

# Fire Services Assessment

# Washtenaw County Emergency Services

- Dispatch
- Police
- Fire/EMS
- Road Commission
- Emergency Operations Center



# Dispatch

- Primary PSAP-Washtenaw County Sheriff Office
  - First point of contact when calling 911
  - Dispatches most police agencies
  - Located on Zeeb Rd
- Secondary PSAP-HVA
  - Receives transferred fire/EMS calls
  - Dispatches all fire/EMS
  - On State Circle in Pittsfield Twp
- Creates some bottleneck in system transferring between PSAPS



# Police

- Based on local choice
- MSP-least control
  - Where no local police contract is in place-Salem Twp, all freeways
- WCSO
  - Scio Twp, Dexter City, Ypsilanti Twp, several others
- Local departments-most control
  - Saline, Pittsfield Twp, Chelsea, Ann Arbor City, Ypsilanti City, Northfield Twp



# Fire Departments

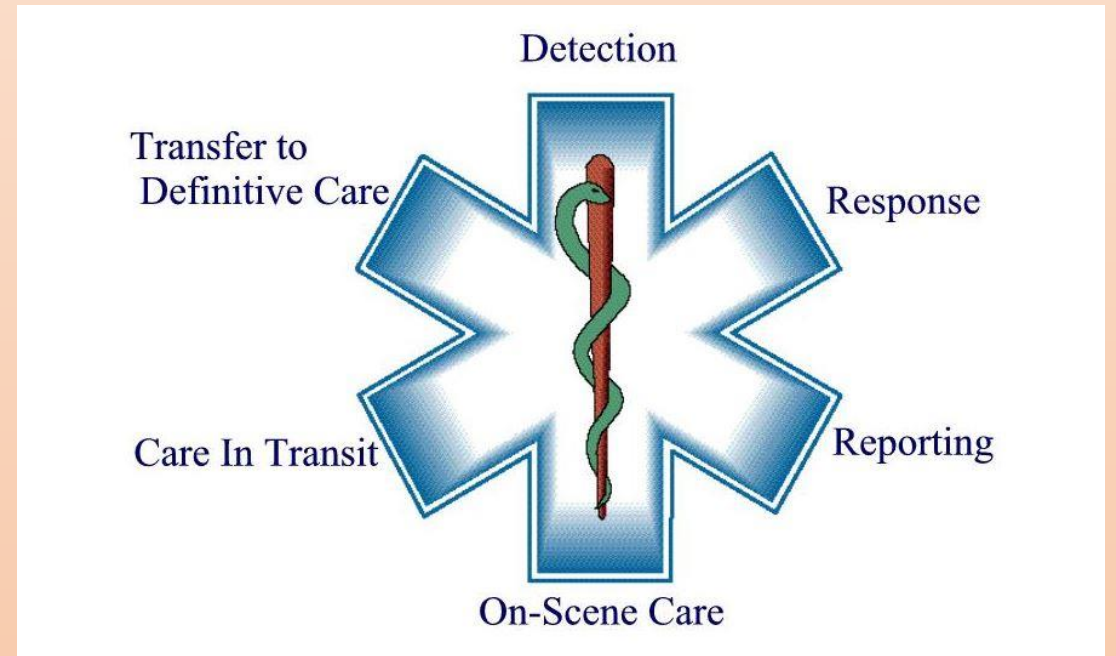
- Municipal organizations run by local governing body
  - Most prevalent in Washtenaw County
  - Larger communities generally organize and run fire departments
- May provide protection for more than 1 municipality by contract or other agreement
  - Saline, Chelsea, Dexter
  - More common in rural areas/smaller communities





# Emergency Medical Service (EMS)

- Types/levels of EMS service
  - ALS/BLS/MFR
  - Ground transport
  - Air transport
  - Community paramedicine
- Many different ways of organizing EMS
  - Fire Departments
  - Private ambulance companies
  - County based systems
  - Hospital based systems



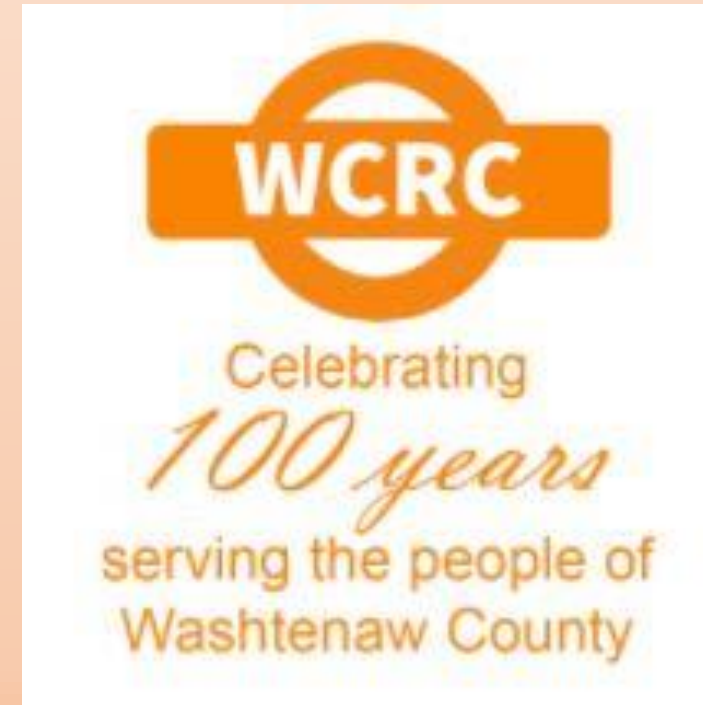
# Washtenaw County EMS

- Transport provided by Huron Valley Ambulance-ALS level
  - Cover entire county emergencies/hospital transport
- Air ambulance available if needed
- Most FD's provide BLS first response
  - Cover individual service area
- All agencies follow local medical control (W/L MCA)
  - Set standards and rules
  - Modify treatment protocols



# Road commission

- Responsible for roads in townships-except for state and private roads
- Close roads at request of emergency responders
- Maintain and repair roads and bridges
- Primary agency to keep roads open during inclement weather
- Located on Zeeb Rd





# Emergency Operations Center

- Under authority of Washtenaw County Sheriffs Office
  - Located on Zeeb Rd
- Coordinating point for large scale incidents in county
- Able to access state and federal resources as needed



# Mutual aid

- Local mutual aid
  - Used for routine incidents when additional personnel is needed- generally structure fire responses
- Mutual Aid Box Alarm System (MABAS)
  - Nationally recognized/utilized system for major incidents



# Local mutual aid

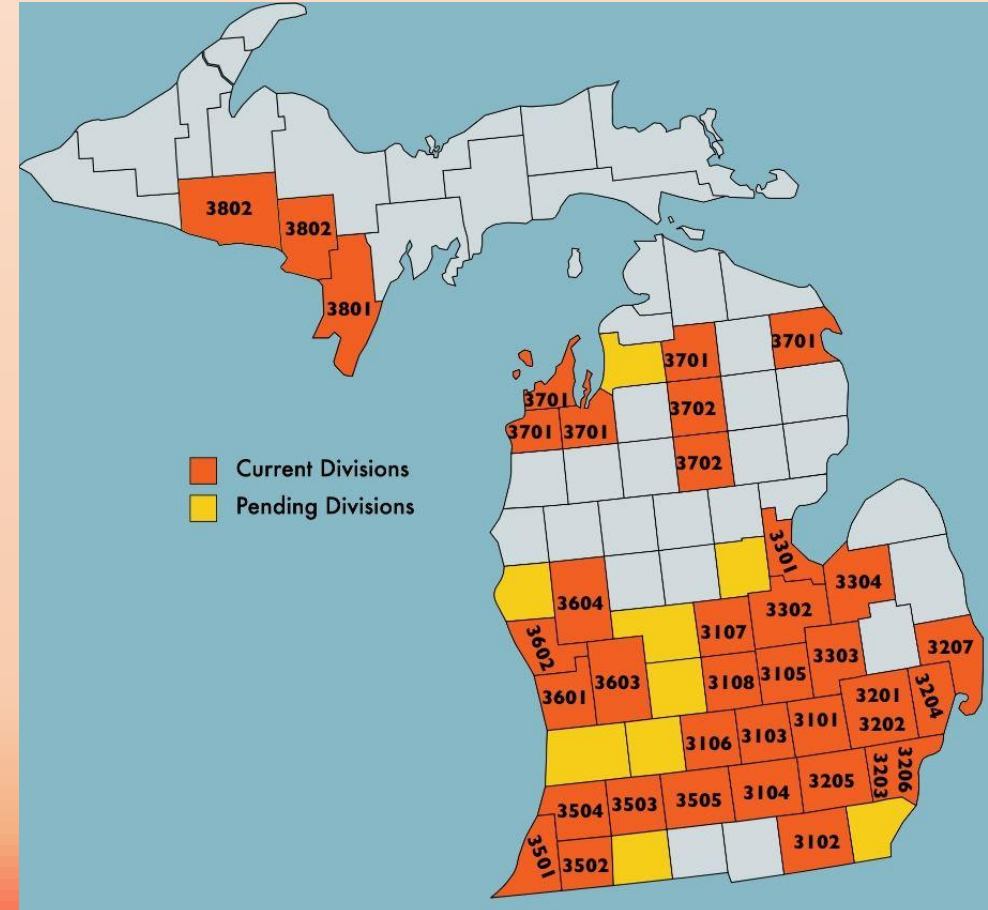
- Reciprocal agreement which allows for sharing of resources
- Single resource request
  - Used when some additional assistance is needed
- Prearranged alarm card
  - For when incident needs exceed department capability-delayed response due to distance
- Specialty teams
  - Technical rescue, swift water, hazardous materials

DEPARTMENT NAME		BOX ALARM TYPE:				
Scio		STRUCTURE FIRE				
BOX ALARM #		LOCATION OR AREA:				
81-16-H		Scio Hydrant				
LOCAL DISPATCH AREA:		Washtenaw Central			<a href="#">MAYDAY / EVACUATION</a>	
ALARM						
LEVEL	ENGINES	TANKERS / TENDER	AERIALS / TRUCK	RESCUES	EMS	
Still	Scio					
Box Alarm	Ann Arbor City		Ann Arbor City			
	Dexter					
	Ann Arbor Township					
WASHTENAW COUNTY BOX:						
ALARM						
LEVEL	ENGINES	TANKERS / TENDER	AERIALS / TRUCK	RESCUES	EMS	
2nd BOX Alarm	Chelsea		Superior			
	Saline					
	Pittsfield					
3rd BOX Alarm	Augusta		Ypsi City			
	Salem					
	Ypsi Township					



# Washtenaw County MABAS division 3205

- One of 39 divisions in MI
- Task force
  - 4 engines, 1 ladder truck, 3 ambulances, minimum 26 people
- Engine strike team
  - 5 engines, minimum 20 firefighters
- Tanker strike team
  - 5 tankers, 11 people
- MI task force 1
  - Urban search and rescue team



Services your fire  
department provides



# Fire suppression

- Primary function of a fire department
- Building fires
- Vehicle fires
- Grass/brush fires
- 64 fires in 2021-5% of total calls
- 33 building fires



# Types of handlines

- 1  $\frac{3}{4}$ " line
  - 100 gpm trash fire
  - 160 gpm structural use-offensive
  - 2 people min to manage
- 2  $\frac{1}{2}$ " line
  - 300 gpm all uses-offensive or defensive
  - 2-4 min to manage
- Master stream
  - 500+ gpm generally defensive-used from fixed position



# How many firefighters does it take to fight a car fire?

- 1 pump operator
- 2 firefighters to manage the hose line
- 1 incident commander
- 2-3 more to open hood/doors and other assistance
- Generally we have enough water on our engine to fight a car fire
- Total: 4-7



# How many firefighters does it take to fight a tractor-trailer fire?

- 1 pump operator
- 1 incident commander
- 2-4 to manage hose lines
- 2-4 to use tools to open trailer/expose burning materials
- If not within 900' of municipal water 1-2 water tankers (2-4 more people)
- Ordinary combustibles, not hazardous contents
- Total: 8-16





# How many firefighters does it take to fight a house fire?

- 1 pump operator
- 1 incident commander
- 1 incident commander aid/accountability officer
- 2-4 to manage hose line (1-2 lines)
- 2 on backup line
- 2-3 to search for occupants
- 2-4 people for “RIT” crew

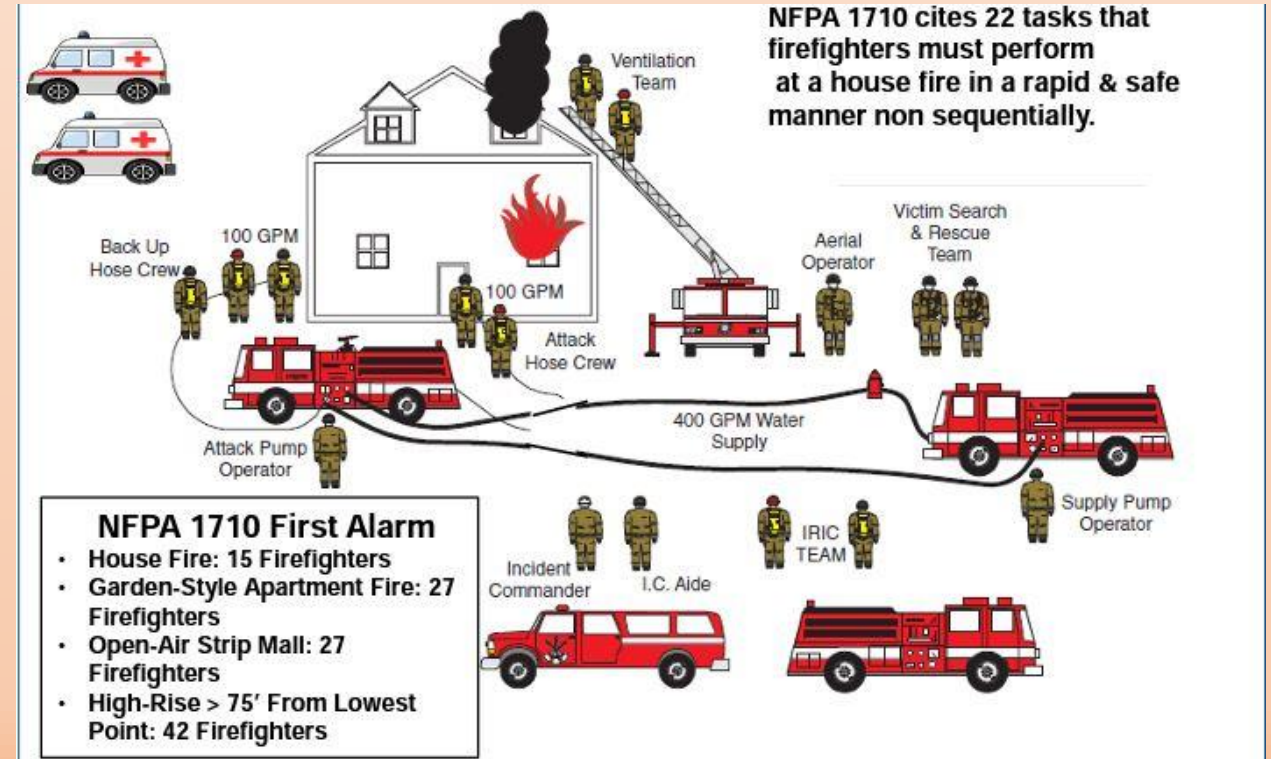




# How many firefighters does it take to fight a house fire?

- 2-3 to ventilate the building
- 2-3 to establish a water supply (6-8 if rural)

- Total 15-28 people



# Emergency medical services

- First responder to medical emergencies
- Often first to arrive-can provide Basic Life Support
- Immediate lifesaving interventions including CPR, AED, and certain medications
- 726 medical calls in 2021-55% of calls



# How many firefighters does it take to handle a medical emergency?

- 2-4 firefighters
  - Provide patient care
  - Incident reporting
  - Provide info to/assist ambulance personnel with equipment and patient handling
- 2-3 ambulance personnel
  - Provide advanced procedures
  - Transport to hospital
- Total: 4-7 people



# Rescue

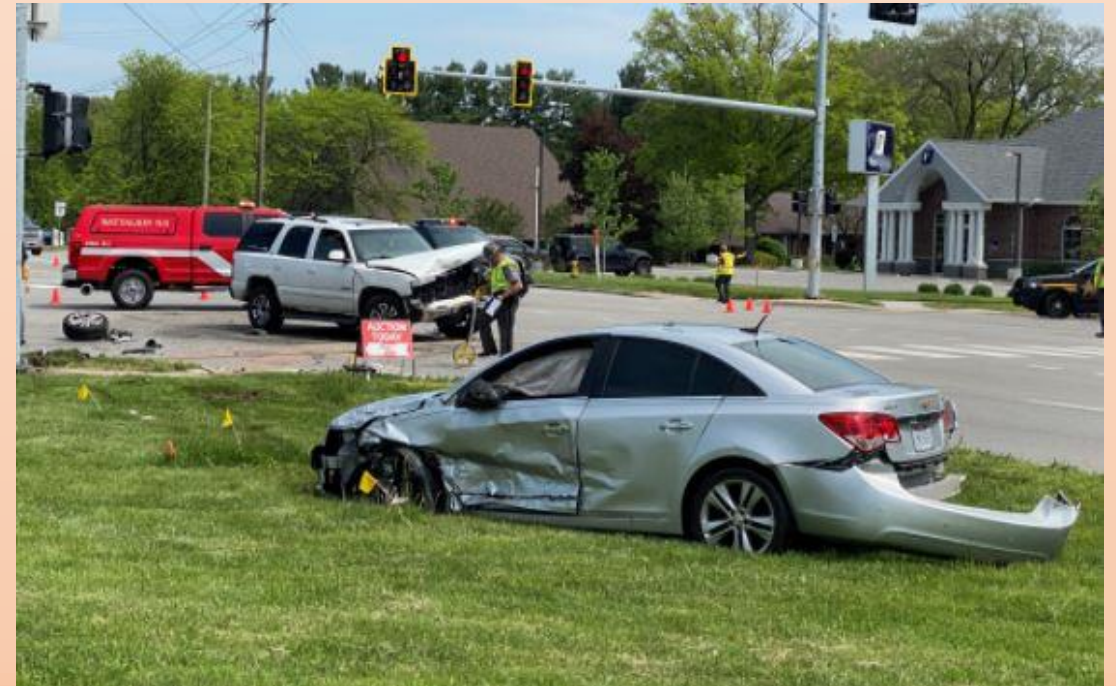
- Extricate victims from car crashes
- Low angle rescue-rescue people from along riverbank or other inclines
- Ice and water rescue
- Machinery rescue





# How many people does it take to manage a car accident?

- 1 driver/pump operator
- 1 incident commander
- 1-2 to control hazards/fluids
- 1-2 to provide patient care
- 2-3 ambulance personnel (per injured person)



- Total:6-9



# How many people does it take to manage a vehicle extrication?

- 1 driver/pump operator
  - 1 incident commander
  - 1-2 to stabilize vehicle
  - 1-3 to operate tools
  - 1-2 to control hazards/fluids
  - 1-2 to provide patient care
  - 2-3 ambulance personnel
- 
- Total: 8-14



# Hazardous conditions

- Odor investigations/gas leaks
- Haz-Mat incidents
- Wires down
- Burning complaints/smoke investigations



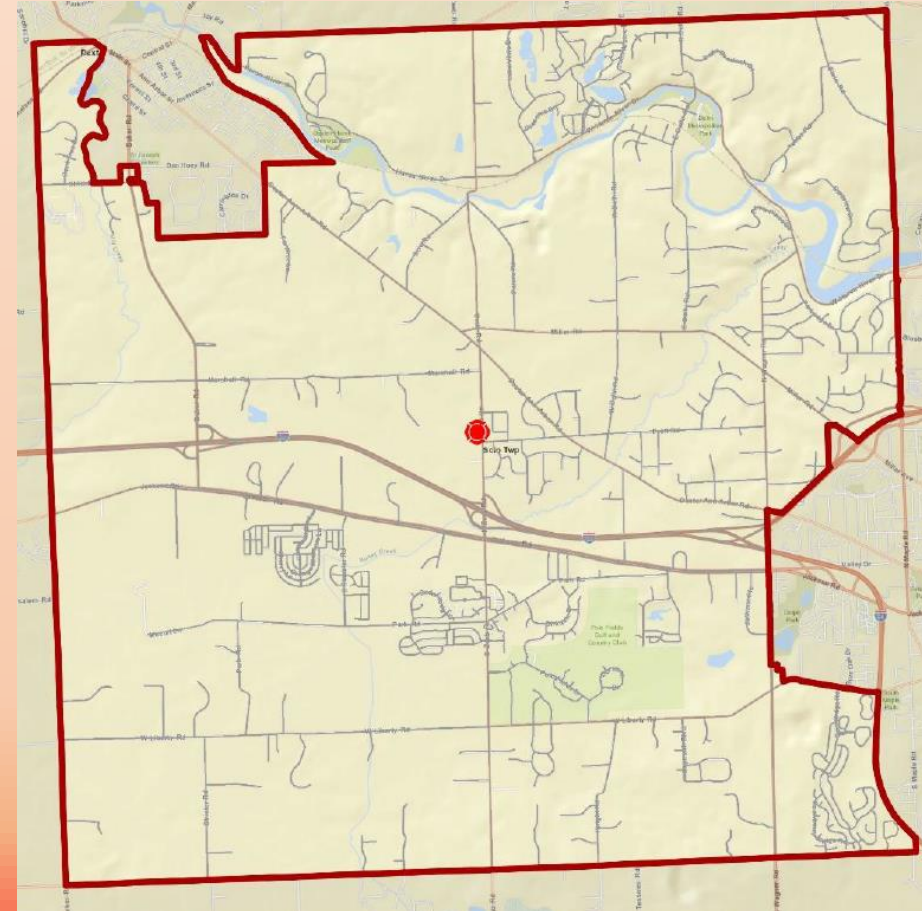
# Fire inspection/investigation

- Site plan review
- Inspect businesses for fire code compliance
- Reduce fire risk
- Determine origin and cause of fires
- Public education



# Current facilities

- One centrally located fire station on Zeeb Rd
- Constructed in 1987-1988
- Renovated in 2020-2022
- App 50 year life expectancy
  - 15-20 years remaining





# Primary engine

- 2017 model year
- Responds first out to fires, car accidents, and medicals when staffed with only 3
- Excellent mechanical condition and meets our operational needs





# Backup engine

- 2010 model year
- Used when primary engine is out of service for maintenance or repairs
- In good mechanical shape
- Only seats 2-does not meet our operational needs



# Water tanker

- 2002 model year
- Used to bring water to areas with no municipal water, holds 2500 gallons of water
- In decent mechanical condition, however, should have been placed in reserve 2017
- 25 year lifespan, retire in 2027
- No reserve tanker





# Rescue vehicle

- 2022 Ford lifeline ambulance
- Responds primary to medical calls when staffed with 4 (under 1/2 of the time)
- Excellent mechanical condition
- Life expectancy of 10 years in primary service



# Brush truck

- 2007 Ford F-450
- Primarily responds to grass/brush fires
- Should be replaced in 2022
- No reserve needed





# Engine

## **Positives**

- “Workhorse” of the fleet
- Excellent pump and hose configuration
- Large compartments-room for more tools
- Adequate water for areas with municipal water
- Lowest cost (\$700,000ish)

## **Negatives**

- Less water than needed for rural operations
- Less capacity for ladders (24' max)

# Ladder truck

## **Positives**

- Excellent ladder reach-up to 110' plus several ground ladders up to 35'
- Can pump water and have a water tank

## **Negatives**

- Less compartment space for tools
- Less room for hose
- Less room for water
- Expensive (\$1,500,000+)

# Tanker

## **Positives**

- Carries large amounts of water
- Can be designed to pump water

## **Negatives**

- Less compartment space for tools
- Less space for hose
- More expensive than engine (\$900,000+)
- Higher maintenance and operation costs than engine
- Bigger/heavier/less maneuverable than an engine

# Current suppression staffing

- Staffed with 3 full time response personnel daily (24-hour shift)
- Up to 1 paid on call firefighter daily (24-hour shift)
- Goal of 4 staffed 24-hour positions met less than 1/2 of the time-meet MIOSHA 2 in 2 out with on duty personnel





# Current administrative staffing

- Fire Chief-40 hour week M-F
- Assistant Chief-40 hour week M-F
- Administrative assistant-20 hour week, M-Th 9-2

# Current millage funding

- 1.35 mill Act 33
- Approximately \$1,900,000 in revenue
- 80% personnel
- 10% tools/equipment/supplies
- 10% building/maint/cost allocation



# Current millage funding

- Increase by approximately 9% from FYE 22
- About 4% increase in tax revenue
- About 5% increase due to fees for service-fire inspection program

## FYE 2022 actual

- \$1,400,000 personnel
- \$175,000 tools/equip/supplies
- \$165,000 building/maint/cost allocation
- App \$1,740,000 in non-capital expenditures
- \*AC/adm asst ½ year

## FYE 2023 budgeted

- \$1,570,000 personnel
- \$116,500 tools/equip/supplies
- \$206,500 building/maint/cost allocation
- App \$1,893,000 in non-capital expenditures
- \*AC/adm asst full year
- \*Wage increase for FF contract



# Current millage funding does not provide for

- Staffing to meet MIOSHA 2 in-2 out regulation 24/7
- Equipment replacement costs
- Vehicle replacement costs
- Department expansion
  - Property
  - Construction
  - Equipment



# Personnel/equipment needs for Zeeb Rd

- Add 4<sup>th</sup> Full-time firefighter daily (total of 3 new personnel)
- Replace tanker with a combination pumper-tanker
- Purchase a ladder truck
- Replace brush truck
- Add ATV with firefighting/rescue capabilities
- Adequate funds for vehicle/equip replacement



Need for Expansion?

# We get what we pay for

## **Fewer stations**

- Longer response times
- Lower level of service
- Higher fire loss
- Lower life safety
- Less personnel
- Lower cost

## **More stations**

- Shorter response times
- Higher level of service
- Lower fire loss
- Higher life safety
- More personnel
- Higher cost



# How do we determine what our needs are?

- Strategic plans
- Studies
- ISO (insurance) rating
- Response times
- Numbers of calls in an area
- Incident heatmapping



# 1996 strategic plan

- Authored by Chief Dane
- Recommended the township determine level of protection needed and provide adequate funding mechanism

**Recommendation 2:** It is recommended that Scio Township determine what level of fire protection they will provide the community and provide adequate funding for same.

It is imperative that the fire department know what level of service they are expected to provide. Additionally, once this is determined, an adequate funding mechanism needs established.

# 2015 strategic plan

- Authored by Chief Ferch and Carlisle Wortman
- Recommended a station be built and operational near the intersection of Wagner and Liberty by 2020

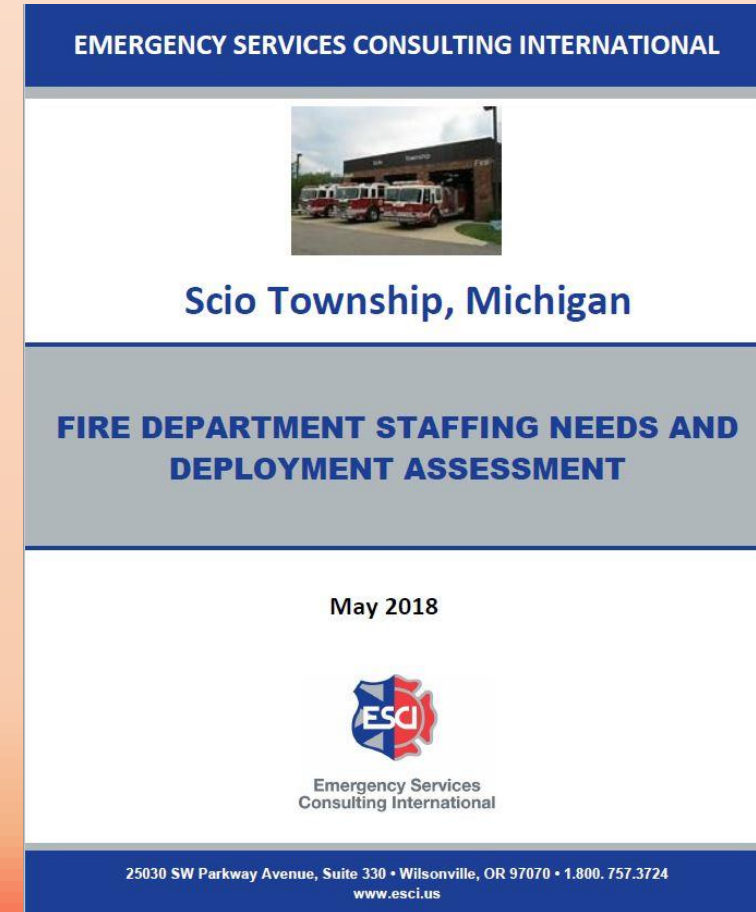
## Five-Year Plan

The Strategic Plan focuses primarily focuses on “ramping up” for a second station. Additionally, Station 2 will address many, if not most, of the aforementioned issues currently affecting the Department. Conceptual drawing of Fire Station 2 are provided as Attachment 4. During the time frame of 2016 – 2020, the following goals will be achieved:

- Design and construct a second fire station, referred to as Fire Station 2, on Township owned property at the corner of Liberty and Wagner Roads.
- Hire and train the number of full-time firefighters annually to provide reliable and trained staffing of second fire station upon completion.
- Assess serviceability of current apparatus for a split station configuration and purchase necessary replacement equipment for Fire Station 1 and new equipment for Fire Station 2.

# 2018 Emergency Services Consulting International needs assessment

- Reviewed data from several years
- Applied nationally recognized standards to our staffing and deployment model
- Discovered several weaknesses
- Made several recommendations





# 2018 Emergency Services Consulting International needs assessment-findings

- Unable to meet national standards for staffing and deployment
- Practice of relying on paid on call firefighters responding from home or work for emergency responses no longer viable option
- Staffing and deployment model prevents ineffective interoperability with mutual aid departments
- Investigate options to increase staffing levels...to align with national consensus standards

# 2018 Emergency Services Consulting International-staffing

- Establish staffing of 4 daily
- Replace organizational structure with one more traditional
- Hire full-time Fire Chief
- Establish full-time person in fire prevention
- Add half-time fire inspector
- Hire full-time administrative assistant

## Analysis of Recommended Future Staffing Level

The evaluation of staffing needs presented in this report reveal several personnel deficiencies within the Scio Township Fire Department. While many of these staffing needs cannot be corrected overnight, a plan should be developed to address current staffing needs and progress made toward the goal of hiring sufficient staff at defined points in the future. This may include intermediate steps such as part-time or paid-on-call employees, interlocal agreements with neighboring agencies, or other options as deemed appropriate.

The following contains ESCI's staffing recommendations for Scio Township Fire Department.

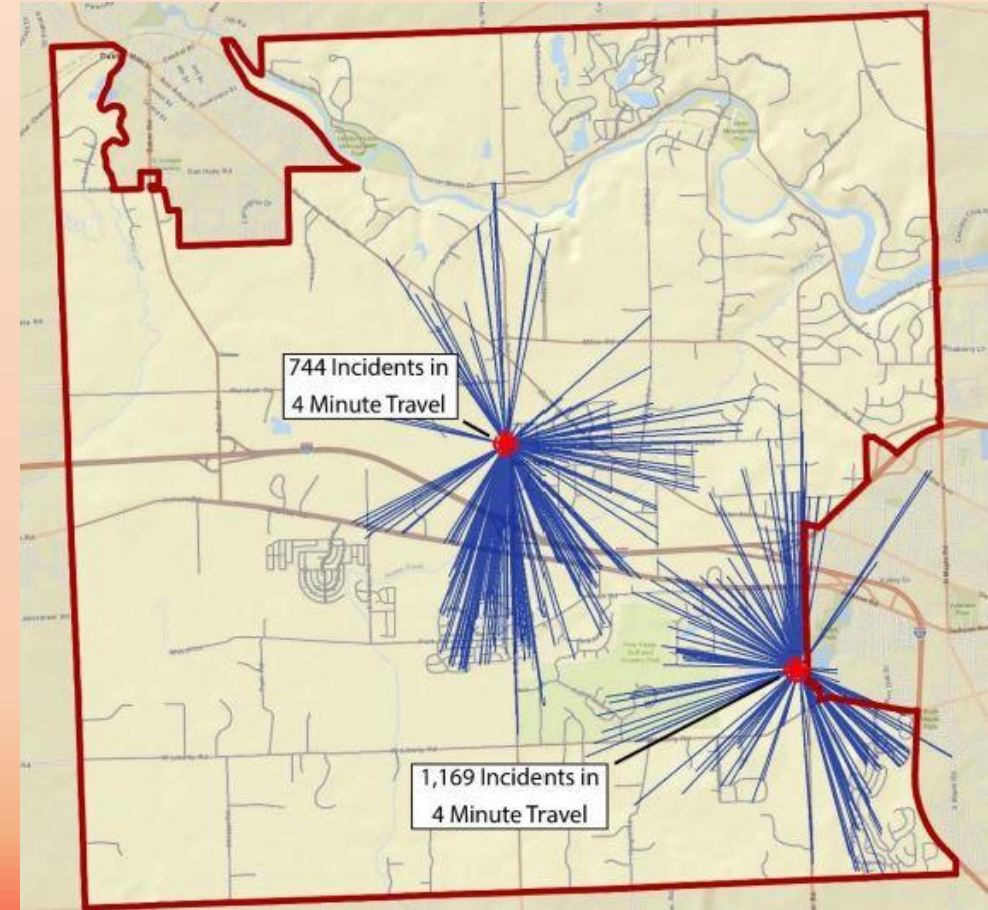
### Recommendations

1. Establish a baseline daily staffing level of four persons per shift or three persons per apparatus should additional fire stations become a future consideration. This can be accomplished utilizing paid-on-call staff or the addition of career staff. A primary concern for STFD is the inability to rapidly assemble firefighters in adequate numbers to meet MIOSHA "2 in/2 out," as well as an effective response force. Additionally, a three-person engine company would provide staffing consistency when requesting or responding to mutual aid requests.
2. Replace the current organizational structure of two "shift commanders" per shift with an organizational structure that provides clear lines of authority and responsibility. While several rank and title options are available, ESCI recommends that the structure imposed complies with industry best practices, such as those provided by NFPA 1720.
3. Consider hiring a full-time Fire Chief to manage and lead the organization. ESCI recommends that the Township develop a process to establish minimum qualifications for this position and select the candidate that best meets all aspects of the position.
4. Evaluate the feasibility of establishing a full-time position to manage the department's fire prevention and inspection program.
5. Consider establishing a part-time Fire Safety Inspector position and develop a formal fire prevention and inspection program.
6. Create a full-time Administrative Assistant position for the fire department to provide support and consistency to administrative and operational activities.

In order for Scio Township to address the recommendations presented, several years are likely required to create and fund these positions. To assist Scio Township in the completion of a future Staffing for Adequate Fire and Emergency Response (SAFER) application for hiring operational firefighters, findings from this report are presented in the SAFER grant format from the most recent application cycle.

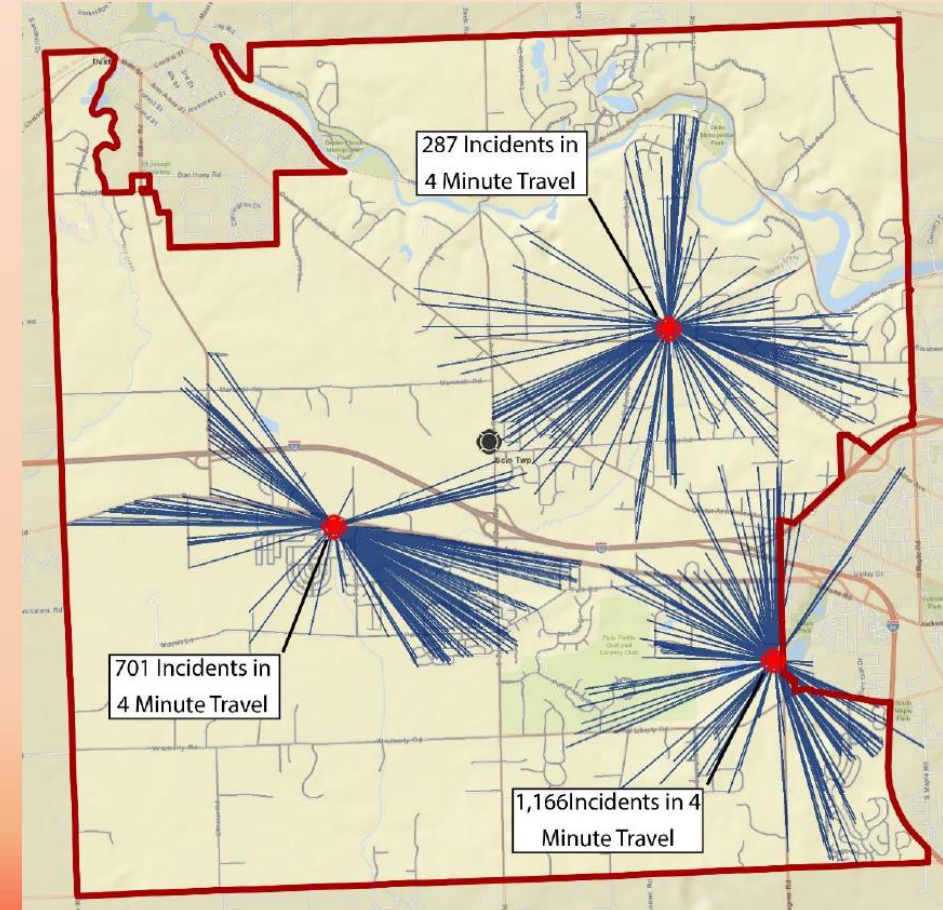
# 2018 Emergency Services Consulting International needs assessment

- Data suggested a second station on Wagner near Liberty was needed



# 2018 Emergency Services Consulting International needs assessment

- Prepare for future needs as the community continues to develop
- Purchase property for third station and for replacement of Zeeb Rd station





# Insurance Services Office-2019

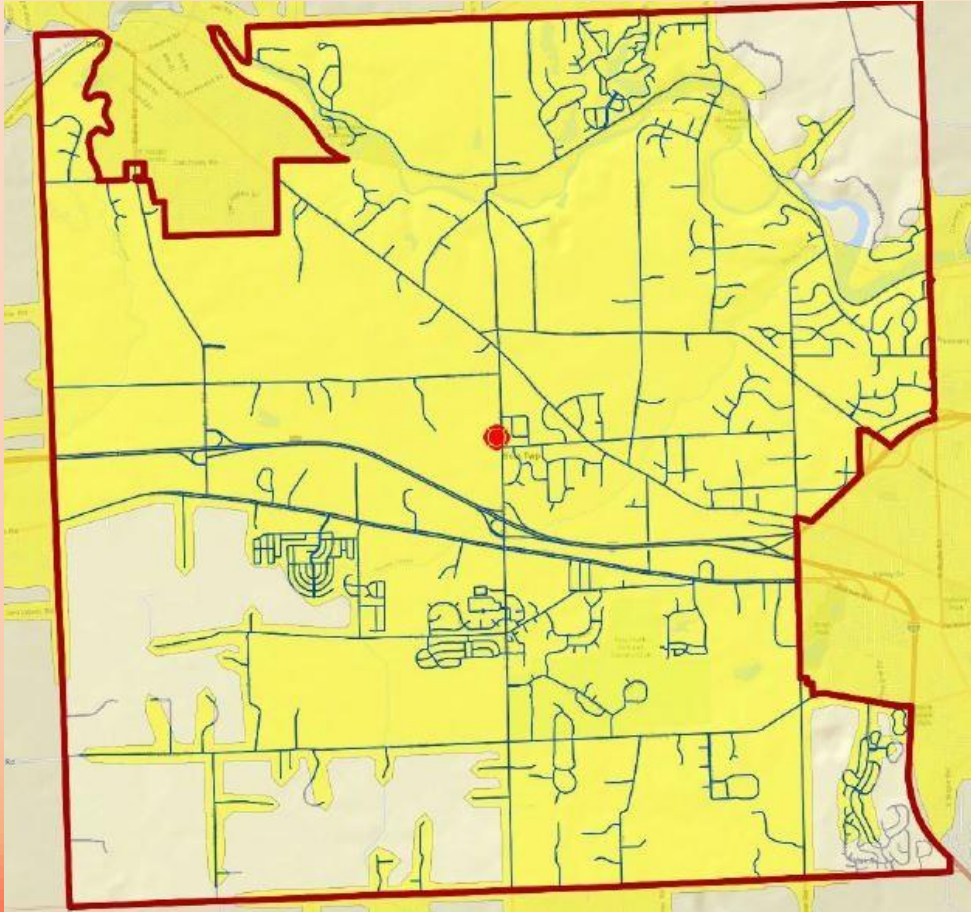
- Rate fire departments
- Rating used to help establish homeowners' insurance rates
- Scio is class 6/6W in most areas
  - 6,964 class 6 in the US
  - 18,150 better rating (lower number)
  - 12,573 lower rating (higher number)
- In areas more than 5 road miles from a station class 10/10W

FIRS Feature	Earned Credit	Credit Available
<b>Emergency Communications</b>		
414. Credit for Emergency Reporting	1.80	3
422. Credit for Telecommunicators	3.62	4
432. Credit for Dispatch Circuits	1.36	3
<b>440. Credit for Emergency Communications</b>	<b>6.78</b>	<b>10</b>
<b>Fire Department</b>		
513. Credit for Engine Companies	3.91	6
523. Credit for Reserve Pumpers	0.39	0.50
532. Credit for Pump Capacity	3.00	3
549. Credit for Ladder Service	0.60	4
553. Credit for Reserve Ladder and Service Trucks	0.03	0.50
561. Credit for Deployment Analysis	1.42	10
571. Credit for Company Personnel	3.79	15
581. Credit for Training	1.26	9
730. Credit for Operational Considerations	2.00	2
<b>590. Credit for Fire Department</b>	<b>16.40</b>	<b>50</b>
<b>Water Supply</b>		
616. Credit for Supply System	28.17	30
621. Credit for Hydrants	3.00	3
631. Credit for Inspection and Flow Testing	2.40	7
<b>640. Credit for Water Supply</b>	<b>33.57</b>	<b>40</b>
<b>Divergence</b>	<b>-10.23</b>	<b>--</b>
<b>1050. Community Risk Reduction</b>	<b>2.04</b>	<b>5.50</b>
<b>Total Credit</b>	<b>48.56</b>	<b>105.50</b>

# Insurance Services Office-improvements

• 549 Ladder service	0.6 out of 4
• 561 Deployment analysis	1.42 out of 10
• 571 Company personnel	3.79 out of 15
• 581 Training	1.26 out of 9
• 631 Inspection and flow testing	2.4 out of 7
• 1050 Community risk reduction	2.04 out of 5.5
• Total earned	11.51 out of 50.5 (38.99 available)

# Insurance Services Office-10/10W areas



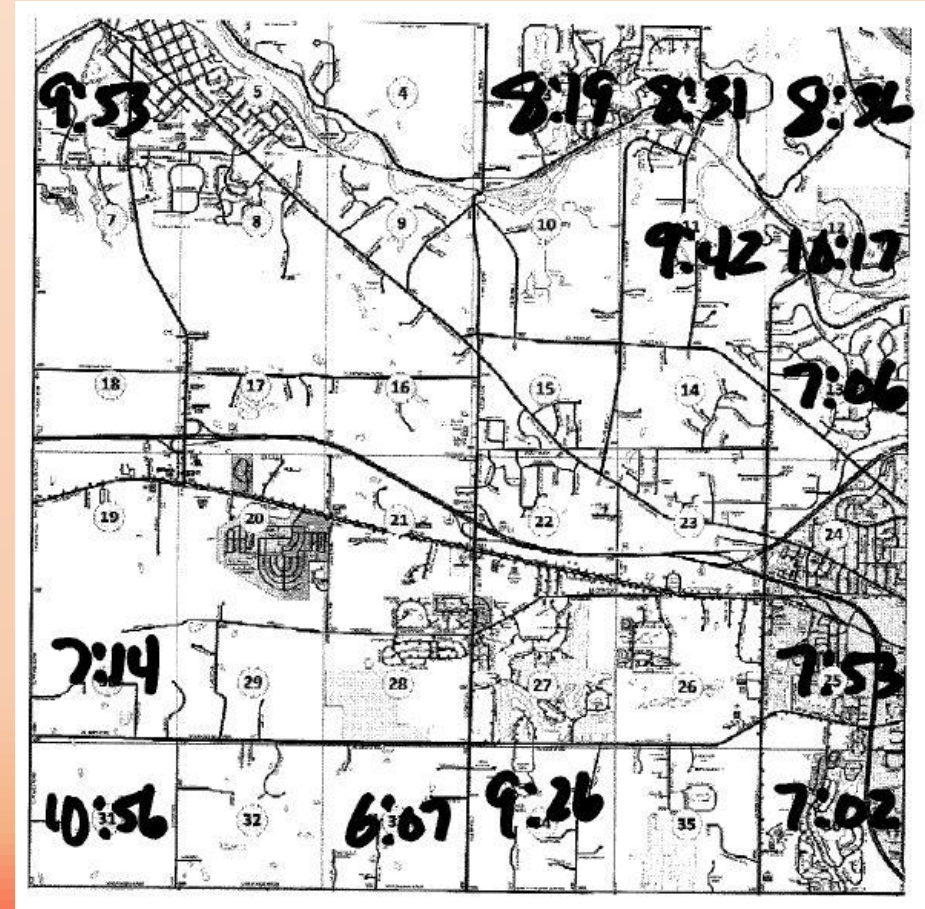
# Insurance Services Office





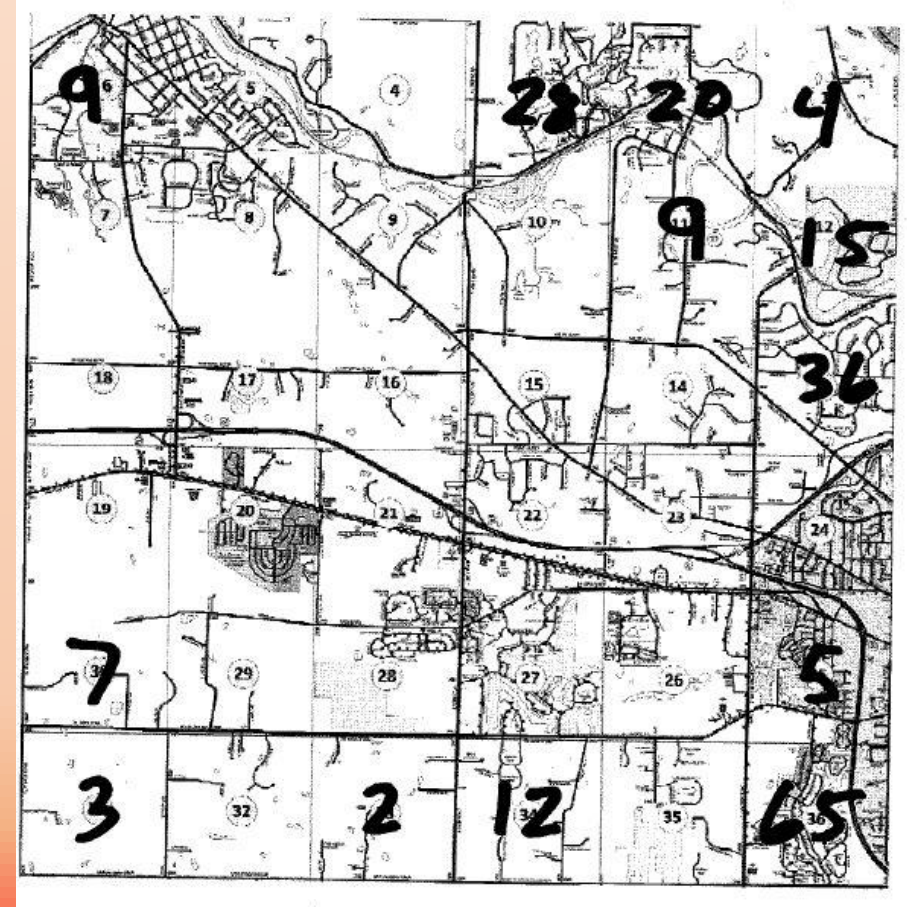
# Response times

- Response time goal of under 6 minutes 90% of the time
  - 60-90 seconds “turnout” time
  - 4-minute drive time
- 13 sections where we do not meet response time goal
- Overall average response time 9:13
- Meet under 6 minutes 42% of the time



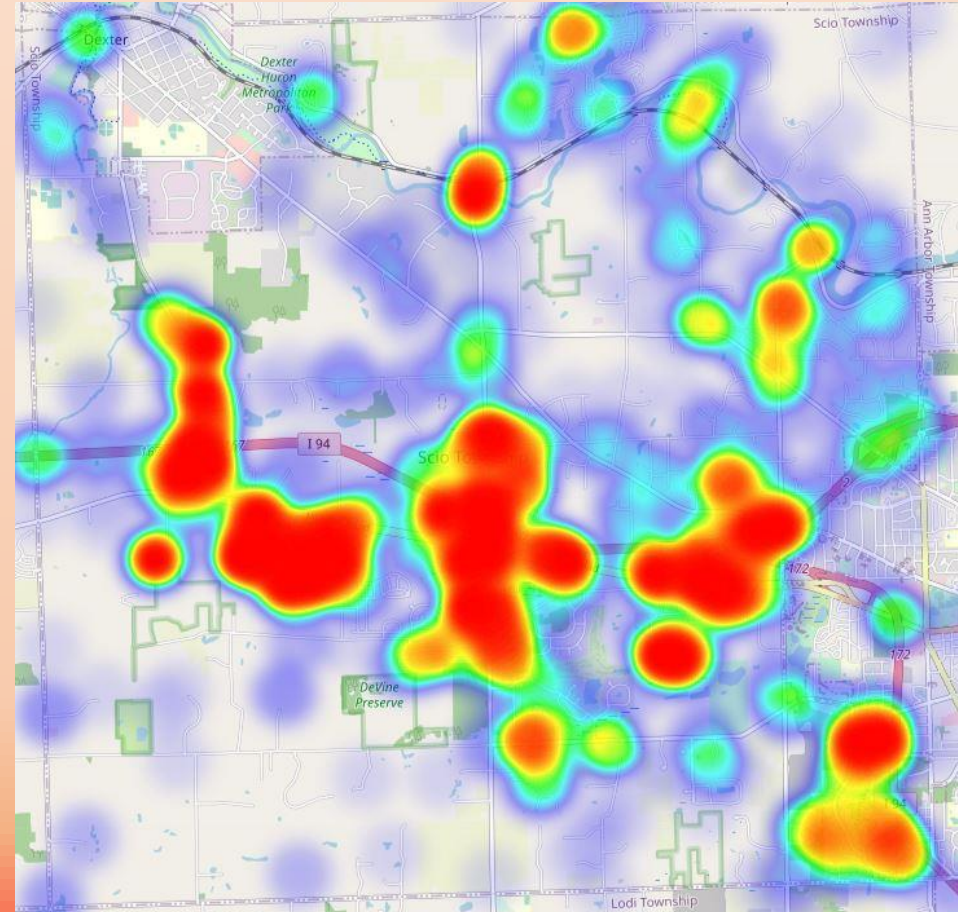
# Number of responses

- Areas of higher population density generally have higher numbers of responses



# Heat mapping

- Shows area of higher concentrations of calls
- Areas of higher population density generally have higher numbers of responses



# Benefits of constructing/staffing 2<sup>nd</sup> station

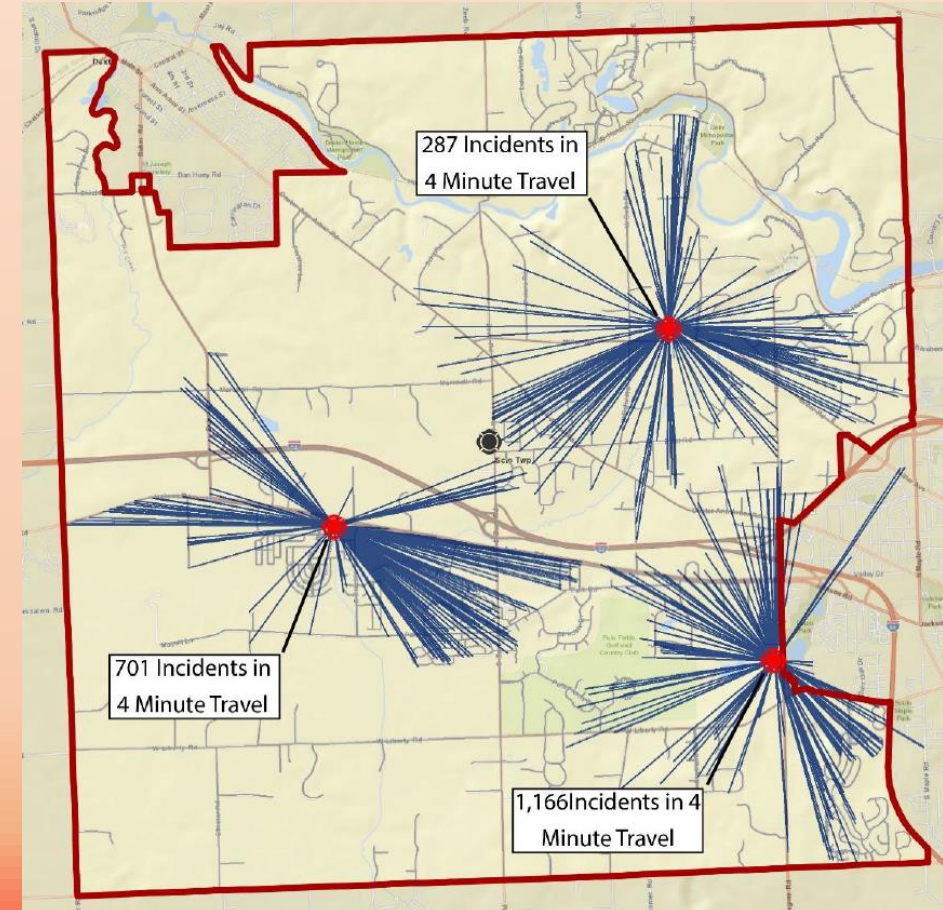
- Reduction of response times
  - Reduce response times to 40% of community
  - Bring SE area of Township into 6-minute response time goal
- Adds redundancy to the system
- Allows for “stacked” response level
- High potential to improve ISO rating/reduce homeowners' insurance costs





# Recommendations for station improvements

- Build and staff second station on Wagner at Liberty
- Purchase 2-4 acres in Jackson/Baker area 1-3 years
  - Build/staff when response times/call volume indicates
- Purchase 2-4 acres on Miller near E/W Delhi 3-10 years
  - Replacement location for Zeeb station-app 50-year life expectancy of building





# Cost/time to build and equip a station

- Plans: \$600,000 (6 months)
- Construction: \$4,500,000-\$6,000,000 (1-2 years)
- Equipment: \$2,000,000-\$3,000,000 (1-2 years)
- Total: \$7,100,000-\$9,600,000 (2-3 years)

\*I'm a fire chief not a construction manager-these are rough estimates

# Recommendations for staffing-option 1

## **Station 1 (Zeeb)**

- 1 engine/tanker with 3
- 1 BC with 1

## **Station 2 (Wagner)**

- 1 engine/tanker with 3
- 1 ladder with 3
- 1 rescue with 2
  - License for transport-BLS

# Recommendations for staffing-option 1

- Suppression personnel: 45 (15/shift-12/day)
  - 1 Capt/3 LT/11 FF per shift
- Administrative staff: 3
  - Chief
  - Adm assistant
  - Training Chief
- Prevention staff: 2
  - A/C-Fire Marshal
  - Full time inspector

# Recommendations for staffing-option 1

- Suppression cost: \$5,900,415
- Building cost: \$1,200,000
- Administrative cost: \$360,000
- Prevention cost: \$240,000
  
- Total: \$7,500,415
- Total: 5.4 mills
- Meets our needs for the next 15 or more years

# Recommendation for staffing-option 2

## **Station 1 (Zeeb)**

- 1 engine/tanker with 3
- 1 BC with 1

## **Station 2 (Wagner)**

- 1 ladder/tanker with 3
- 1 rescue with 2
  - License for transport-BLS



# Recommendation for staffing-option 2

- Suppression personnel: 33 (11/shift-9/day)
  - 1 Capt/2 LT/8 FF per shift
- Administrative staff 3
  - Chief
  - Adm assistant
  - Training Chief
- Prevention staff 2
  - A/C-Fire Marshal
  - Full time inspector

# Option 2 for staffing

- Suppression cost: \$4,323,753
- Building cost: \$1,000,000
- Administrative cost: \$360,000
- Prevention cost: \$240,000
  
- Total: \$5,923,753
- Total: 4.2 mills
- Meets our needs for the next 10 years

# Option 3 for staffing

## **Station 1 (Zeeb)**

- 1 engine/tanker with 3
- 1 BC with 1

## **Station 2 (Wagner)**

- 1 ladder/tanker with 3/2
- 1 rescue with 2
  - When all personnel on duty

# Option 3 for staffing

- Suppression personnel: 24 (8/shift-7/day)
  - 1 Capt/2 LT/5 FF per shift
- Administrative staff: 3
  - Chief
  - Adm assistant
  - Training Chief
- Prevention staff: 1.5
  - A/C-Fire Marshal
  - Part-time inspector

# Option 3 for staffing

- Suppression cost: \$3,200,000
- Building cost: \$1,000,000
- Administration cost: \$360,000
- Prevention cost: \$150,000
  
- Total: \$4,585,264
- Total: 3.35 mills
- Meets our needs for the next 4-7 years



# Moving forward

- Determine level of protection needed and provide adequate funding mechanism
- Establish a millage rate adequate to operate Zeeb station and build a 2<sup>nd</sup> station over 2-3 years
- Establish a millage rate to fund operations into future

**Recommendation 2:** It is recommended that Scio Township determine what level of fire protection they will provide the community and provide adequate funding for same.

It is imperative that the fire department know what level of service they are expected to provide. Additionally, once this is determined, an adequate funding mechanism needs established.

ahoude@sciotownship.org

sciotownship.org>community>firedepartment

734 665-6001