedure; and/or the remaining effective response force shall arrive on scene within 10:20 of the initial dispatch capable of completing the remaining defined critical tasks.

Fire – Maximum: Highrise/Hospitals	
Critical Task	**Personnel**
Incident Command	1
Safety	1
Operations Branch	1
Pump Operator	1
Water Supply	1
Attack Line (Fire Attack Group)	2
Backup Line	2
Search and Rescue	2
Ventilation/Stairwell Support	2
Utilities/HVAC	2
Initial RIT ("2 in 2 out")	2
Fire Department Connection (FDC)	2
Elevator	1
EMS	2
ERF	**22+**

The department has not had any of this type of response during the four most recent calendar years.

Current Performance

The department has chosen to utilize the NFPA 1710 benchmark of four minutes at the 90th percentile for fire initial response (travel time) and eight minutes at the 90th percentile for fire ERF response (travel time).

The first arriving apparatus is only one component of the reliability study of apparatus response. The department also evaluated the full alarm or effective response force (ERF) travel time for all structure fires. The department has defined the ERF, in accordance with NFPA 1710, as follows:

- Medium Risk structure fires: minimum of 15 personnel staffing at least three pumping apparatus, two ladders apparatus and any combination of additional apparatus that provide the remaining personnel.
- Significant risk fires: minimum of 18 personnel staffing at least three pumping apparatus, two ladders and any combination of additional apparatus that provide the remaining personnel.
- Maximum Risk structure fires: minimum of 22 personnel staffing at least three pumping apparatus, two ladders and any combination of additional apparatus that provide the remaining personnel.

This combination of personnel and apparatus addresses the compliment necessary to complete all critical tasks as defined in NFPA 1710 and the department's Standard Operating Procedures.

The 90th percentile ERF travel times for all structure fires during the three year-evaluation period are detailed in the chart below.

ERF Travel Time (Enroute to Arrival) 90th Percentile

Structure Fire Risk	Overall	2021	2020	2019
Low Risk	8:25	8:33	8:47	8:31
Medium High Risk	14:44	12:53	14:06	15:48
Significant Risk	N/A	N/A	N/A	N/A
Maximum Risk	N/A	N/A	N/A	N/A

Current Deployment: Fire

The department has evaluated system performance through resistance, distribution, concentration, and reliability. Performance was measured based on incident data over a three-year period.

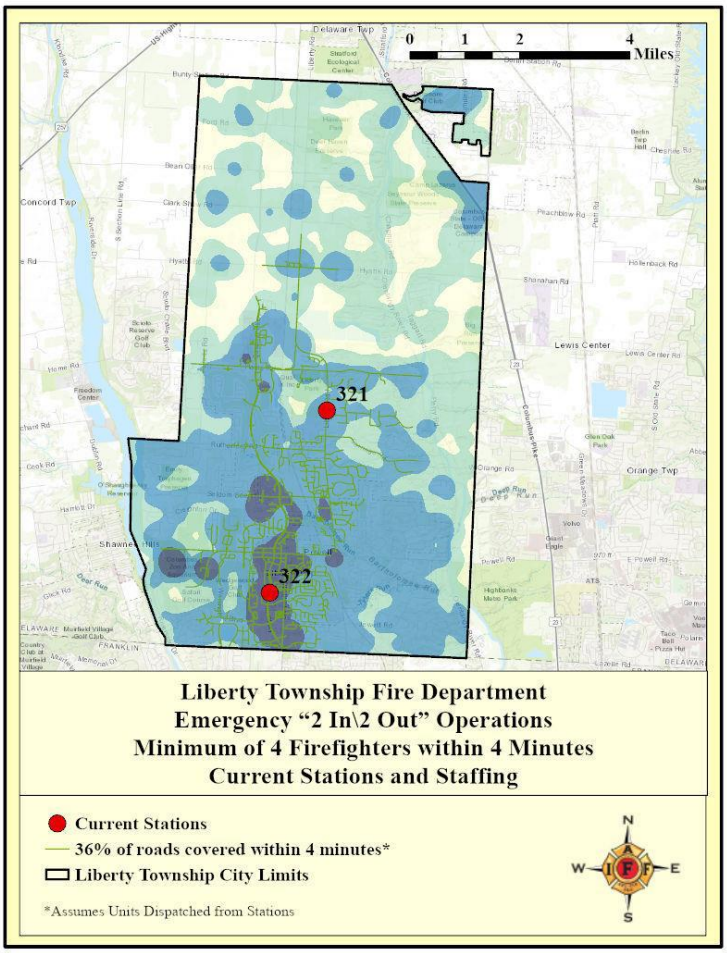
Resistance

The department's ability to deploy only the necessary resources to mitigate an incident and bring it to termination safely and effectively depends on many factors. The department has been able to add additional staffing to fire prevention to create a systematic inspection program with the goal of inspecting all applicable properties within a 48-month cycle. This, in addition to consistent public education opportunities in schools, nursing homes, and public events, help to augment fire prevention efforts and support resource allocation. Smoke alarm outreach efforts in high incident density areas also address the concept of resistance as it pertains to prevention efforts.

Distribution

The department has recently been evaluated by the Insurance Services Offices. They have historically attempted to adhere to the travel distance recommendations of apparatus, which are 1.5 miles of road travel for engines and 2.5 miles of road travel for aerials to all structures within the jurisdiction. An evaluation of initial response coverage for the department shows several areas

within the jurisdiction that fall outside the four-minute initial response catchment areas, as illustrated in the following map.



The department has attempted to maximize the catchment areas with the placement of available resources. The following table provides a comparison of the square mileage and the road mileage for each still territory as each relates to jurisdictional percentages and correlates to catchment area deficiencies.

Distribution involves locating geographically distributed, ideal first-due resources for all-risk initial intervention. Distribution describes first due arrival. Station locations are needed to assure rapid deployment for optimal response to routine emergencies within the response jurisdiction. Distribution can be evaluated by the percentage of the jurisdiction covered by the first-due units within adopted public policy service level objectives. In this case, distribution is measured by the

percentage of roads that are covered from each fire station within 4-, 6- 8- minute and 10-minutes and 10-seconds travel times to adhere to NFPA 1710, 2020 edition.

Four minutes of travel time is the allowable maximum travel time for the first arriving apparatus at the scene of a fire, first responding unit to an EMS incident, and BLS medic if there is not a first responding unit already on the scene.

Distribution study requires geographical analysis of first due resources. Distribution measures may include:

- Population per first-due company
- Area served per first-due company (square miles)
- Number of total road miles per first-due company (miles)
- Dwelling unit square footage per first-due company
- Maximum travel time in each first-due company's protection area
- Catchment areas (4-minute road response from all fire stations) to determine gap areas and overlaps of first-due resources
- Areas outside of actual performance
    1. Population not served
    2. Area not served (square miles)
    3. Road miles not served (miles)
    4. Dwelling unit square footage not served
- First-due unit arrival times (Engine, Truck, ALS unit, etc.)

A major item to be considered in the distribution of resources is travel time. It should be a matter of public policy that the distribution of fire stations in the community is based on the element of travel time and the response goal. Travel time should be periodically sampled and

analyzed to determine whether the fire department is achieving a reasonable response performance to handle emergencies.

Evaluating a small number of incidents for response time performance also does not reflect the true performance of the department. Analyzing tens of thousands of incidents measured over 3-5 years will provide a more accurate assessment of the delivery system performance. Completing the same analysis over a period will allow for trend analysis as well.

Distribution strives for an equitable level of outcome: everyone in the community is within the same distance from a fire station. Distribution is based on the probability that all areas experience equal service demands, but not necessarily the same risk or consequences as those demands for service in other areas. For example, suburban communities in a jurisdiction may have the same service demand as an industrial factory area, but the level of risk is very different. This can have an impact on fire station locations as placement would probably put the stations near high-risk areas to provide shorter travel times. Additionally, EMS response times based on medical emergencies will drive equal distribution in the community and negate distribution based on risk, as the risk is equal.

First unit arrival times are the best measure of distribution. It should be noted that if an area experiences fire unit arrival times outside the adopted performance measure, in this case 4-minute travel time per NFPA 1710, it does not necessarily mean it has a distribution issue. Other issues occur such as reliability, call processing times and turnout times, and traffic which can affect the overall performance of response times.

An effective response force for a fire department is impacted not only by the spacing of fire stations but also by the type and amount of apparatus and personnel staffing the stations. To assemble the necessary apparatus, personnel, and equipment within the prescribed timeframe, all must be close enough to travel to the incident, if available upon dispatch. The placement and spacing of specialty equipment are always challenging. Specialty units tend to be trucks, rescue units, hazmat, or Battalion personnel. Most often there are less of these types of equipment and

personnel compared to the first-line response of engines and medic units. Selecting where to put specialty units require extensive examination of current and future operations within the fire department and a set goal of response time objectives for all-hazards emergencies within a jurisdiction.

Major fires have a significant impact on the resource allocation of any fire department. The dilemma for any fire department is staffing for routine emergencies and being prepared for the fire or emergency of maximum effort. This balancing of distribution and concentration staffing needs is one that almost all fire agencies face on an ongoing basis.

The art in concentration spacing is to strike a balance with respect as to how much overlap there should be between station areas. Some overlap is necessary to maintain good response times and to provide back-up for distribution when the first-due unit is unavailable for service or deployed on a prior emergency.

The following table specifies the current locations of the two stations.

Station	Address	Apparatus	Min. Staffing
Station 321	7761 Liberty Road Powell 43065	Engine 321 Medic 321 Battalion 321	3 FF/Medic 3 FF/Medic 1 FF/Medic
Station 322	10150 Sawmill Pkwy Powell 43065	Engine 322 Medic 322	3 FF/Medic 3 FF/Medic

Travel times were modeled using Esri ArcGIS. Fire stations were identified on Geographic Information System (GIS) maps as starting points with vehicles traveling at posted road speeds.

When generating the maps, several assumptions needed to be addressed prior to drawing conclusions from the analysis. These assumptions are as follows:

- Modeled travel speeds are based on reasonable and prudent historical traffic speeds using the historical traffic level on Wednesday at 5.00 pm. Actual response speeds may be slower, and the associated travel times greater, with any unpredictable impedances including, but not limited to:
    - Traffic Incidents: Collisions and vehicle breakdowns causing lane blockages and driver distractions.
    - Work Zones: Construction and maintenance activity that can cause added travel time in locations and times where congestion is not normally present.
    - Weather: Reduced visibility--road surface problems and uncertain waiting conditions result in extra travel time and altered trip patterns.
    - Special Events: Demand may change due to identifiable and predictable causes.
    - Traffic Control Devices: Poorly timed or inoperable traffic signals, railroad grade crossings, speed control systems, and traveler information signs contribute to irregularities in travel time.
    - Inadequate Road or Transit Capacity: The interaction of capacity problems with the sources causes travel time to expand much faster than demand.

In addition, it is reasonable to suggest that because larger emergency vehicles are generally more cumbersome and require greater skill to maneuver, their response may be more negatively affected by their weight, size, and in some cases, inability to travel narrow surface streets.

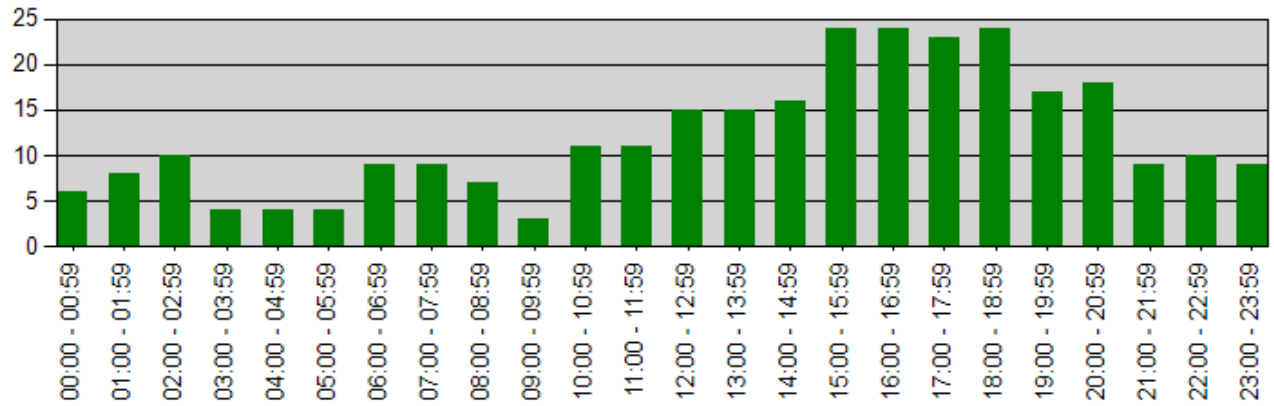
Other additional factors also include:

- The time from arrival of the apparatus to the onset of interior fire operations (access interval) must be considered when analyzing response system capabilities.
    - The access interval is dependent upon factors such as distance from the apparatus to the task location and the elevation of the incident and locked doors or security bars which must be breached.
    - Impediments like these may add to the delay between discovery of a fire and the initiation of an actual fire attack.
- The reliability of a community's hydrant system to supply water to fire apparatus.
- Weather conditions

Reliability

A reliability study of the historical response to incidents demonstrates the department's attempt to meet initial response time benchmarks (travel time). The department is current averaging over 20% concurrent calls. The department has recognized an area of long travel times in zone 321-10 and 321-2. However, currently, current service demands, and overall percentage of call volume are lowest in these zones. This area has historically had extended travel times combined with a relatively low incident frequency resulting in a low range total risk scores for the service zones in this area.

The department has also performed a time-of-day analysis for fire incidents. Currently the department is unable to compare the time-of-day analysis with the concurrent calls for service data due to an inability to correlate the data within the reporting software program. However, the time-of-day analysis does serve as a guide in terms of apparatus availability and probable resource exhaustion. As indicated by the graph on the following, the peak period for incidents is between the hours of 3:00 P.M. and 9:00 P.M.



Summary

The department has attempted to evaluate all facets of performance measurement to identify both strengths and weaknesses. Major strengths include a generally equal distribution of resources throughout the jurisdiction, redundancy of coverage for higher incident density areas, and a significant percentage of apparatus availability. The combination of these three elements provides the capacity to deliver service in an effective and efficient manner.

Areas in which the department is unable to provide adequate first arrival apparatus response indicate a variety of weaknesses that must be addressed. Infrastructure, excessive territory size, and resource placement all contribute to increased response times which fall outside acceptable performance benchmarks. Although distribution is considered a strength, it is important to note that to distribute resources equally, gaps still exist between the four-minute catchment areas of jurisdiction.

System Performance: Emergency Medical Services

The department has established a benchmark travel time objectives that are based on the National Fire Protection Association (NFPA) 1710 standard of 6:00 for first response, and 10:00 for an ERF response. For EMS incidents all response time specifications shall be met at the 90th percentile. The first-due unit, staffed with a minimum of two (2) firefighters with ALS capability, shall be 6 minutes in all areas. The first due unit shall be capable of: assessing scene safety, sizing-up the situation, conducting initial patient assessment and care, initiating defibrillation, and transporting patients.

Benchmark – Low Risk EMS (General Medical Calls)

Receive a one Medic response with a minimum of two paramedics staffing the vehicle.

EMS – Low: General Medical	
Critical Task	**Personnel**
Basic Life Support	2
ERF	**2**

Benchmark – Medium Risk EMS (Cardiac/Overdose)

Receive a one Medic response and one Engine and/or Battalion Chief based on the nature of the call. The Medic vehicle is staffed with a minimum of two paramedics. The Engine company will have a minimum of three paramedics and the Battalion Chief is also trained as a paramedic.

EMS – Medium: Cardiac/Overdose	
Critical Task	**Personnel**
Incident Command	1
Advanced Life Support (ALS)	5
ERF	**6**

Benchmark – Significant Risk EMS (Entrapment, Trauma, Violent Scene)

Receive a two Medic response, one Engine, one Rescue, and a Battalion Chief. Both Medic vehicles are staffed with a minimum of two paramedics. Both Engine and Rescue companies are staffed with a minimum of three paramedics and the Battalion Chief is also a paramedic.

Significant EMS – MVA/Trauma	
Critical Task	**Personnel**
Incident Command	1
Advanced Life Support (ALS)	4
Extrication	3
Support	3
ERF	**11**

(Dispatched for) Auto Accident - 90th Percentile Times - Baseline Performance			**2019-2021**	**2021**	**2020**	**2019**
Alarm Handling	Pick-up to Dispatch		1:18	1:10	1:14	1:25
Turnout Time	Turnout Time 1st Unit		1:25	1:14	1:30	1:28
Travel Time	Travel Time 1st Unit **Distribution**		6:03	6:10	5:55	6:03
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**		9:31	9:40	9:13	9:47
			n=330	n=138	n=90	n=112

Maximum EMS – Mass Casualty	
Critical Task	**Personnel**
Incident Command	2
Advanced Life Support (ALS)	8
Triage	4
Support	10
ERF	**24**

The Department had a total of 5023 EMS *responses* during the three most recent calendar years.

Current Performance - EMS

As with the system performance for fire response, the department has approached EMS performance with identical time measures: NFPA 1710 benchmark of four minutes at the 90th percentile for EMS initial response (travel time) and eight minutes at the 90th percentile for EMS ERF response (travel time).

The ability to discern between BLS, ALS along with first arriving and ERF units is minimized by the departments billing company. The billing company requires all EMS calls to be categorized as "generalized" EMS responses. The billing company then utilizes information contained in the individual reports such as care and treatment to determine the billing level. The software that the department utilizes for EMS reporting will allow discernment of run types but has been turned off due to the billing company contract. The department is reviewing this issue with the billing company along with an anticipated software change. The chart below shows the breakdown of types of calls for 2021 as billed by the billing company. The fire chief and fiscal office have access to a dashboard that allows for review of each type of billed run.

Post Month	Transports	BLS		ALS		ALS2	
December 2020	74	19	26%	54	73%	1	1%
January 2021	61	17	28%	43	70%	1	2%
February 2021	87	23	26%	62	71%	2	2%
March 2021	62	14	23%	48	77%	0	0%
April 2021	72	17	24%	55	76%	0	0%
May 2021	110	47	43%	63	57%	0	0%
June 2021	137	54	39%	81	59%	2	1%
July 2021	133	38	29%	90	68%	5	4%
August 2021	128	50	39%	75	59%	3	2%
September 2021	150	49	33%	99	66%	2	1%
October 2021	122	55	45%	67	55%	0	0%
November 2021	131	65	50%	63	48%	3	2%
December 2021	115	49	43%	66	57%	0	0%

(All) EMS - 90th Percentile Times - Baseline Performance			2018-2021	2021	2020	2019
Alarm Handling	Pick-up to Dispatch		1:07	1:10	1:03	1:07
Turnout Time	Turnout Time 1st Unit		1:56	1:52	1:59	1:57
Travel Time	Travel Time 1st Unit **Distribution**		6:39	7:01	6:41	6:27
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**		8:30	8:41	8:43	8:20
			n= 5023	n= 1779	n= 1469	n= 1748

Current Deployment: Emergency Medical Services

Resistance

The department has consistently provided public education to the residents on a frequent basis. Areas of education include Continuous Chest Compressions Cardiopulmonary Resuscitation (CCC CPR), Automated External Defibrillator (AED) use, First Aid, accident prevention and Stop the Bleed. Education is provided at local schools, nursing homes and public events, and is taught to all age groups. Recently, the Department also launched Pulse Point, a mobile application that notifies CPR trained lay persons of nearby cardiac arrest victims. The goal of this program is to increase patient outcomes through early CPR and rapid defibrillation.

Distribution

All department fire apparatus is staffed at the ALS level and equipped with defibrillators and ACLS medications. All apparatus is staffed with a minimum of two EMT-Paramedics. The department has two medic units which are all licensed at the ALS level and are staffed with a minimum of two EMT-Paramedics. The department's response plan of dispatching the closest and most appropriate apparatus (two/three/ personnel) addresses the defined critical tasks for a

medical incident and adheres to NFPA 1710 for EMS Operations. The response plan also addresses the American Heart Association's guidelines for response to cardiac arrest incidents. The four-minute catchment areas for EMS incidents are identical to those analyzed for fire incidents.

Additional ALS transport vehicles supplement the department's response through mutual aid agreements with other EMS providers. The numbers of mutual aid responses for the specified three-year timeframe are listed in the table below.

Year	Mutual Aid Responses
2021	176
2020	151
2019	162
Total	489

Concentration/Absorption

The department's apparatus catchment overlap is the same for non-fire incidents and addresses incident frequency through redundancy of coverage in the same manner (see *Apparatus Four-Minute (Travel Time) Map*, page 53). Although the response plan attempts to provide for redundancy of coverage, the medics are likely to be away from their respective districts or on concurrent calls over 25% of the time. However, the department does augment the EMS coverage with an ALS first response and appropriate mutual aid.

Reliability

The department has illustrated the reliability of the four-minute initial response times for the township and does not distinguish between fire and non-fire in terms of the four-minute initial response (travel time) benchmark.

The department considers an ERF to be the arrival of all assigned units to EMS calls. Because the department's EMS ERF includes the arrival of both a fire apparatus and a medic, the department examined medic data, to include the number of incidents per medic and medic reliability, as a single component of the EMS ERF response. The following tables, respectively, list the number of incidents per medic and the percent availability and hours utilized for each of

the department's medics. Medic 323 has recently been added and is cross staffed with ladder 321 when staffing permits.

Medic Calls	2021	2020	2019
Medic 321	565	468	563
Medic 322	839	581	771
Medic 323	3	5	0
Total	**1407**	**1054**	**1334**

Medic Incident Hours	2021	2020	2019
Medic 321	288	252	287
Medic 322	402	311	361
Medic 323	3	15	0

Summary: EMS

The department's three-year analysis of EMS incidents demonstrates that just over 70% of the call volume are EMS related. Strategically located medics attempt to provide equal distribution to all areas of the township.

The department's EMS response plan for first arrival apparatus and redundancy of coverage are identical to those for fire incidents and provide the same strengths. Additionally, ALS-staffed first response apparatus assure an increased level of care to the community.

The consistent increase in incidents is beginning to dictate the need for additional medic coverage in the jurisdiction. As the number of EMS incidents continues to rise and areas are developed, the department's medic coverage will need to increase for the department to continue providing an EMS ERF based on equal distribution to all parts of the township.

The department has recognized an area of long travel times in zone 321-10 and 321-2. However, current service demands, and overall percentage of call volume are lowest in these zones. This area has historically had extended travel times combined with a relatively low incident frequency resulting in a low range total risk scores for the service zones in this area.

Performance objectives: Hazardous Materials

Benchmark – Low Risk Hazmat (Gas Spill<30 gals, Gas Odor Exterior)

One engine is dispatched. The first apparatus shall arrive on scene within 6:20 capable of initiating command, identifying hazards, performing risk assessment, and mitigating the incident.

Hazmat – Low: Gas Spills > Gallons	
Critical Task	**Personnel**
Incident Command/Safety	1
Reconnaissance/Entry	2
ERF	**3**

Benchmark – Medium Risk Hazmat (Gas Odor Interior)

One pumping apparatus and one ladder and one chief are dispatched. The first apparatus shall arrive on scene within 6:20 capable of initiating command, identifying hazards, performing risk assessment; and the remaining effective response force shall arrive on scene within 10:20 of the initial dispatch capable of completing the remaining critical tasks.

Hazmat – Medium: Gas Odor Co w/Illness	
Critical Task	**Personnel**
Incident Command/Safety	1
Reconnaissance/Entry	2
Backup Entry/EMS	2
ERF	**7**

(All) Gas Leak / CO Incident - 90th Percentile Times - Baseline Performance		2019-2021	2021	2020	2019
Alarm Handling	Pick-up to Dispatch	1:17	1:10	1:14	1:25
Turnout Time	Turnout Time 1st Unit	1:46	1:26	1:39	1:58
Travel Time	Travel Time 1st Unit **Distribution**	6:47	5:46	6:55	7:21
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	10:21	9:35	11:03	10:57
		n=95	n=30	n=35	n=30

Benchmark – Significant Risk Hazmat (Major Spill/Leak)

For 90 percent of all Significant-Risk priority and non-priority hazardous material incidents in the city, the total response time for the arrival of the effective response force (ERF) of 16 comprised of 16 firefighters and officers with a minimum of four (4) hazardous material technicians, shall be 25 minutes in all areas. The ERF shall be capable of completing a size-up, establishing command, requesting additional resources, initiating life saving measures, staging and apparatus set up, providing emergency medical services (EMS) support knowledge, and providing technical expertise.

Hazmat – Significant: Major spill/leak	
Critical Task	**Personnel**
Incident Command/Safety	1
Reconnaissance/Entry	4
Backup Entry	4
Safety	1
Decon	4
EMS	2
ERF	**16**

The department did not have a significant amount of this type of call to establish a statistically significant baseline data set.

Benchmark – Maximum Risk Hazmat

For 90 percent of all Maximum Risk priority and non-priority hazardous material incidents in the city, the total response time for the arrival of the effective response force (ERF) of 32 comprised of 32 firefighters and officers with a minimum of eight (8) hazardous material technicians, shall be 40 minutes in all areas. The ERF shall be capable of completing a size-up, establishing command, requesting additional resources, initiating life saving measures, staging and apparatus set up, providing emergency medical services (EMS) support knowledge, and providing technical expertise.

Hazmat – Maximum: De- railment	
Critical Task	**Personnel**
Incident Command/Safety	2
Reconnaissance/Entry	8
Backup Entry	8
Safety	2
Decon	8
EMS	4
ERF	**32**

The department did not have a significant amount of this type of call to establish a statistically significant baseline data set.

The department had a total of 95 medium risk hazardous materials responses for the three years included in the study.

Technical Rescue

The department provides technical rescue response based upon the community's risk assessment. The department's technical disciplines operate similarly to the fire-based disciplines of a two in, two out rules. The department seeks to have an equal compliment of certified technicians on each shift. It has been determined and the department prioritizes response for the following technical rescue disciplines:

Water Rescue: The community has over 300 bodies of water that include 2 rivers, multiple natural and man-made retention ponds, and the DelCo Water Company Water Treatment Plant that includes reservoirs.

Rope Rescue: The department has many different natural and man-made elevation changes that require rope assisted rescues. Ropes are the foundation of all department rescue operations, second only to vehicle extrication. The community has several access points between 100 and 300 feet deep, that serve the Delaware County sewer system.

Vehicle Extrication: The area has a wide variety of vehicular traffic. The community has a significant, and growing number of all-electric and hybrid vehicles. The community is bisected by two state-routes that handle delivery, construction, and large commercial vehicles. The department has based its extrication program around the potential involvement of these vehicles whether they are commercial or privately owned. Extrication and shoring equipment are upgraded every five to ten years.

Low Risk Technical Rescue (Lock In)

One apparatus is dispatched. The apparatus shall arrive on scene within 6:20 capable of initiating command, identifying hazards, and performing risk assessment.

Technical Rescue-Low: Lock out	
Critical Task	**Personnel**
Incident Command/Safety	1
Extrication	2
ERF	**3**

One pumping apparatus with a minimum of 500 gallons of water, a 1000 gpm or greater pumping capacity, staffed with a minimum of three personnel. The first apparatus shall arrive on scene within 6:20 minutes capable of initiating incident command, size-up, incident mitigation and determining the need for additional units.

Technical Rescue-Medium: Lock In	
Critical Task	**Personnel**
Incident Command/Safety	1
Extrication	2
ERF	**3**

Benchmark – Significant Risk Technical Rescue (Technical Rescue Response)

One pumping apparatus, one rescue apparatus, one chief, two medic, are dispatched. The first apparatus shall arrive on scene within 6:20 capable of initiating command, identifying hazards, performing risk assessment; and the remaining effective response force shall arrive on scene within 15:20 of the initial dispatch capable of completing the remaining defined critical tasks.

EMS –Significant: Extrication (Vehicle and Machinery)	
Critical Task	**Personnel**
Incident Command	1
Safety	1
Pump Operator/Lock Out Tag Out	1
Protection Line	1
Extrication	2
Basic Life Support (BLS)/Caregiver	1
Advanced Life Support (ALS)	2
ERF	**9**

(All) Extrication - 90th Percentile Times - Baseline Performance			2019-2021*	2021	2020	2019
Alarm Handling	Pick-up to Dispatch		1:18	1:10	1:14	1:25
Turnout Time	Turnout Time 1st Unit		:41	:39	0:00	1:22
Travel Time	Travel Time 1st Unit **Distribution**		4:53	5:12	4:20	5:08
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**		7:03	7:37	5:01	8:32
			n=5	n=3	n=1	n=1

Benchmark – Maximum Risk Technical Rescue (Technical Rescue Response)

Two pumping apparatus, one ladder apparatus, one rescue, one chief, two medics, and any needed technical rescue apparatus are dispatched. The first apparatus shall arrive on scene within 6:20 capable of initiating command, identifying hazards, performing risk assessment; and the remaining effective response force shall arrive on scene within 15:20 of the initial dispatch capable of completing the remaining defined critical tasks.

Technical Rescue-Maximum: Technical Rescue Response (Water-Trench-Collapse)	
Critical Task	**Personnel**
Incident Command/Safety	1
Rescue Branch	1
Entry/Monitoring	6
Operational Personnel	4
EMS	2
ERF	**14**

The department did not have a significant amount of this type of call to establish a statistically significant baseline data set.

Technical Rescue - 90th Percentile Times - Baseline Performance			2019-2021	2021	2020	2019
Alarm Handling	Pick-up to Dispatch		1:17	1:10	1:14	1:25
Turnout Time	Turnout Time 1st Unit		1:01	:52	1:01	:55
Travel Time	Travel Time 1st Unit **Distribution**		6:53	4:40	8:55	6:10
Total Response Time	Total Response Time 1st Unit on Scene		10:12	8:38	13:05	7:06
	Distribution		n=7	n=1	n=4	n=2

Summary of Current Deployment and Performance – All Programs

In effort to measure performance in all areas of the department, data was collected through several different avenues. Response data was gathered from the computer-aided dispatch system and Emergency Reporting software. As a result of working through the accreditation process, the department will begin to now gather more relevant response data within the reporting software for each incident.

The department established the system performance overall benchmark as defined by NFPA 1710 at 6:20 for first arriving apparatus and 10:20 for an effective response force for fire calls, and 6:00 for first arriving apparatus and 8:00 for an effective response force for EMS calls (excluding extrication).

Apparatus reliability was evaluated on the travel time component of each of the response benchmarks. The effective response force was based on the critical tasking as specified by NFPA 1710 and locally developed response needs. Travel time performance was evaluated individually for all levels of risk fire, EMS, and specialty response.

The department's EMS response plan for first arrival apparatus and redundancy of coverage are identical to those for fire incidents and provide the same strengths. Extended turnout times are

partially due to dorm to apparatus floor travel at station 321. This should be rectified in 2022 with the construction of a new station 321.

The department concluded that redundancy of coverage is addressed very well along high incident frequency areas. Overall resource distribution has been designed to attempt equal coverage in all areas of the jurisdiction.

Additionally, the department offers specialty rescue services to address known or anticipated community hazards. Although there are no response time industry standards for specialty services, the department has analyzed each of its specialty areas to establish baseline performance.

Theoretical area analysis revealed several gaps in coverage throughout the jurisdiction. The department identified the major causes for these gaps to include resource distribution in certain areas of the township, infrastructure issues, and resource availability. The completion of a qualitative and quantitative risk assessment, data collection, and performance measurement provided a basis for developing performance objectives.

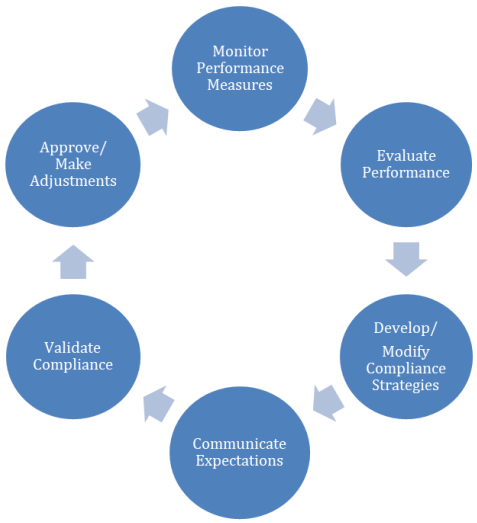
To improve service to the community, the department has utilized the current information to identify both strengths and weaknesses. Continued improvement requires that the department establish and finalize concrete performance objectives that parallel both organizational goals and industry standards.

All these factors combined have provided a comprehensive and functional approach to performance measurement and evaluation.

Section 2 D-Maintaining and Improving Response

2.1 D- Opportunities for improvement

As illustrated below, the department will use the CFAI/CPSE model for compliance methodology as the avenue to provide continuous evaluation of the services.



The department measured performance for fire, EMS and specialty services, and will continue to compare actual (baseline) response time performance to times established by NFPA 1710. Performance measures will continue to be reviewed and developed on an annual basis, or as dictated by need, to comply with industry standards.

As recommended by CFAI, the department used distribution, concentration, and reliability to comprehensively evaluate its response times over a four-year period. Jurisdiction, response zones, first arriving apparatus, and effective response force arrival were all included as part of the evaluation. The department is transitioning to automatic vehicle location (AVL) along with CAD run cards as the primary tool for dispatching incidents. While the method for dispatching will change, service zones are still utilized to measure risk and performance.

The analysis revealed both strengths and weaknesses. The department will be developing an action plan to assess its performance more accurately and to achieve a better understanding of what/which information is necessary and valuable.

The department has begun to conduct documentation drills for all personnel and will continue this training every other year. The drills will include the importance of accurate data, the various components of NFPA 1710, and the value these elements have on assessing department performance.

Personnel can view the following data from the ER software: number of incidents by date range, apparatus, and incident type; and response times to include initial and effective response force. As the department identifies more information deemed valuable to personnel, additional data will be shared. The department will begin to project the reallocation and/or addition of resources through spatial modeling to explore different solutions for identified distribution and concentration issues. Catchment area and redundancy maps, based on travel time and distance calculations afforded by GIS software, can be compared to develop possible solutions for recognized weaknesses. The department will continue to use this method as additional and/or different distribution and concentration issues occur.

The department has prepared a transparent document that will communicate expectations to the organization, political leaders, and the community. Considerable emphasis has been placed on the accreditation process and clearly relaying information in an understandable manner.

Weaknesses referenced above and appropriate resolutions will be communicated to personnel through department-wide training. Mechanisms for feedback from department personnel including response alterations, goal establishment, and open communication opportunities exist within the current organizational structure.

Consequences for noncompliance will be communicated to the organization through the same training programs discussed for the development of compliance strategies. Significant effects include, but are not limited to, delivery of service to the community, failure to meet accreditation parameters, and inability to meet community expectations.

As mentioned above, verification tools have been identified to evaluate compliance for the jurisdiction, response zones, first arriving apparatus, and effective response force arrival for all types of incidents. Analysis will be conducted on a monthly, quarterly, and annual basis.

The department will consider actual unit commit time and performance gap measurement in conjunction with unit availability as appropriate trigger mechanisms, along with plotting noncompliant incidents on a map and service zone analysis to determine the need for adjustments in service delivery.

In addition to calculating the unit hour utilization, the department will begin to methodologies to examine the daily workload for each apparatus. The time committed to incidents and the time dedicated to incident-related activities for fire and EMS apparatus will be reviewed.

The department has established a compliance methodology process to provide a continuous evaluation of service level objectives and performance measures, selecting a six-step compliance model to continuously evaluate performance to identify problems and seek solutions in its delivery of service to the community.

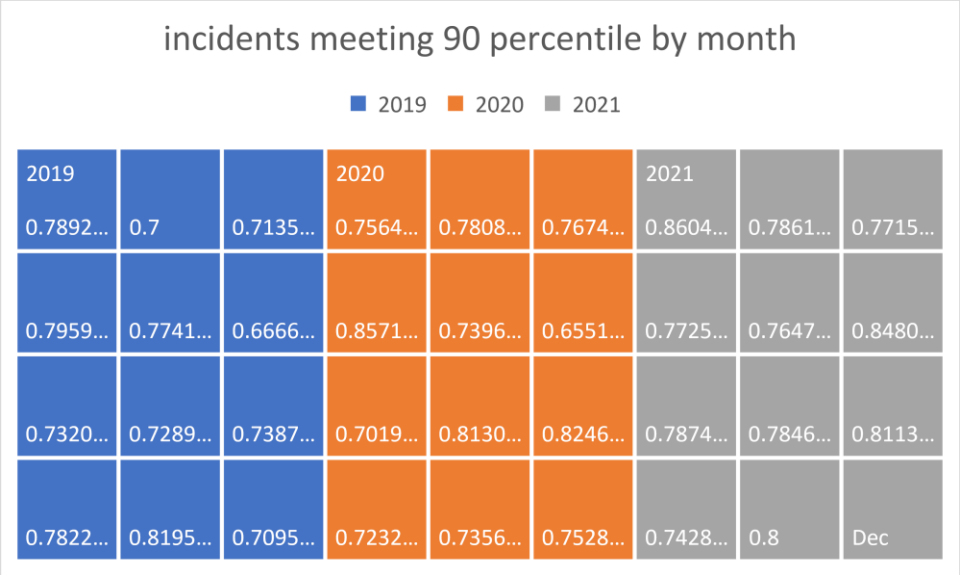
Documentation training will be developed and implemented. The curriculum will include the importance of accurate coding and timestamping, the value of accurate data, and additional data to be collected. The initial documentation training will be implemented in 2022 and continue a biannual basis.

The department calculated performance gaps for each still territory and service zone to geographically identify system performance weaknesses. Percentage gaps were calculated by still territory for both benchmark performance. The performance gap for each service zone within the jurisdiction was also calculated for benchmark performance.

2.2 D- Reporting

To monitor outcome performance (the ability of current services to meet demands and expected outcomes), the department assesses and monitors delivery of service through several different avenues. A monthly report is completed and communicated with the Board of Trustees. This report reviews system response data, dispatch operations and fire prevention efforts. Current

turnout assessment is monitored and communicated to all members through the Compliance Division.



2.3 D- External influences

The potential population growth to the north and west may prove to be problematic in terms of distance and lack of distribution. Even with the addition of automatic mutual aid it did not improve the distribution in those areas of the jurisdiction.

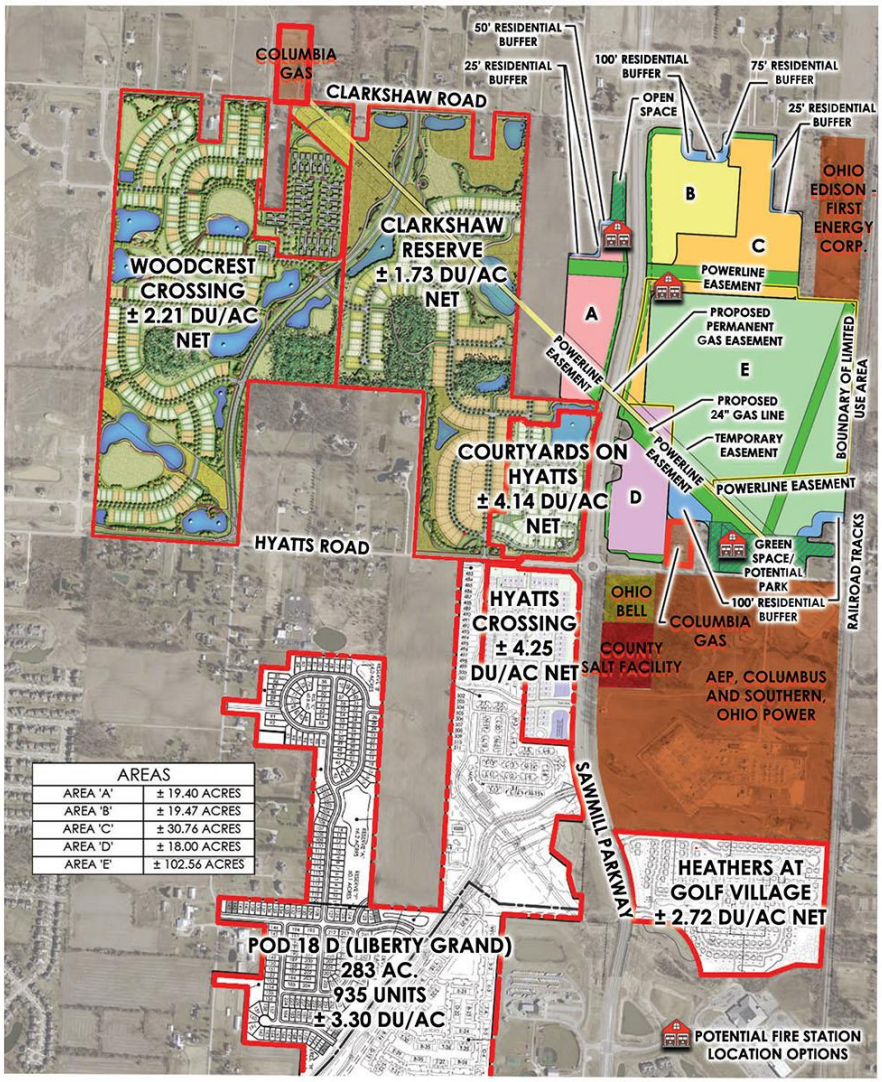
The township is poised for exceptional yet controlled growth in the coming years. A recently proposed development will eventually necessitate the need to explore service demands and a possible third fire station in the coming years. The Planned Overlay District (POD) is created pursuant to Section 519.021(C) of the Ohio Revised Code to further the purpose of promoting the public welfare, encouraging the efficient use of land and resources, promoting public and utility services, and encouraging innovation in the planning and building of appropriate types of retail, office, and residential development. The POD achieves this purpose by permitting flexibility of design to promote and accommodate environmentally sensitive and efficient use of the land.

The chart below shows potential development to date, with an expectation of more growth in the future.

	RESIDENTIAL	
City/Township	**Development Name**	**Number of Lots / Living Units**
Township	Nelson Farms North	37
Township	Whetstone Ridge	7
City	Verona Section 3	62
City	Woodcrest Crossing Section 1	190
City	Mews @ Zion 4 Duplex's	8
Township	Koban CAD	2
City	Powell Summit	248
Township	Hyatt Crossing	104
Township	Olentangy Fall East Section 3	25
Township	Kipling Knoll	6
City	Morris Station	21
City	Carpenters Mill Section 2 Ph. A&B	39
Township	Court Yards at Hyatts	84
City	Harpers Pointe	47
Township	Liberty Summit - 21 Apt Buildings	248
Township	Hyatts Crossing	100
Township	Liberty Grand	1060
Township	The Villas at Loch Lomond CAD	2
City	Middlebury Crossing	66
	Total Lots	**1607**
	COMMERCIAL	
City/Township	**Development Name**	**Square feet of project**
Township	Columbus Zoo: AC -Sea Lion Holding	6092
Township	Columbus Zoo: AC - AEV/LSS Building Sea Lion Holding	19583
Township	Columbus Zoo: AC-Mews Building	989
Township	Columbus Zoo: AC- Viewing Building	1728
City	189/199 S. Liberty: Mixed Use	5108
Township	Columbus Zoo: Zoombezi Bay- OB-Concessions	1154
City	Beatz Studio	4672

Township	Columbus Zoo: Food Building	2116
Township	Bank of America	8144
City	209 S. Liberty: 2 Story Mixed Used	10500
City	153 S. Liberty Addition	576
Township	3584 Home Rd: OLHS Baseball Practice Facility	7488
City	Horsepower Farms -8 buildings	57600
Township	Wyandot Run Elementary School Addition	9596
Township	Newcomer Funeral Home	12753
City	Woodcutter Drive Offices	10800
Township	Sawmill Town Center - 4 Buildings	34636
Township	Adventure Church	46000
Township	Aldi Plaza Self Storage	25000
Township	Health Care / Restaurant	???
City	OSU Facility	200000
City	OSU Future Development	225000
City	Middlebury Crossing	14700
City	Proposed Library	???
	Total Square Feet of Projects	704235

POD ILLUSTRATION

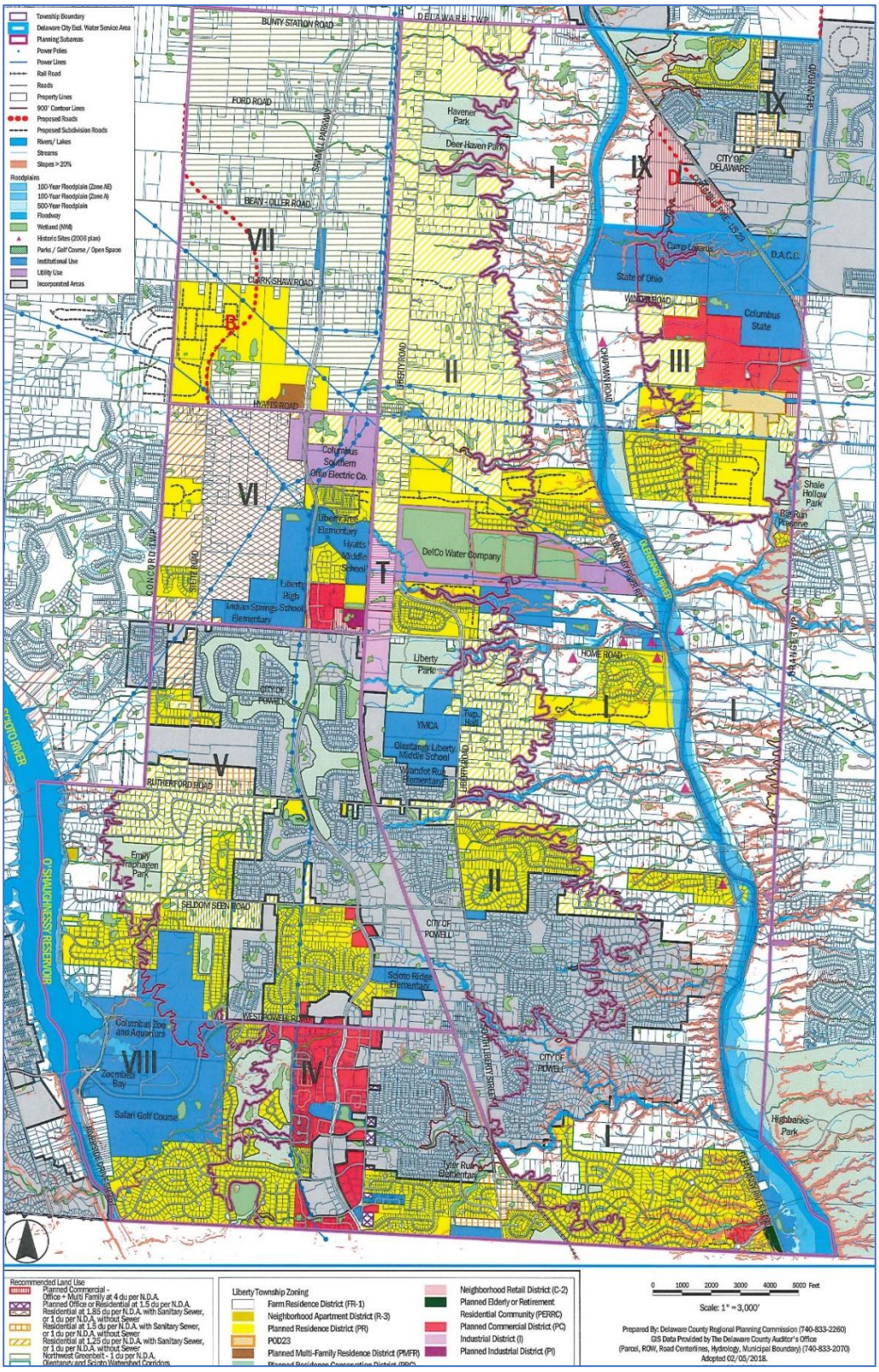


EX.1 PLANNED OVERLAY DISTRICT - POD 18 (D) W/ SURROUNDING APPROVED USES

PREPARED FOR LIBERTY TOWNSHIP - DELAWARE COUNTY, OHIO

DATE: 3-12-21

The current Comprehensive Plan of the township is also undergoing review and being reimagined. The map represents the current zoning of the township as of January 2021



The department's reliability study also showed that units were dispatched on multiple calls over 20% of the time. Additionally, many of the roads in this area are neither directionally parallel nor perpendicular and contain an enormous number of curves, speed bumps and bends, thus posing issues for vehicles. In some instances, vehicles must go a bit further road mileage wise to make up for lost time going through residential neighborhoods or roads with traffic calming.

Increasing call volume, the availability of medics and the traffic increases have all been contributing factors in increased unit hour utilization for the department's ambulances.

2.4 D-Performance monitoring

The performance methodology that has been put in put in place supports the assessment of department programs. This newly instituted appraisal allows for comparison of established practices against industry standards. Research is done to validate effective and efficient program deliver. The department conducts formal and documented annual program appraisals for all its service programs.

2.5 D-Programs

The department operates adequate, effective, and efficient risk reduction programs to manage community risks through our Fire Prevention and Training Division. Some of the current mitigation programs include Commercial/Industrial property inspection, Public Education and School Programs, Fire Investigation, Fire and Life Safety Code plan reviews for new construction, and Smoke Detector installations. In late 2021 the department began implementing community risk reduction by utilizing Pulse Point for community CPR notification and encouraging CPR training.

2.6 D-Performance Gaps

The department calculated the performance gap by overall performance per station zones for first arrival for all fire and EMS incidents regarding the benchmark performance for the four-year period in the study. The performance gap is the measured difference between the ***actual*** performance and the ***intended*** (90^{th} percentile) performance. The following tables show the Fire and EMS benchmark performance gap for each station for first response and ERF travel times.

Fire

Overall Response Percentage	1st	2nd	3rd
	75%	79%	78%
Overall Response Compliance	18 of 24		
Compliant Apparatus for ALL Call Types	79%	100%	100%

Total Number of Calls	24
Compliant Calls for First Arriving Unit	19
Percent Compliance Calls for First Arriving Unit	79%
Compliant Calls for Full Response	24
Percent Compliance for Full Response	100%

EMS

Compliant Apparatuses For Call Type 321	73%	78%	82%
Overall Response Percentage	1st	2nd	3rd
	70%	61%	63%
Overall Response Compliance	2996 of 4310		
Compliant Apparatus for ALL Call Types	73%	79%	82%

Total Number of Calls	4310
Compliant Calls for First Arriving Unit	3133
Percent Compliance Calls for First Arriving Unit	73%
Compliant Calls for Full Response	3740
Percent Compliance for Full Response	87%

The Performance Gaps show the department is having the first unit arrive overall in benchmark times more than 70% of the time. The department has established NFPA 1710 response numbers for its baseline as a starting point. As the accreditation process grows in the future, benchmarks may be adjusted based upon better data on community expectations. The department decide to measure itself against accepted industry standards while evaluating community risk and developing a standard of cover.

Based on the CPSE/CFAI format, the department will design a tiered decision matrix depicting the trigger, threshold and maximum capacity values for fire apparatus and EMS Units including possible solutions.

The department calculates the Unit Hour Utilization (UHU) for all apparatus. This will provide an avenue to communicate individual apparatus performance for any twelve-month period. Personnel will also have access to current time performance measures for different components of the overall response time.

The following table illustrates the unit hour utilization for each apparatus and depicts the daily fire station activities for each apparatus. The table is a sample using one calendar year's (2021) worth of data.

APPARATUS	TIME SPENT ON INCIDENTS (Hours:Minutes Dispatched to Cleared Scene)
B321 - Boat 321	9:59
BN321 - Battalion 321	192:35
C320 - Chief 320	11:58
E321 - HS6277	180:47
E322 - HS 5774	161:55
FST - Safety Trailer	0:00
G321 – Grass 321	5:45
L321 - HS3812	72:47
M321 - Medic 321	252:52
M322 - Medic 322	311:07
M323 – Medic 322	15:11
P321 - Prevention 321	9:28
P322- Prevention 322	5:15
P323 - Prevention 323	3:20

Historically, it has been the department's mission to be proactive in its approach to public safety. The department has completed a comprehensive review and evaluation of the community, levels of service, department capabilities, and citizen expectations. Throughout the process, the

department has identified many areas in which the current service meets or exceeds performance measures, as well as several opportunities for improvement. The extensive risk assessment and reliability study confirmed recognized weaknesses and revealed additional areas for improvement. The study also provided the department with positive reinforcement regarding its current delivery of service to the community.

The department has begun to analyze service areas in a much more focused manner. Risk and performance can be evaluated on a large zone basis as well as by individual service zones, to more accurately pinpoint areas where service delivery may be improved. It is important to mention that while the closest emergency units are now dispatched according to their GPS location (Automatic Vehicle Location – AVL), service zones are still utilized to monitor risk and performance. The introduction of AVL has eliminated run card issue throughout the jurisdiction as it relates to dispatching units.

Due to location and geography, the department has assimilated to its surroundings by offering a variety of services to the community; to include fire suppression, EMS advanced life support for first response and transport, and specialties in the following areas: water rescue, hazardous materials, technical rescue, and extrication. It is especially important that the department offers such a variety of services due to its geographical layout. All types of emergency incidents have been critically tasked and built into the response plan to provide adequate resources for such incidents.

The department has attempted to provide equal protection through its distribution of resources. The jurisdiction constantly adjusts run cards by reallocating resources as needed. Also, to provide redundancy of coverage, additional resources have been added in the areas of highest incident density.

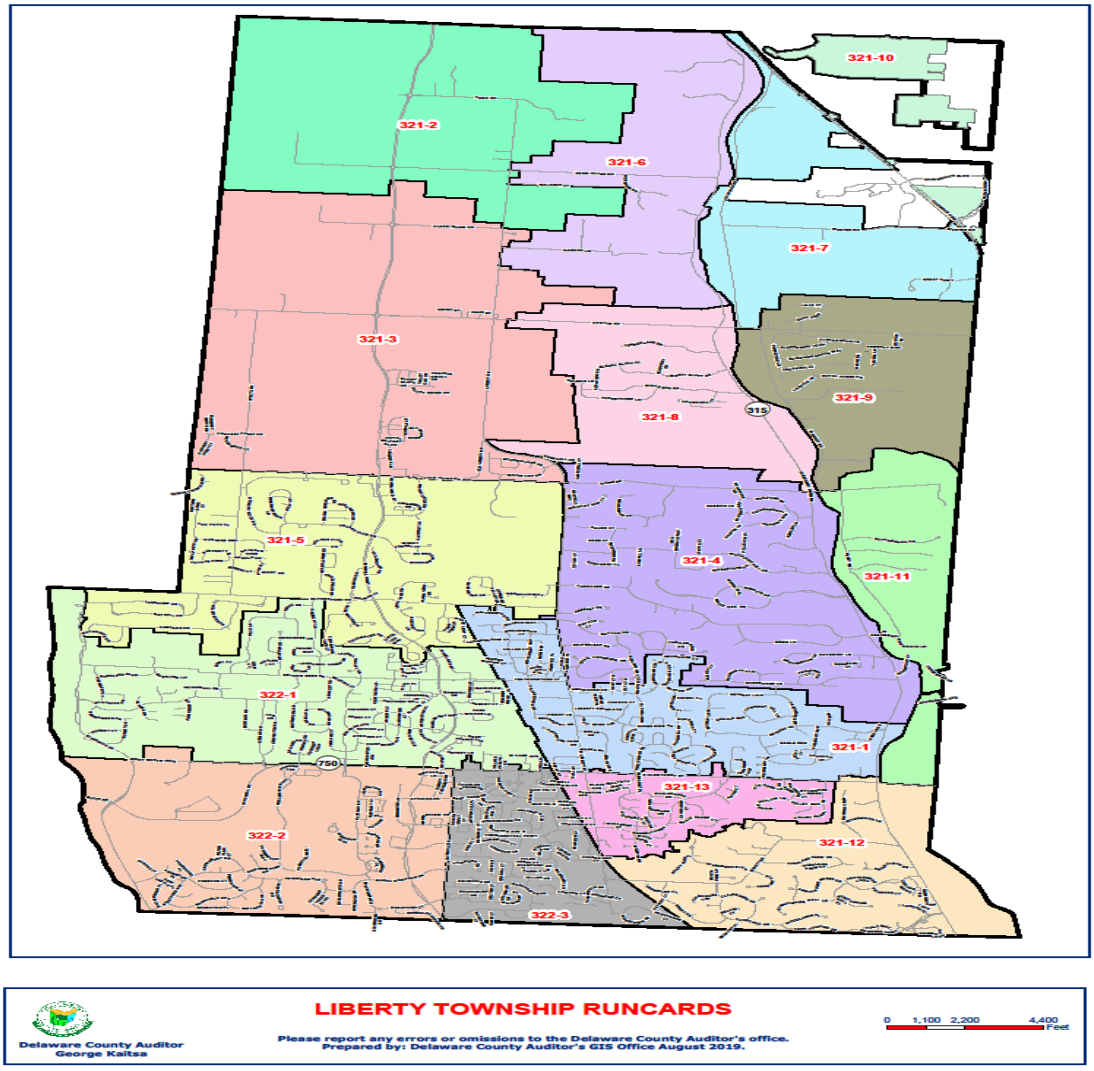
The department stocked an additional medic and placed it into service, depending upon staffing in 2020 to reduce performance gaps across the jurisdiction. Data going forward will determine if performance gaps can be lowered by the addition of the third medic unit and an additional fire station located in the growth areas.

The department utilizes NFPA 1710 timelines as the benchmark for fire and EMS response regarding first arrival and effective response force (ERF). As a result of working towards the

accreditation process, the department has already made improvements in the areas of data collection, documentation, and personnel access to relevant data.

Although the department has attempted to provide equal distribution to all areas of the jurisdiction, several pockets of noncompliance have been identified. As explained in Section 3: *Current Deployment and Performance* and illustrated on the *Incidents Outside Four-Minute Catchment Areas Map* (pg. 53) for fire and EMS, several different areas demonstrate a weakness in distribution.

An area of immediate concern are zones 321-2 and 321-10. This area has historically had extended travel times but a relatively low incident frequency. Using existing infrastructure, the department added additional response units to address these areas.



2.7 D-Continuous Improvement Plan

The department operates adequate, effective, and efficient risk reduction programs to manage community risks through our Fire Prevention and Training Division. Some of the current mitigation programs include Commercial/Industrial property inspection, Public Education and School Programs, Fire Investigation, Fire and Life Safety Code plan reviews for new construction, Juvenile Fire Setters, Drowning Prevention, and Home Safety Surveys.

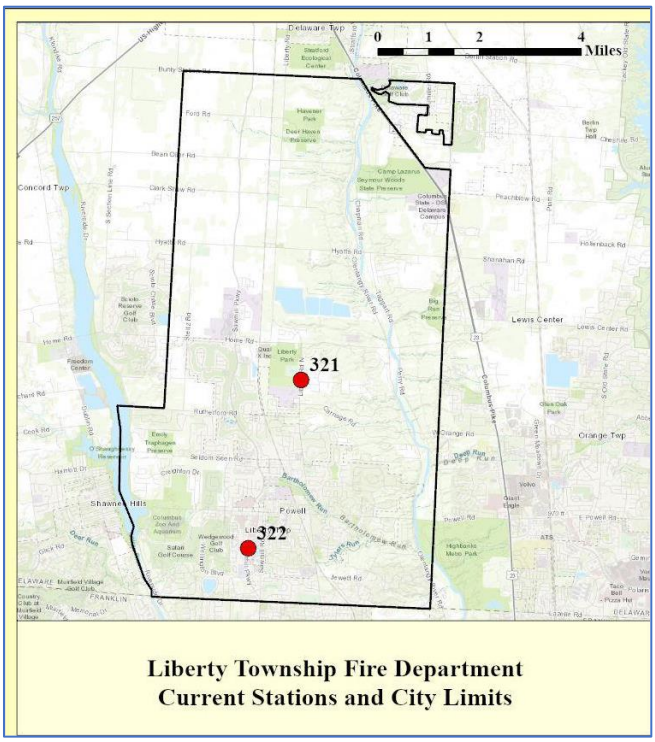
The department will be participating in a county wide institution of community CPR utilizing Pulse Point. The participation in a county Pre-Hospital Care board has allowed the department to be an influential leader in educating our citizens in the use of hands-free CPR and AEDs.

The department is currently exploring a community risk reduction officer. Currently, an on-duty firefighter/paramedic is working with the local police department to identify areas of response concern, individuals in need and other repetitive run locations. This individual also works with all shifts who will report to him any runs that may be flagged for reasons such as hoarder conditions, lack of care, needs beyond the residents' capabilities etc.

The department has developed and evaluated various scenarios to address recognized weaknesses and to capitalize on organizational strengths. Each proposal has been based on the four-year reliability study and reviewed for its technical merit and operational feasibility. A comprehensive risk assessment, catchment and concentration mapping, and performance gap analysis has been included in the preparation of these recommendations. The recommendations have been divided into fixed resources and other recognized needs for service delivery. Additional recommendations have been included to address existing infrastructure concerns. The final recommendation is comprehensive and combines all the resource proposals.

In the longer term, as the population increases, the department should consider building one additional station in the north side of the township, which has high population growth, housing one additional medic unit and one engine. The department is considering building a new station in Sawmill Parkway & Clark-Shaw Rd. This station will allow the department to increase coverage in an area of the jurisdiction with medium to high density of incidents and high population growth, and to increase the "2 In\2 Out" and 4-minute road coverage from the current 36% to 53% of the township roads. Additionally, the department would be able to assemble the

minimum force of 17 firefighters for medium-hazard fires. With increased staffing and one additional station, projections show that the department could reach up to 67% of the incidents within a travel time of four minutes, while currently the department can reach 59% of EMS incidents and 41% of fire incidents within four minutes.



The key findings presented throughout this document also suggests that the department should explore these recommendations to come closer to meeting the NFPA 1710 staffing and travel time objectives:

• Continue monitoring the increasing population. Liberty Township could become an urban area in the next one to two years. The department should be ready to increase the staffing levels as demand dictates.

• The department should explore the staffing costs of all fire suppression apparatus with four firefighters as required by NFPA 1710 for suburban areas as growth continues towards the change from urban to suburban.

• The department should staff the ladder truck and provide for the availability of the second medic unit in Station 321. This will allow Medic 321 to be more available to respond, reducing travel times, while at the same time keeping the ladder truck available in the township with a high density of fire incidents and high population growth. The data show that the ladder's responses are increasing steadily and that most of the population growth will occur in the area around Station 321.

The completion of an extensive risk assessment, accumulation of data, evaluation of performance, and analysis of system capabilities allowed the department to determine those areas of compliance and to identify areas for improvement. Specific recommendations for resource placement and additional resources have been developed. Based on a comprehensive reliability study, the department believes that implementation of the proposed recommendations will lead to performance improvement and support the department's performance objectives.

The department will evaluate system response time performance annually to adjust as needed. It is believed that improved data collection will more accurately represent current performance. As indicated by the proposed catchment and overlap maps, the addition of resources will undoubtedly improve distribution and concentration in the most noncompliant areas of the jurisdiction. Several different scenarios addressing the areas of noncompliance were reviewed.

The goal is to align with NFPA 1710 travel times as both the benchmark and industry standard. However, it is unrealistic to expect that the difference between current performance and benchmark performance would be attained in a short period of time and thus sustained for any extended period.

The accreditation process has provided the department with a comprehensive evaluation of community risks, stakeholder expectations, and current performance. Specifically, the Community Risk Assessment: Standards of Cover has served as a template to develop deployment objectives that "ensure a safe and effective response for fire suppression, emergency medical services, and specialty response situations." As a result of the process, the department has identified its strengths and weaknesses, and designed specific performance objectives to align its delivery of service with industry standards and customer expectations.

The intent of the Department's involvement in the accreditation process, as stated in the department mission statement, has been to enhance its ability "to **Protect** the quality of life for our residents, employees and those who visit our community by providing the highest quality Emergency Service Management for Fire, Hazardous Materials, Emergency Medical Services and Disaster Emergencies. **Preserve** the quality of life through the effective and efficient delivery of emergency services in the assigned mission areas of fire suppression, rescue services, emergency medical support, and the mitigation of special hazards that threaten public safety. **Prevent** or minimize harmful effects of fires, medical emergencies, and other types of dangerous events through education."