SCIO TOWNSHIP FIRE DEPARTMENT

STRATEGIC PLAN

2016-2020

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Scio Township Fire Department
Strategic Plan
2016-2020

The Scio Township Board of Trustees has requested the Department to prepare a Strategic Plan which will provide a guide to decision-making both in the short and long term. The time frame selected for this Plan is approximately five (5) years starting in 2016.

Plan Context

Fire service in the Township is required to be provided for a sizeable geographic area with a diversity of population and land use. The Township's population is increasing. In the decade from 2000-2010, the Township's population grew by over 22%. By 2025, population is expected to increase by another 11%.

The Jackson Road subarea is a focus of commercial, industrial and high density residential land use. The availability of public utilities will also support additional growth in this vital corridor. The Jackson Road corridor also provides a significant amount of the Township taxable value. Further, it is a large source of employment which results in an increase of daytime population to well over 20,000.

The southeast portion of the Township, referred to as the Sister Lakes subarea in the Master Plan, is also an area of diverse and concentrated land use. Wagner Road includes a mix of industrial and office land uses. The extreme southeast corner of the Township in Section 36 is composed of higher density multiple and single family residential.

The balance of the Township is composed of low density single family residential spread over a large geographic area. The distances that need to be covered present special challenges for fire service, especially in areas without municipal water.

Current Department

The Department currently operates out of a single station, referred to in this Report as Station 1. The station is located on Zeeb Road, just north of the Township offices. The fire department exists for the sole purpose of providing an "Emergency Service Response". An emergency is by definition: "a sudden unforeseen **crisis** that usually involves **danger**, and **requires** immediate action" or "**a posed threat to human life or serious damage to property**".

Fire calls are separate from the Emergency Medical Service (EMS) calls. All reported structure, vehicle, grass, and transformer fires are sent directly to the Department. Gas leaks, hazardous material incidents, and down power lines are also referred to the Department.

The Department is classified as an EMS response Category 2, in that it responds to only those calls considered to be **life threatening**. Over the past twelve calendar years, the per year average call volume has been 850.

There is a more aggressive level available known as a Category 1 & 1-A. At this level, the fire department responds to medically related incidents that are not considered to be non-life threatening, unknown motor vehicle accidents and anything generated by 911. Last year there were at least 590 of this category call into Scio Township. As a result, the total EMS call volume was over 1,400 for last year.

Staffing is currently provided through a combination of six (6) full-time and ten (10) paid on-call firefighters. Personnel are supervised by a full-time Chief. The existing shift configuration is two full-time firefighters on shift 24/7.

Equipment

The fire fleet consists of five operating vehicles and one vehicle in storage. The fleet is configured so that each truck performs a specific function. Regular maintenance has extended the life of each vehicle. However, there is a significant problem when major equipment is down for repair and maintenance since there is limited backup equipment**. A more detailed discussion is found in Attachment I and is summarized below:**

- Engine 16-2: First unit purchased to bolster aging fleet. The use of Engine 16-2 is limited to structure fires within the Township and special circumstances vehicle fires and accidents. 16-2 has 90,617 miles and 7,341 engine hours. It carries 1250 gallons of water and 1500 gpm mid-ship pump.
- Tanker 16-1: Purchased to complement Engine 16-2, Tanker 16-1 is used predominantly on structure fires. It has 13,415 miles and 1,302 engine hours.
- Brush 16-1: Responds to ground cover fire, burn complaints and utility gas leaks. Brush 16-1 has 9,875 miles and is relatively low maintenance.
- Engine 16-1: Responds to motor vehicle accidents, car fires and automatic alarms. It was designed to carry a variety of special tools and equipment and carries vehicle stabilization equipment, ropes, pulleys, stokes basket, K-12 Partner Saw, AED, back boards and a medical jump kit. There is pre-connected combination cutter/spreader hydraulic rescue tool built into the front bumper, and a freestanding set in the rear compartment. It is four-wheel drive for winter operations. The odometer currently reads 9,863 miles and the engine has 742 hours.
- Rescue 16-1: Responds to our largest volume of calls, approximately 55%, including medical calls and house rescues.

Demand

The Fire Department services the entire Township as well as participates in mutual aid with surrounding communities. The calls that the Department receives can be categorized as follows:

Emergency Medical Service (EMS): EMS constitutes medical emergencies and motor vehicle accidents. This service accounts for 70% of the calls. When the duty crew arrives at these incidents, they start a patient assessment or life prolonging measures where necessary. Huron Valley Ambulance (HVA) assumes patient care upon arrival. The Department works closely with HVA to coordinate on-site management of any incident.

HVA maintains an advanced life support units at one of three staging points in or around Scio Township, Baker & I-94, Zeeb & I-94 and Jackson & I-94. A special service unit Echo-170 is permanently stationed in the Village of Dexter. This paramedic unit covers all of Dexter Township, Webster Township, and the Village of Dexter. Fifteen sections of Scio Township, along the North edge are also included in their primary response district in support of the ALS unit.

Mutual Aid: The Automatic Aid Agreement (commonly known as Mutual Aid) is a cooperative agreement among neighboring communities. Essentially, resources from neighboring departments are pre-arranged and agreed on in advance for structure fire assistance. The specific equipment to be dedicated to a call for mutual aid has been identified in advance, according to a perceived need. These groups are assigned as: second, third up to six alarms. We have included a full assist from the Dexter Area Fire with our initial response to all township sections. Based on the fire conditions observed on arrival, the clearly defined additional alarms are requested. Any other combination of specialized equipment or resources are also available through the mutual aid agreement.

Fire Other: Historically, the number of structure fire calls has been relatively low. That is not to say an increased number of structure fires won't happen in the future. Over the past twelve full calendar years, 537 calls or 5% of the total volume have been structure fires. Further differentiated, 211 calls were mutual aid requests outside the township boarders, 137 calls were limited damage or inconsequential fires, 137 calls were mistaken for structure fires and 52 calls were truly destructive. The other fire related activities; vehicle fires, ground cover fires, burning complaints, investigations of visible smoke or smoke odors, wires down and arching, fuel spills, Haz-Mat investigations and automatic fire alarms are historically 25% of the call volume.

Total Volume: The Department maintains detailed records of all calls. The total volume of calls over the past five years has remained relatively constant ranging from 726 to 825 annually. A detailed accounting of the statistical data collected by the Department is included in Attachment II.

Figure I illustrates, the geographic distribution by number and percentage of calls conducted for the past five (5) years. We would expect the geographic distribution of calls to continue in the future.

The highest incident calls occur in Section 20, which is the location of Scio Farms Estates. The next **wo** highest are in Sections 26 and 36 which are the locations of some of the more dense housing developments in the Township such as Sun Co-Housing, **Lakeshore Apartments** and the Uplands, Summerfield Glen and Woodchase Apartments. Sections 26 and 36 are also more remotely located from the current station.

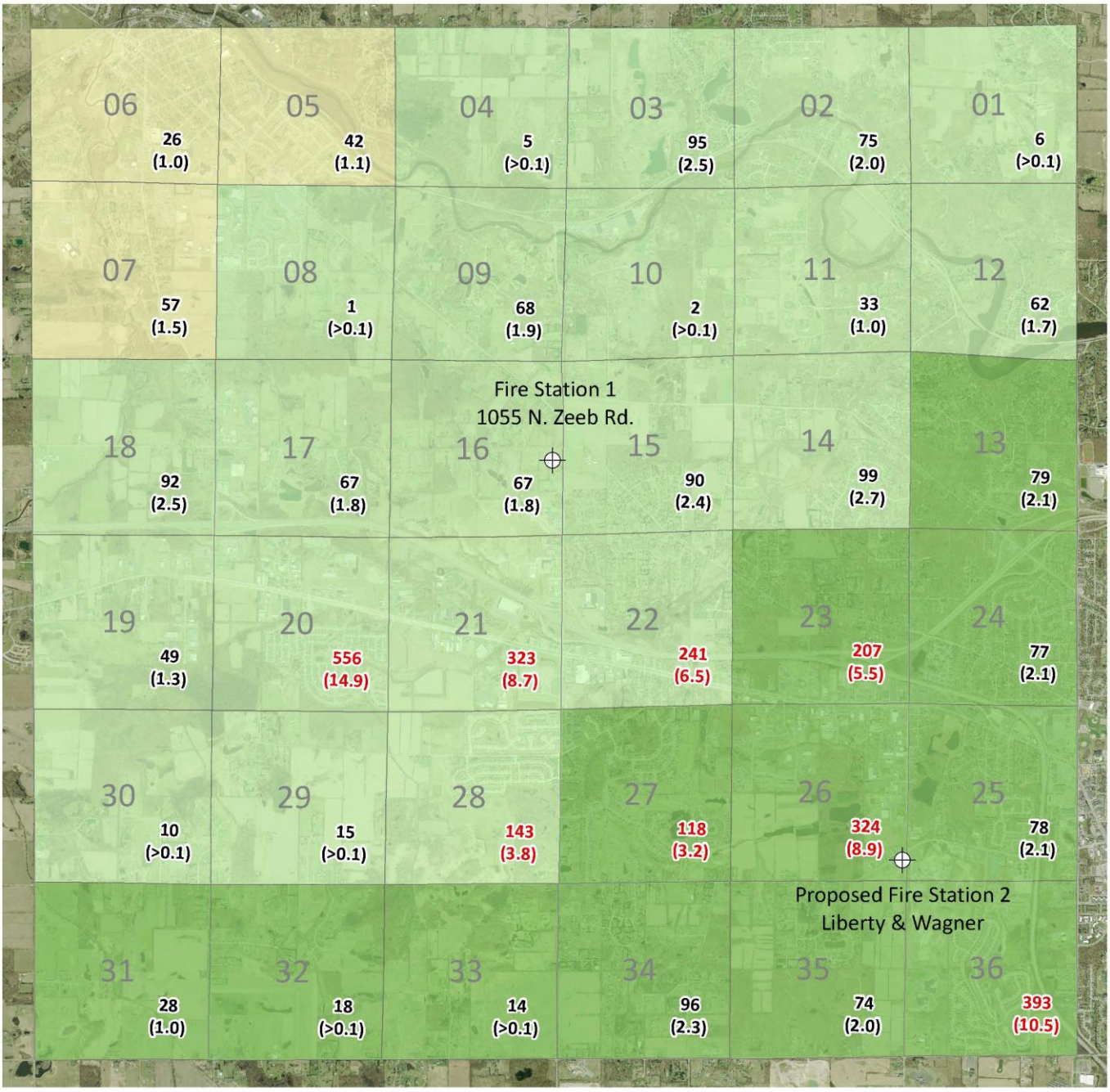

Figure 1

FIRE DEPARTMENT CALLS BY SECTION, 2010 - 2014

Scio Township
Washtenaw County

Fire Station

36 Section Number

10 Number of Calls (Red indicates triple digit volume)

(>0.1) Percentage of Calls

Proposed Response Area of Station 1

Proposed Response Area of Station 2

Served by City of Dexter

Source: Scio Township Fire Department
Washtenaw County GIS Program
Note: Five year cumulative total for each section

Carlisle/Wortman Associates
10-15-15

Budget History

The primary source of funding is through a dedicated **public safety millage**. Over the past six years, the Fire Department has consistently spent less than the revenue generated by the millage.

Year	Revenues	Expenditures	Difference
2009/10	$1,040,637	$640,375	$400,262
2010/11	$1,025,565	$656,610	$368,950
2011/12	$964,397	$649,483	$314,914
2012/13	$963,691	$741,982	$221,709
2013/14	$966,235	$785,028	$177,207
2014/15	$974,912	$845,157	$129,755

While there has been a budget surplus every year, the amount of the surplus has been declining. This can be attributed to a decline in revenue and increase in personnel expenses. However, by the end of FY2014/15, the Departmental budget has accumulated a fund balance of approximately $1.6 million.

Issues and Observation

The following issues have been identified and observations made regarding the current status of the Department.

Township Growth and Demographic Trends

- A significant amount of dense residential growth has occurred in the southeast portion of the Township. Due to proximity of the station and increased traffic volume, the result has been increases in response time.
- While continued development of the Jackson corridor has been positive for the Township, the demand for Fire and EMS services has increased. Increased traffic volumes also increase the potential responses to traffic accidents and have a negative effect on response time.
- Structure fires in the Township have been relatively low, but as housing stock in certain areas ages, the potential for structure fires will also increase.
- As with State and National trends, the "over 65" population in the Township is increasing more rapidly than other age groups. This trend will increase the potential for EMS runs.

Staffing

- Although necessary, the addition of full-time staffing has had an adverse effect on attracting paid on-call staff.
- The existing configuration of two full-time staff on duty 24/7 results in the accumulation of a significant amount of time off. The right to full vacated shifts are given to other off

duty shift commanders. There are a number of unintended consequences from this current policy:

- It creates an excessive amount of overtime.
- It exacerbates the problem of vacated shifts through the use of banked comp time.
- If full-time staff do not want to fill a vacant shift, it is difficult to fill the slot with paid on-call.
- The optimal staffing model for Fire Station 1 is three (3) full-time fire fighters on duty per day. As a result, three (3) additional fire fighters need to be hired to properly staff Station 1.
- With the optimal staffing patterns at Station 1, a future Station 2 can operate with two (2) fire fighters per day.

Facilities and Equipment

- As the Township continues to grow, serving the southeast portion of the Township is becoming increasingly difficult from Station 1.
- The life span of existing equipment will be extended if new equipment is purchased and use of existing equipment is reduced.

Miscellaneous

- Requests for assistance from neighboring communities is increasing
- The ability of neighboring communities to assist the Township is becoming more limited.

The conclusion of the strategic analysis is that the lack of redundancy in staffing, facilities and equipment prevents the Scio Township Fire Department from efficiently serving the needs of the Township.

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.

- Evaluate response protocols for a split station configuration.
- Increase budget to meet enhanced staffing model and to operate Station 1.

In short, the thrust of the Five-Year Plan is to improve coverage through a second station and increase the number of firefighters to provide optimal staffing models at both Station 1 and 2.

The Plan is intended to be implemented over a five year period and fulfill the budgeting, staffing and equipment needs of the department. At the time Station 2 is occupied and operational, it will be staffed with a mix of existing and new personnel. Since at least three (3) existing fire fighters will be transferred between Station 1 and Station 2 in 2019, there will be a need to hire three (3) additional fire fighters at Station 1 in 2020. While this will result in a staffing gap between 2019 and 2020, this approach is intended to provide both Station 1 and Station 2 with an appropriate mix of experienced fire fighters and new hires. At the culmination of 2020, the Township will have two equipped stations and 15 full-time fire fighters.

Five-Year Plan
2016 – 2020

Year/Task	*Cost(2016 dollars)*
Year One (2016)	
1. Retain Architect to assist Board and Department in preliminary design of Station 2.	$50,000
2. Hire replacement Shift Commander for vacated 3b shift	$81,000
3. Hire three (3) additional full-time firefighters for Station 1 (salary and benefits)	$186,000
Year Two (2017)	
4. Complete final design and construction documents for Station 2.	$100,000
Year Three (2018)	
5. Construct/Equip Station 2 (to be operational by 2019).	$2,000,000
Year Four (2019)	
6. Refurbish Engine 16-2 at Fire Station 1 or Replace Engine 16-2 at Fire Station 1.	$200,000 - $400,00
7. Transfer three full-time firefighters from Station 1 to Station 2.	No cost
8. Hire three additional full-time firefighters/**shift commanders** for Station 2.	$180,000 - $200,000
Year Five (2020)	
9. Replace three (3) full-time fighters at Station 1.	$186,000

ATTACHMENT I

Apparatus: List of outstanding, deferred and/or prospective maintenance issues and suggested replacement intervals.

The fire fleet is configured so that each truck performs a specific function. By spreading the work load over five vehicles; we extend their service life. Currently, the fire fleet is in relatively good condition. National Fire Protection Association (NFPA) publishes recommended a standard for nearly all aspects of the fire service. These standards are updated every five to seven years. The Standards for Automotive Fire Apparatus (NFPA 1901) recommends a twenty year replacement interval. Generally, the standard committee does not presume either excessive or limited equipment use. Replacement recommendations are based on technological and safety system improvements.

All vehicles are checked and inspected on a rotating basis throughout each week by our in house staff. Brian Koch handles most of the light repairs on the fleet and assorted equipment; things like replacing burned out light bulbs, broken lenses oil and radiator fluid levels. The heavy vehicles, Engines and Tanker, are serviced on regular intervals by a certified emergency vehicle technician. Lube oil and filters are changed as required, tires are checked and the chassis and body are inspected. Any identified safety issues are noted and brought to our attention, these conditions are immediately rectified.

An annual Department of Transportation (DOT) inspection is required for commercial vehicles with a gross vehicle weight over 10,000 pounds. The vehicle components necessary for safe operation are checked and verified. A vehicle must pass all listed components, or be taken out of service. When all aspects have been satisfactorily corrected and the vehicle certified; it may be returned to service. Repairs to these vehicles must be completed by a certified Emergency Vehicle Repair Technician.

Engine 16-2 was purchased in _____ to bolster our aging fire fleet. It carries 1,250 gallons of water and has a 1,500 GPM mid-ship pump. During its first ten years of service it was used extensively responding to all the calls we were dispatched to. Its use is now limited to called structure fire calls within the township borders and special circumstance motor vehicle fires and accidents. The odometer currently reads 90,617 miles and the engine has 7,341 hours.

1. An existing ongoing electrical problem is present, considerable time and money has been spent trying to resolve it. This effort has been 20% diagnosis 80% guess work. The truck has had electrical issues from the day it was delivered.

2. An intermittent fuel tank leak as yet to unverified. We have experimented with and adjusted fill levels; the loss of stored fuel is comparatively insignificant about 5% or 2.5 gallons. Over filling the tank can also create this condition. This would be an elaborate and costly repair project with no clear indication of benefit.

3. The vehicle's exterior has some defects that are cosmetic; in spite of being washed dried and waxed regularly the paint is blistered and bubbled and pealing in places.

Tanker 16-1 was purchased to replace our original tanker that was no longer road worthy. It is a fraternal twin of Engine 16-2. Used predominantly on structure fire calls, it responds in tandem with Engine 2. It is first due on automatic aid / mutual aid structure fire requests. The odometer currently reads 13,415 miles and the engine has 1,302 hours.

1. The vehicle has been a relatively low maintenance vehicle; the exterior is clean and free of defects. The original equipment tires were replaced in last March at a cost of $14,400. Slightly more expensive than the other two engines, Tanker 16-1 has a dual rear axle so there are four more tires.

Brush 16-1 responds to ground cover fires, burn complaints and utility type calls gas leak, electric wire down and some water pipe related problems. This unit was showing the effects of water standing in the hose bed and on top of the tool boxes. These areas have been stripped and rhino lined to prevent further rust and deterioration. The old brush truck was retrofitted from a standard F-250 chassis and lasted in service life for seventeen years. I expect this unit will match or exceed its predecessor's longevity. The odometer currently reads 9,875 miles. This vehicle is also relatively low maintenance.

Engine-16-1 responds to motor vehicle accidents, car fires and automatic alarms. It was designed to carry our compliment of special tools and equipment. This unit carries vehicle stabilization equipment, ropes, pulleys, stokes basket, K-12 Partner Saw, AED, back boards and a medical jump kit. There is pre-connected combination cutter / spreader hydraulic rescue tool built into the front bumper, and a freestanding set in the rear compartment. It is four-wheel drive for winter operations. The odometer currently reads 9,863 miles and the engine has 742 hours.

Rescue-16-1 vehicle responds to our largest volume of calls, approximately 55%, the medicals and house rescues. Rescue 16-1 was a practical response alternative; economical to operate and maintain. The replacement cost of this unit is a small fraction of the cost of replacing a Class-A Engine. We have no experience with this vehicle configuration, but the truck was built specifically for emergency use. The odometer currently reads 24,600 miles.

Engine 16-1A: This vehicle was retired from service in 2010. It is currently being stored at the Ypsilanti Fire Museum. Although retired, this vehicle is still owned by the Township and has a depreciated value of $28,462.95.

About half of each year's Truck Maintenance budget request is allocated for general maintenance of the fire fleet. Included are the annual Lube Oil & Filter replacements, the annual Fire Pump Test and the annual Department of Transportation inspections. Since system failures often happen without warning, additional money is allocated for an unexpected major repair. Included are: pump valve reconditioning or tire replacement other unforeseen conditions. Engine 16-2 has been the work horse of the fleet so logically has been the recipient of most of the allocated maintenance budget.

ATTACHMENT II
ACCESSORY EQUIPMENT NEEDED

Accessory Equipment Needed

Mechanic's Room
- Air Compressor
- Tool Box
- Washer
- Drier
- Counter & Cupboards
- Work Bench w/ Vise
- 5" Baldor Grinder
- Slop Sink
- Flammable Storage Cabinet

Bunk Room 1
- Bed
- Wardrobe
- Night Stand

Bunk Room 2
- Bed
- Wardrobe
- Night Stand

Watch Room
- Computer
- Printer
- File Cabinet
- Radio Charger Bank

Office
- Desk
- Desk Chair
- Side Chair
- File Cabinet
- Book Shelf

Mechanical Room
- Stand By Generator
- Furnace
- Water Heater
- Onan Panel

Day Room
- Table & Chairs
- Recliner Chairs
- Television

Kitchen
- Refrigerator
- Stove
- Microwave
- Silverware
- Dishes
- Pots & Pans

Apparatus Deck
- Exhaust Capture System

Station 1 Apparatus & Staffing *

Engine 16-1	Shift Commander 1a
Tanker 16-1	Shift Commander 2a
Rescue 16-1	Shift Commander 3a
Brush 16-1	Firefighter 1 / Firefighter 4
Air Trailer 16-1	Firefighter 2 / Firefighter 5
Engine 16-1a	Firefighter 3 / Firefighter 6

Station 2 Apparatus & Staffing *

Engine 16-2	Shift Commander 1b
New Rescue 16-2	Shift Commander 2b
	Shift Commander 3b
	Firefighter 7
	Firefighter 8
	Firefighter 9

*** Carl - we don't know what this means**

ATTACHMENT III
TURN OUT GEAR

It is recommended that bunker clothes with a manufacture date greater than ten years, regardless of in service use, be replaced. The active issued clothing was replaced in January 2011. The obsolete bunker sets were disposed of. The next complete replacement is anticipated in 2021. The 2011 cost per bunker set is $1,925.00

Self-Contained Breathing Apparatus (SCBA):
Replacement SCBA were purchased in 2004; at the time we selected the Scott NX2G air packs. The purchase was made possible by a FEMA Grant. The total project cost was $148,740. FEMA infused $110,300, donations to the fire department via a fund raiser $8,000 and a General Fund cost of $30,440.

Twenty regulator and backpack assemblies and fifteen spare cylinders, purchase cost was $73,931.00. Twenty five face pieces and voice amplification attachments purchase cost was $6,795.00. Two 60-min. Rapid Intervention Packs purchase cost was $4,880.00. A Liberty II air compressor trailer (with generator and light tower) purchase cost $62,800.00. Miscellaneous small adapters and equipment purchase cost $335.00

The back pack masks and regulators are still current and serviceable. The spare cylinders are the fully wrapped carbon fiber variety. These cylinders must be hydrostatically tested every five years, as mandated by the Department of Transportation (DOT). The cylinders have a 15-year service life. We have passed or last allowable DOT service. Thirty five 45-minute cylinders and two 60-minute cylinders are due for mandatory replacement in 2019.

Other Major Equipment:
The fire department has three sets of extrication equipment (Jaws) these are basic gas driven hydraulic pumps. The hoses are the weakest component, these are subject to failure or damage during use. We have never experienced a failure of the equipment. The cutters spreaders and rams are quite sturdy and require limited attention. The air bags and rescue struts are in relatively new condition and are not called to service often. I don't anticipate a need to replace any of the extrication equipment in the predictable future. Other high cost items like ladders, vent fans, intake valves have no predictable life expectancy. The mobile and hand held radios are the property of Washtenaw County, we pay $1,500 per year user fee for these items.

Incidental Equipment
The criteria for consideration as fire department equipment inventory have fluctuated through the years. The accounting department is only concerned with items that have an acquisition cost greater than $1,000. Items less than $1,000 are considered incidental or expendable property. The department has a wide variety of tools and equipment that fall into this category. Included are fire hose, adapters, nozzles, tone pages, hand tools etc. While the accumulated expense is often extensive the individual

investment is considered insignificant. Sufficient funding for the replacement of these items, as needed, is accounted for in three separate budget account lines.