

Dayton Fire Department Study

October 7, 2019

Fire Station #1

Fire Station #2



Dayton Fire Department Study
Dayton, Minnesota

B K V
Architecture
Interior Design
Landscape Architecture
Engineering
G R O U P

PROJECT PROCESS

1. Engagement of City Staff, Fire Personnel, and Elected Officials
2. Evaluation of Staffing and Organizational Structure
3. Apparatus Evaluation
4. Facility Evaluation
5. Station Location Analysis
6. Space Needs
7. Recommendations and Final Report



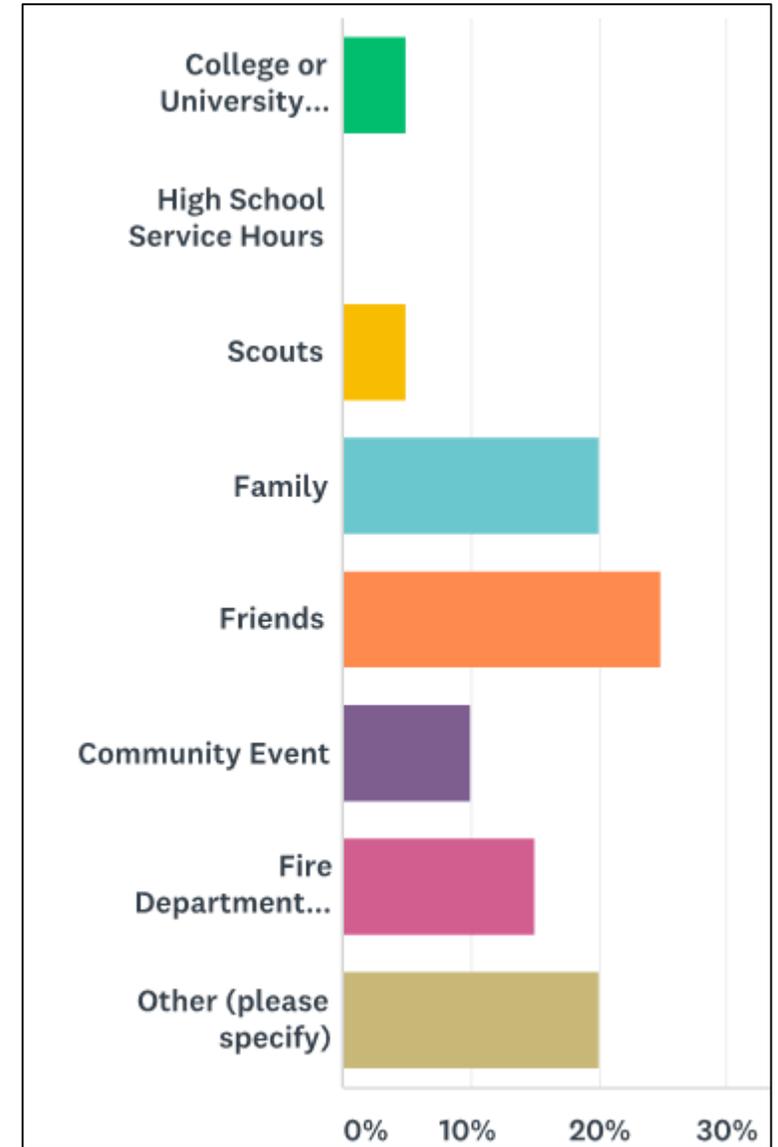
Engagement



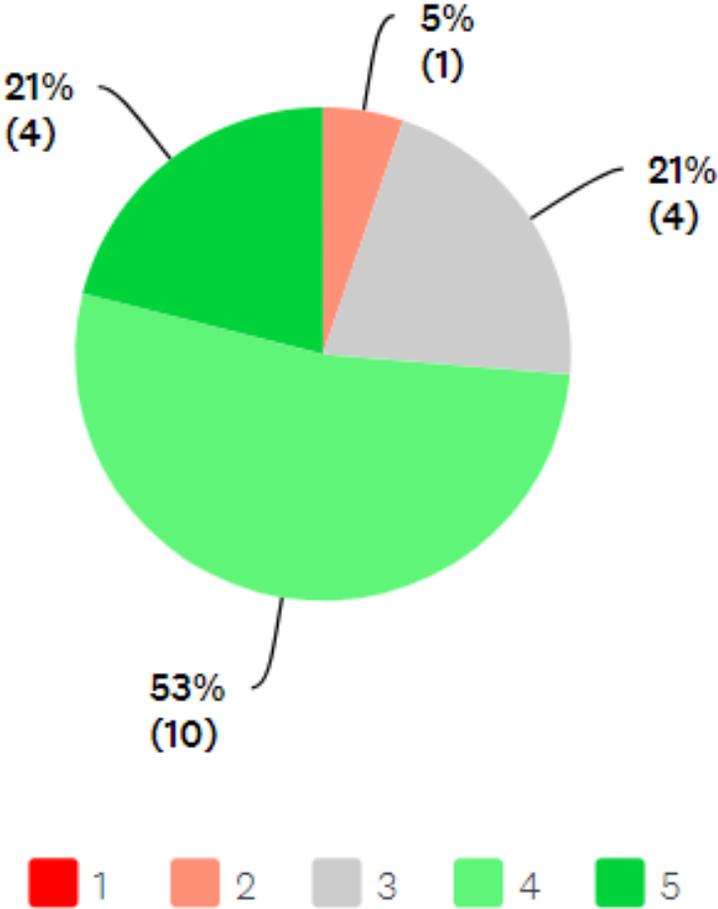
Demographics

- 19 respondents out of 25 members
- Mostly Male
- 0.5% of the community are members

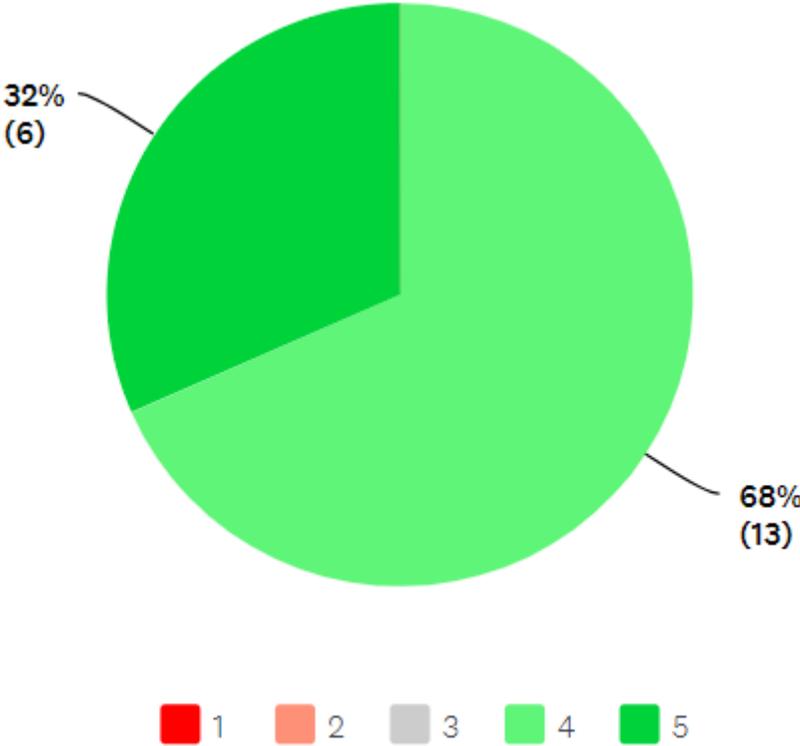
	Age	Experience
Average	39.7	6.75 years
Median	40	3.75 years
Combined		135 years



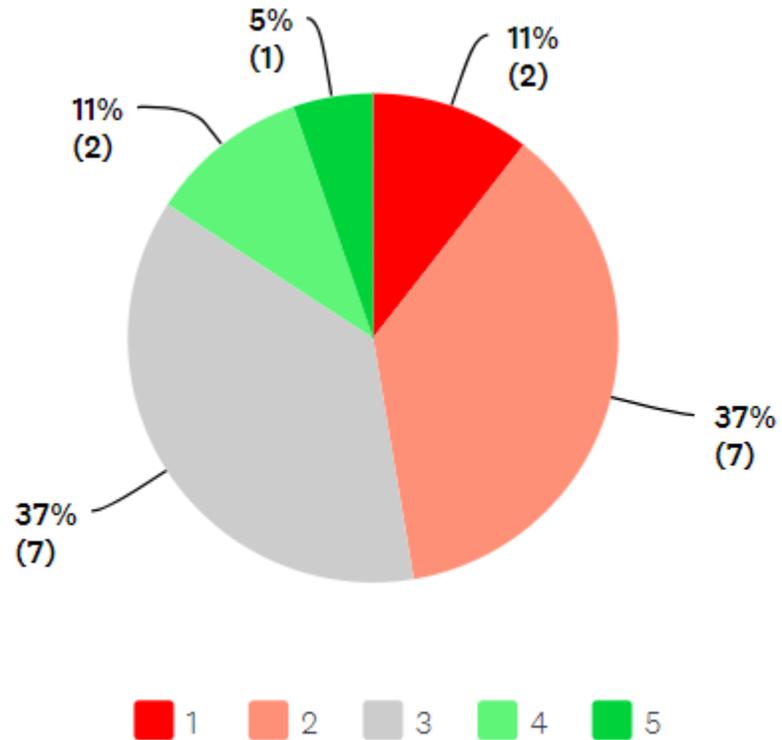
We have the right type of apparatus for our mission



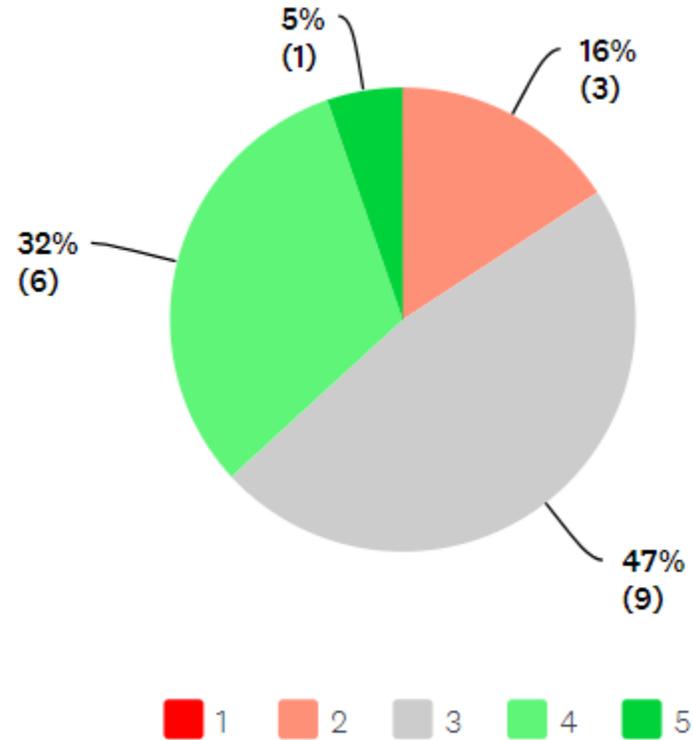
Our apparatus are in good condition



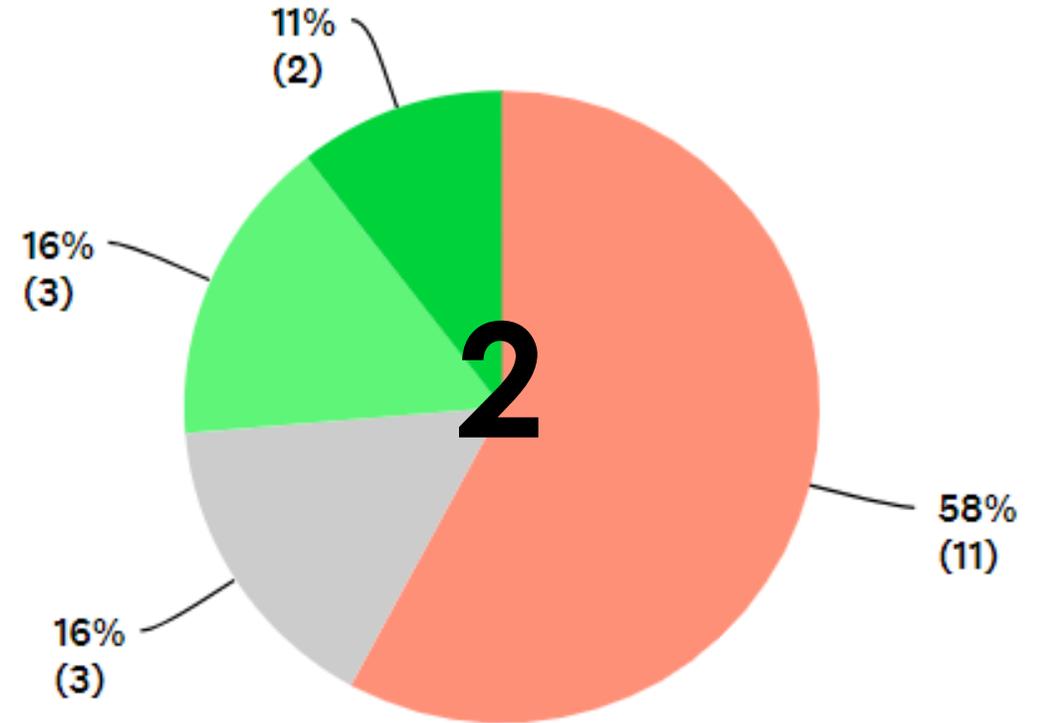
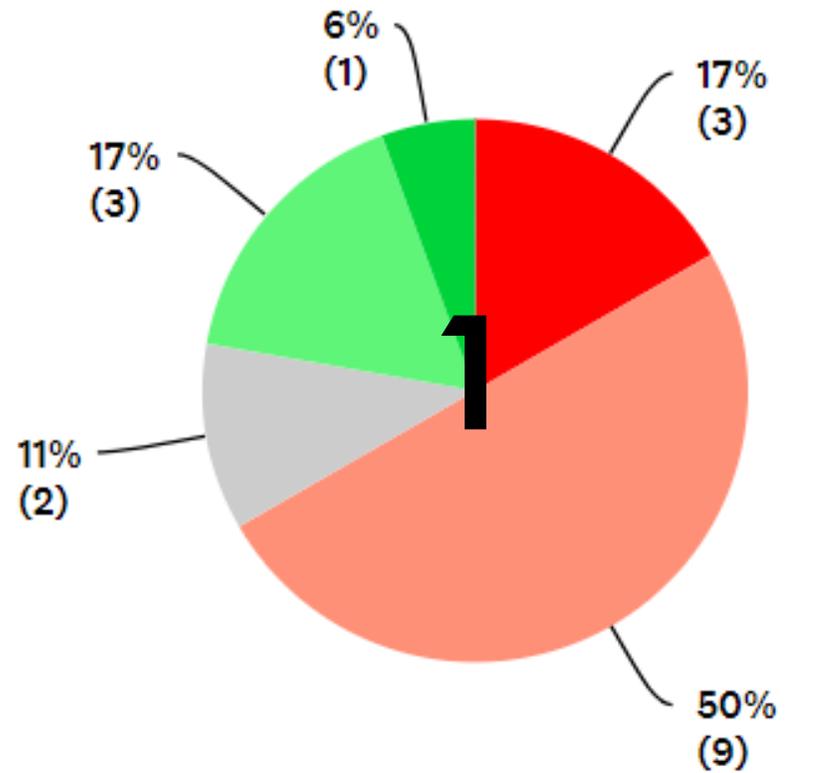
Station 1 is in good condition



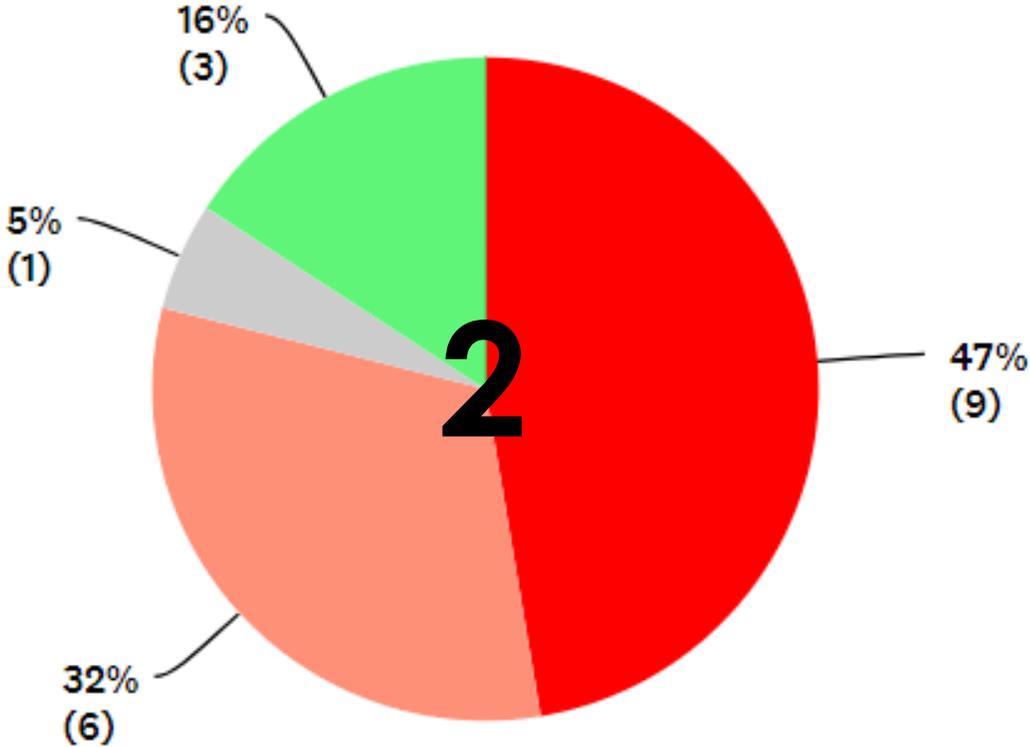
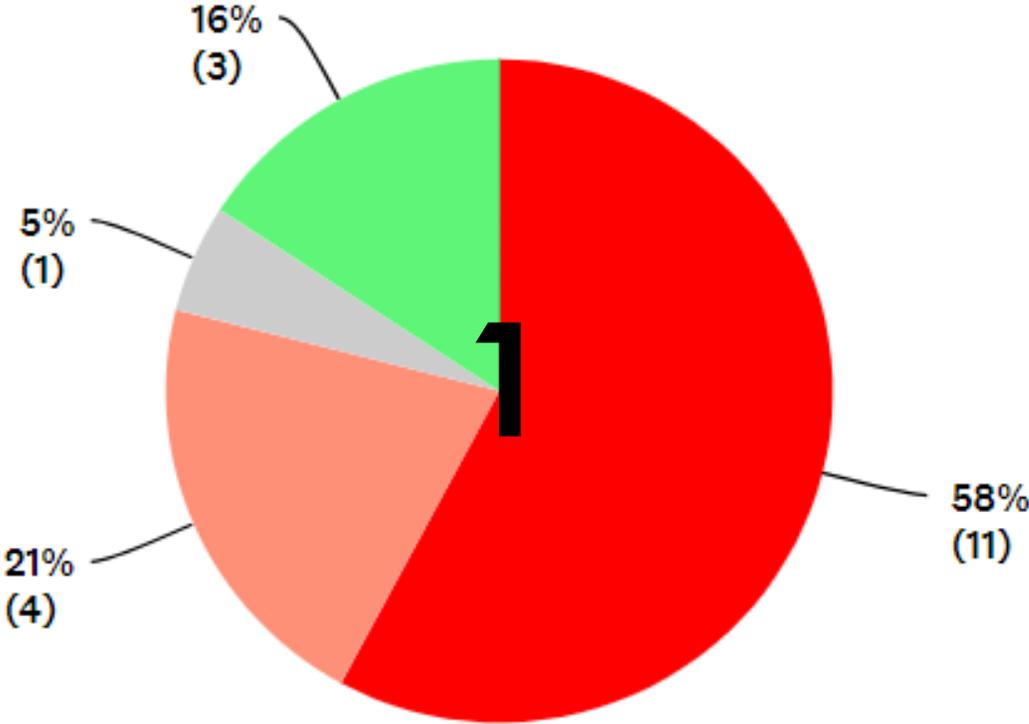
Station 2 is in good condition



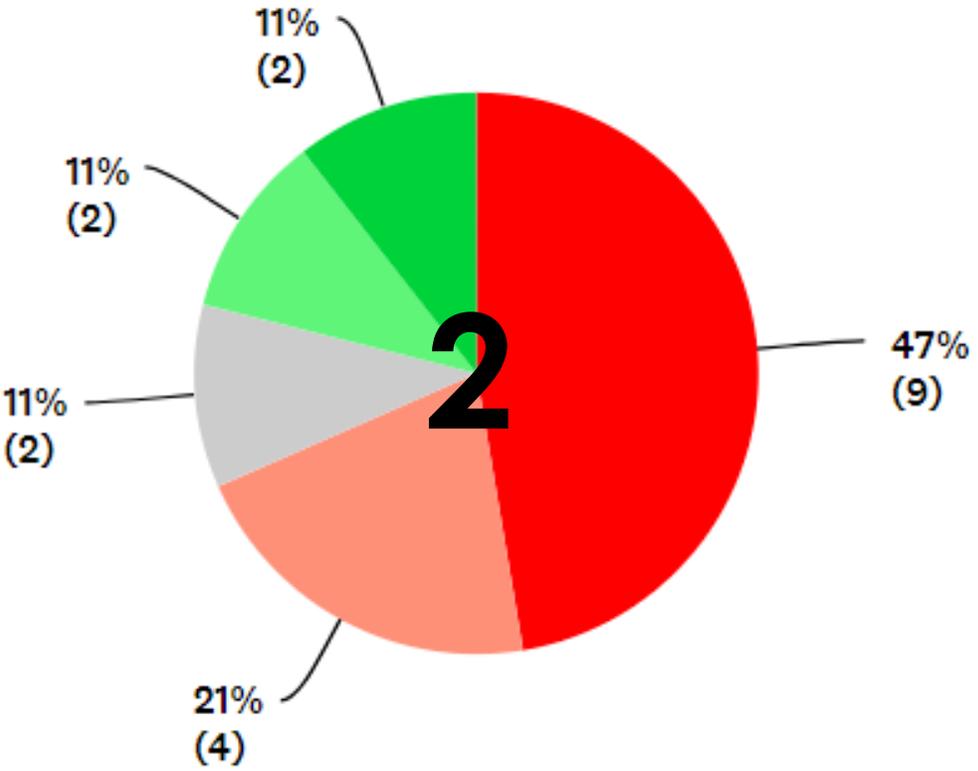
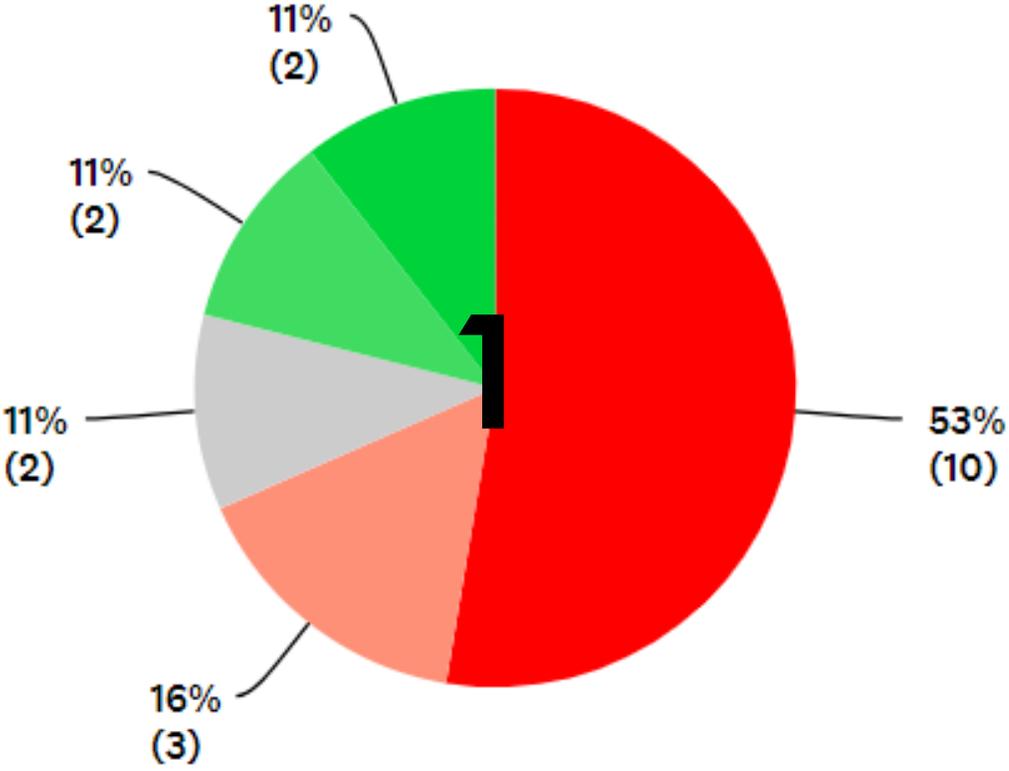
Stations are properly designed for our mission



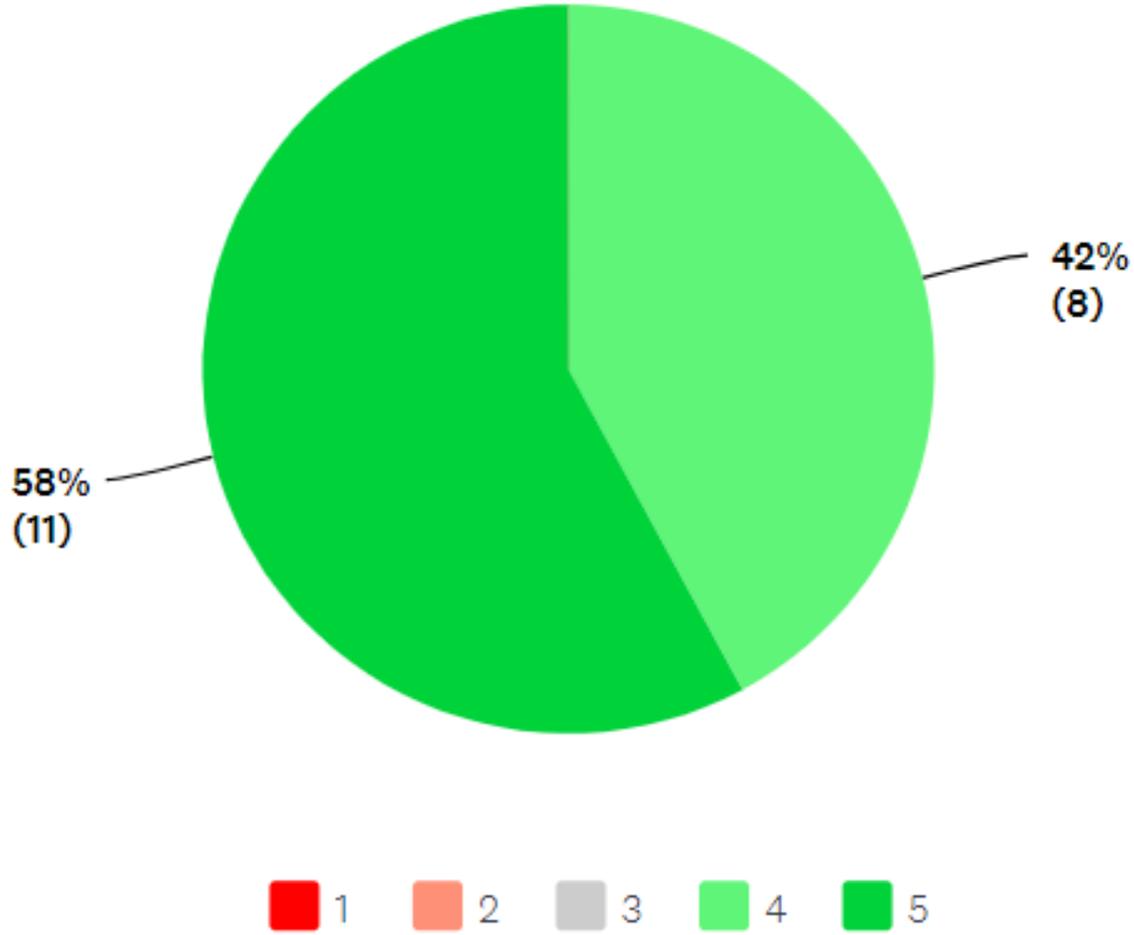
Stations are properly designed for the future



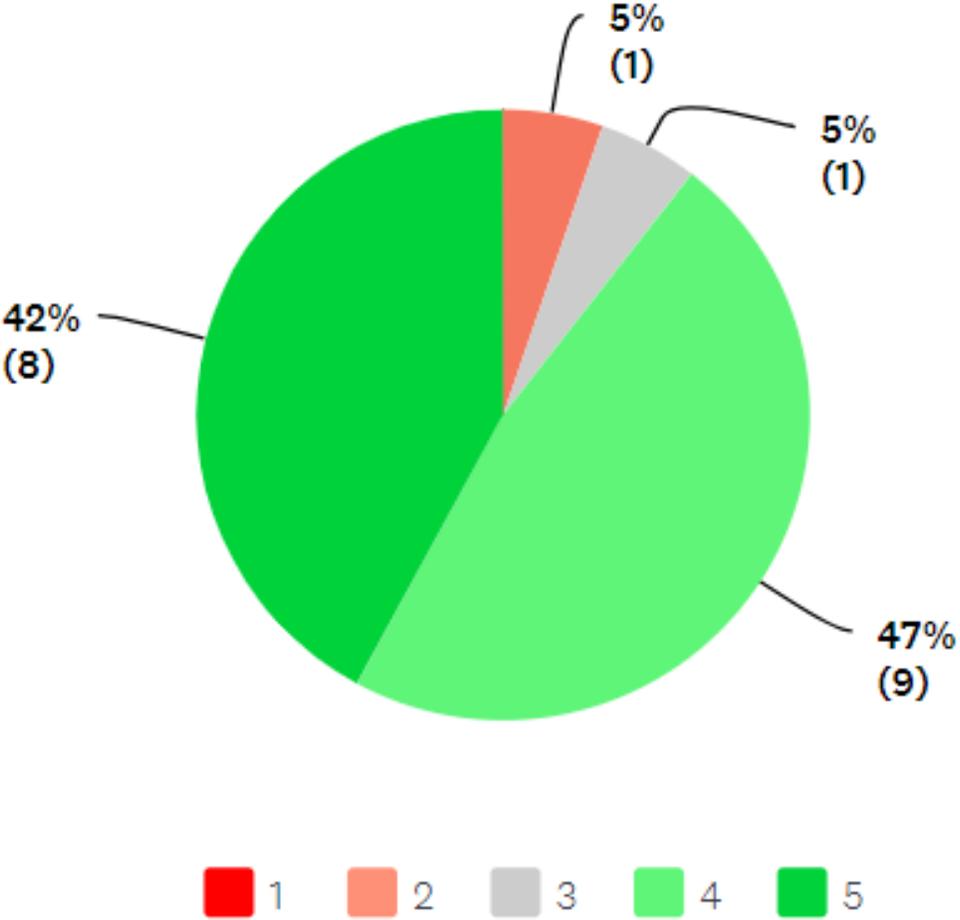
Firefighter health and safety considerations are designed into the Stations



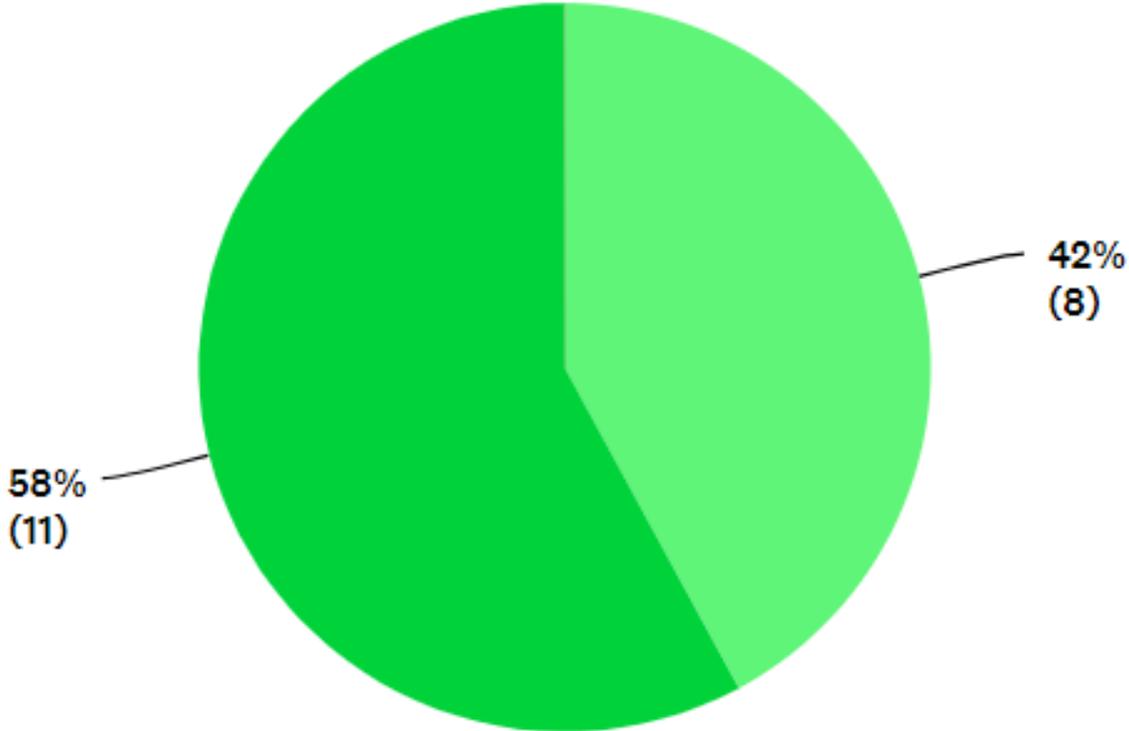
The training and learning opportunities provided by the department are relevant



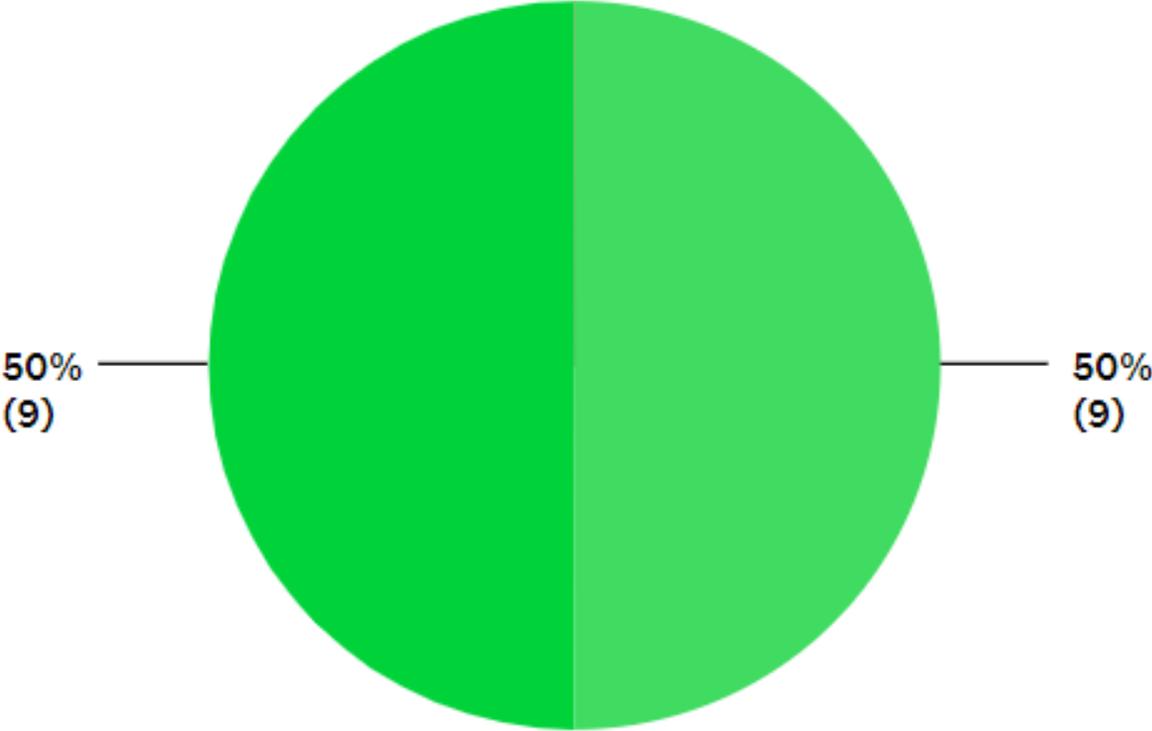
Our operational practices are consistent with our training



The Dayton Fire Department operates in a safe manner

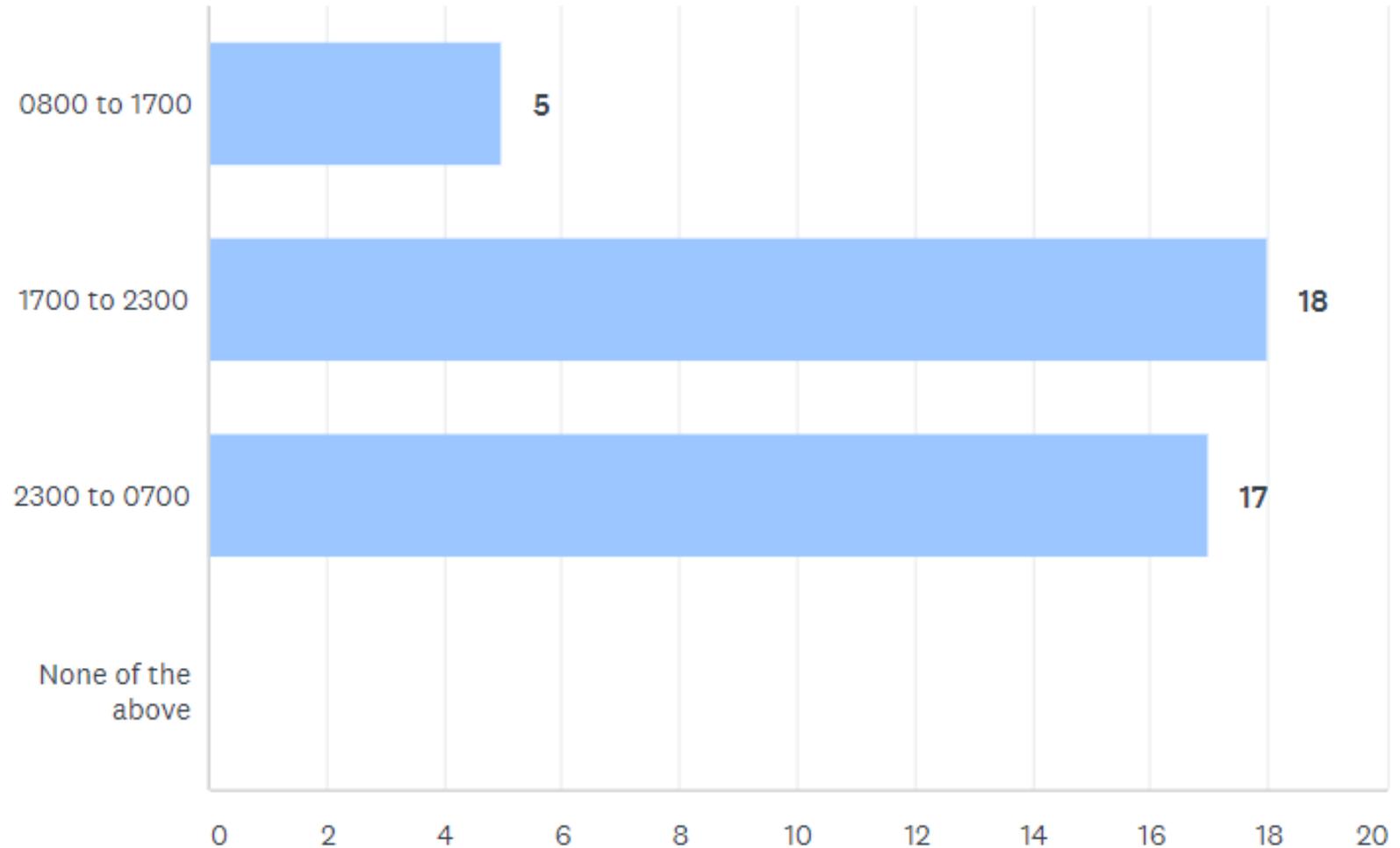


I am a valued team member of the Dayton Fire Department

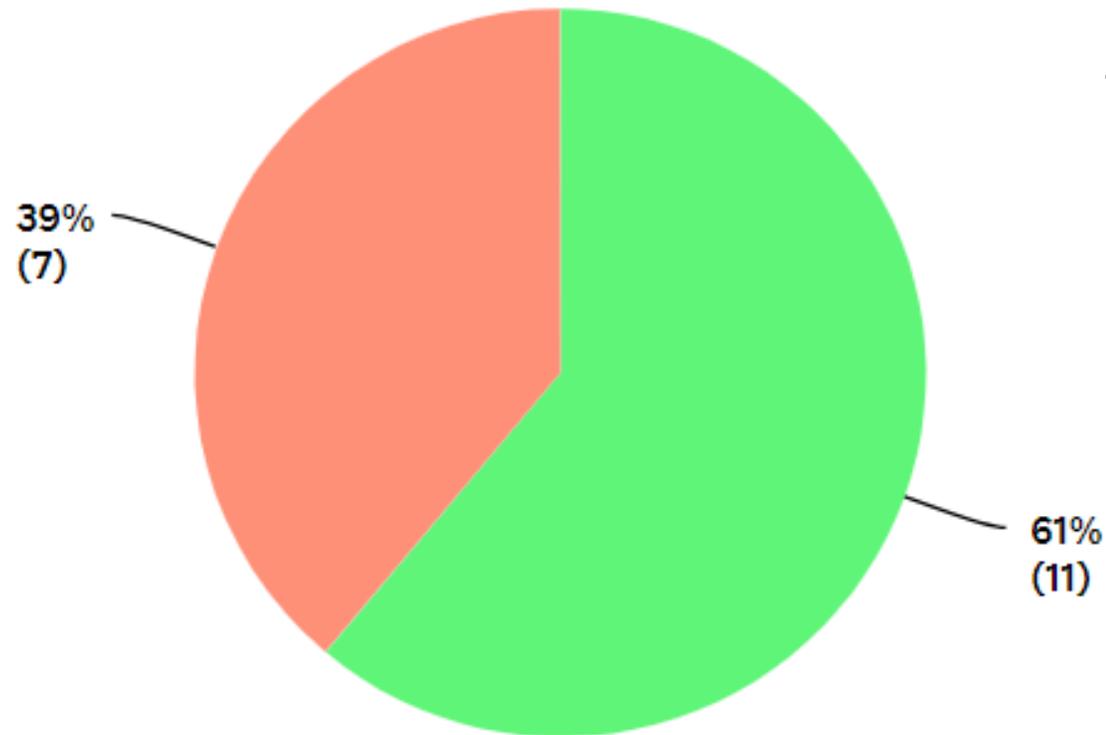


I am routinely available Monday through Friday to respond during these times

- Unanimously, the most difficult time to respond is from 0800 hours to 1700 hours



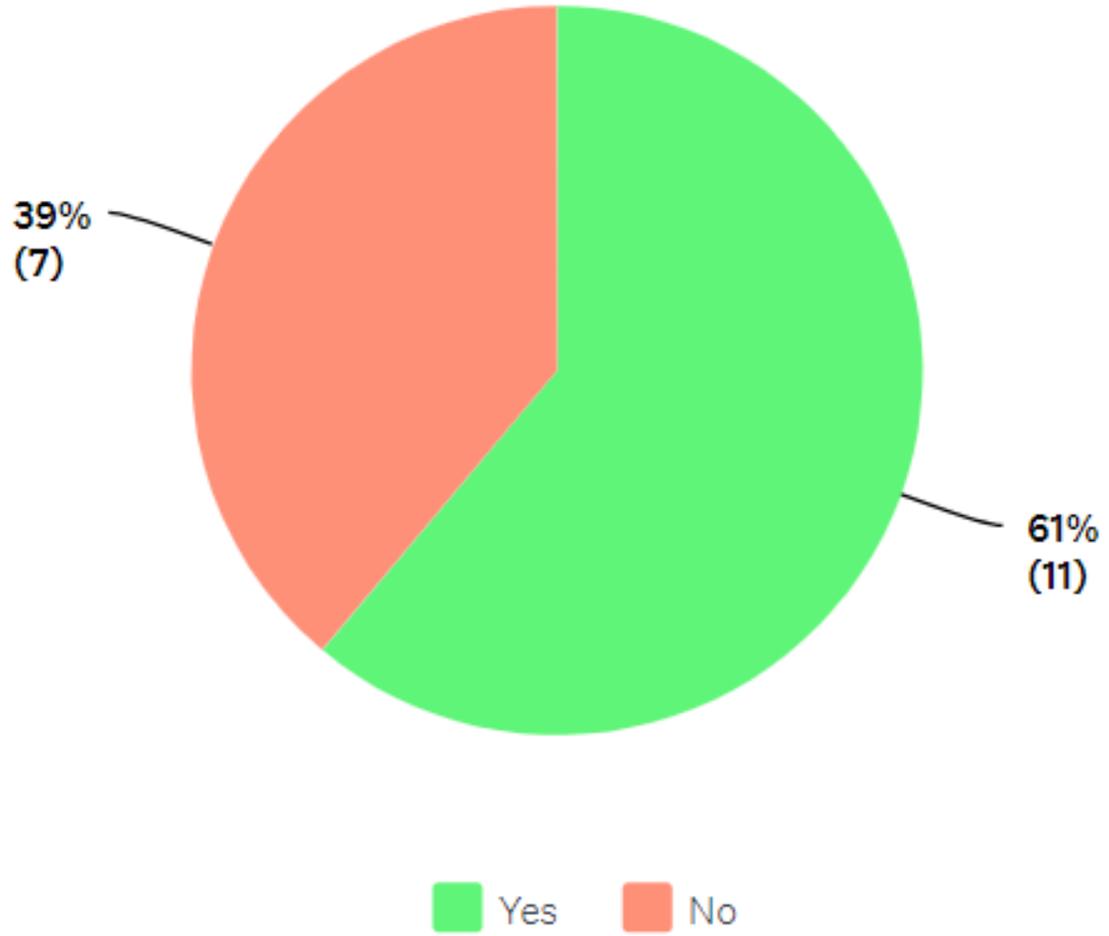
My work location is close enough to allow me to respond to fire calls



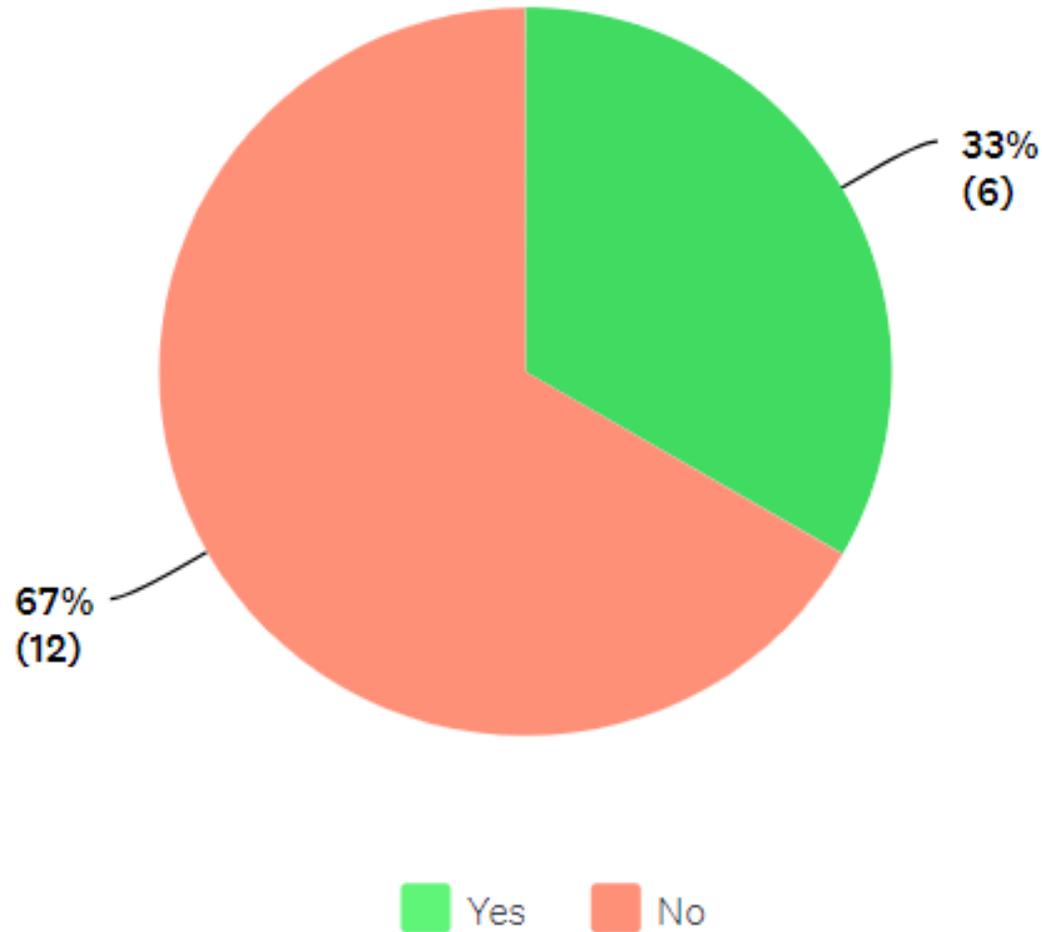
- Of the 11 who answered YES
 - All 11 employers do allow them to go on such calls



My employer allows me to respond to fire calls



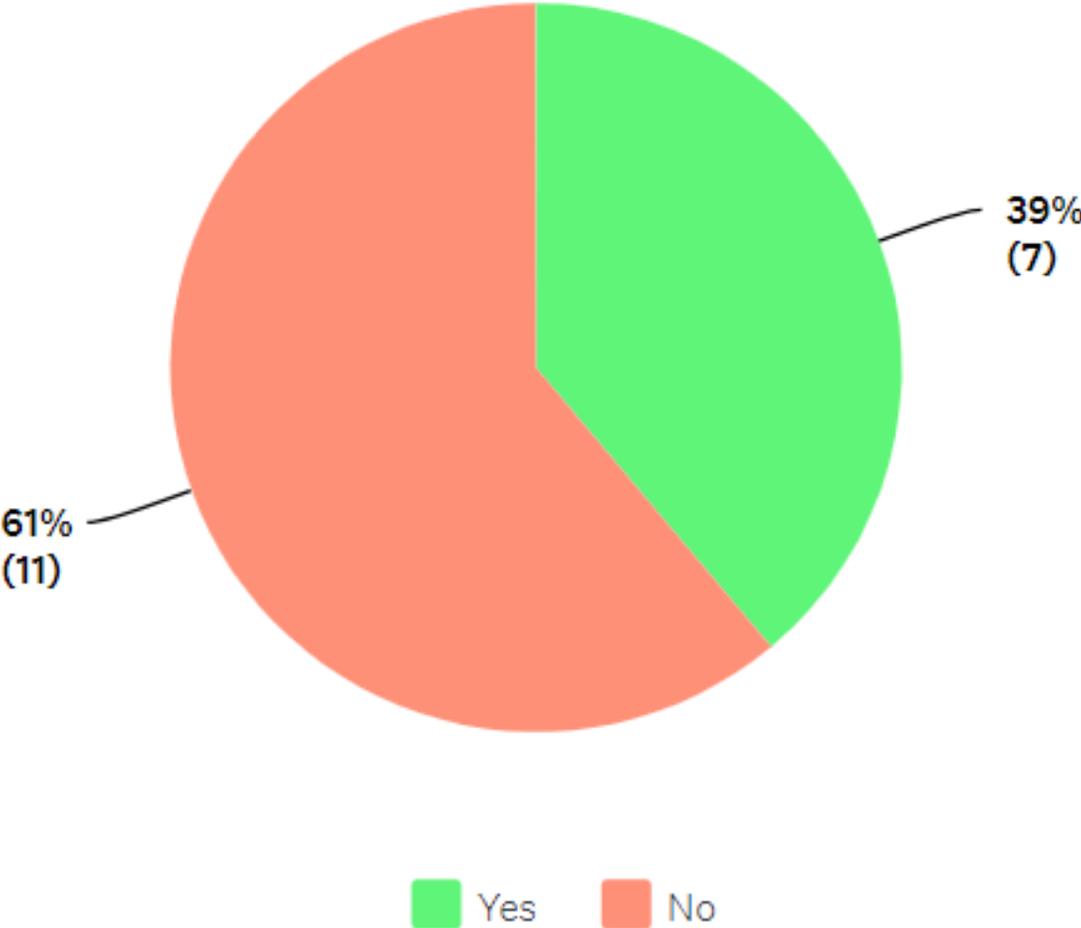
My work location is close enough to allow me to respond to medical calls



- Of the 6 who answered YES
 - 1 employer does not allow them to go on such calls
 - 5 employers do allow them to go on such calls
- Of the 12 who answered NO
 - 2 employers would allow them to go on such calls if they worked closer

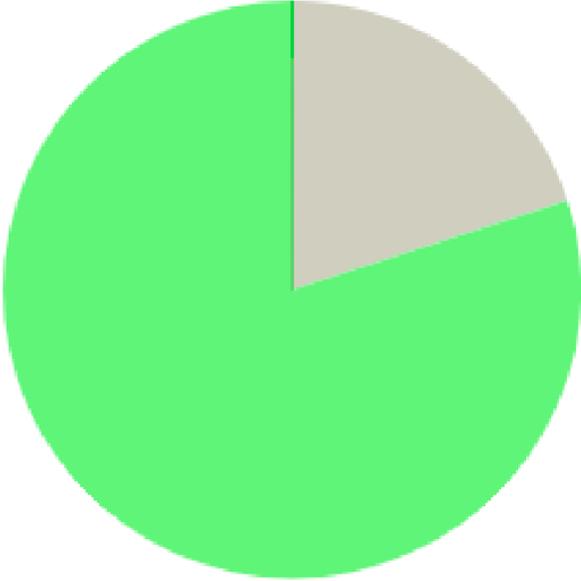


My employer allows me to respond to medical calls



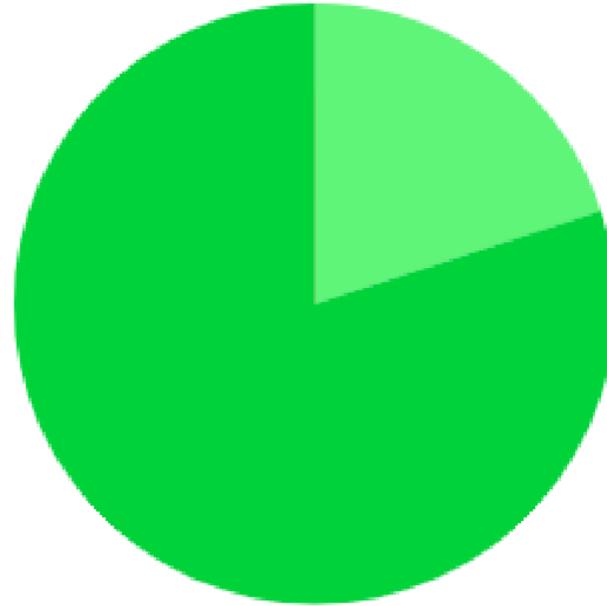
The Dayton Fire Department is adequately equipped to respond to fire and medical calls

Answered: 5 Skipped: 0



The Dayton Fire department is properly trained

Answered: 5 Skipped: 0

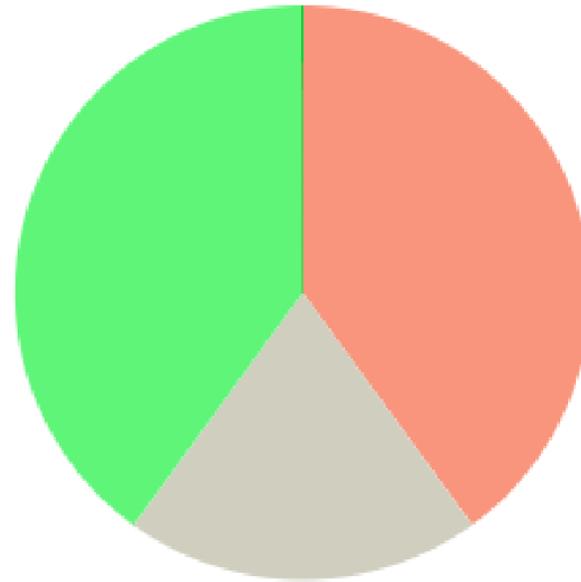


1 2 3 4 5



The Dayton Fire Department can respond an adequate number of personnel to ALL calls at ALL times

Answered: 5 Skipped: 0

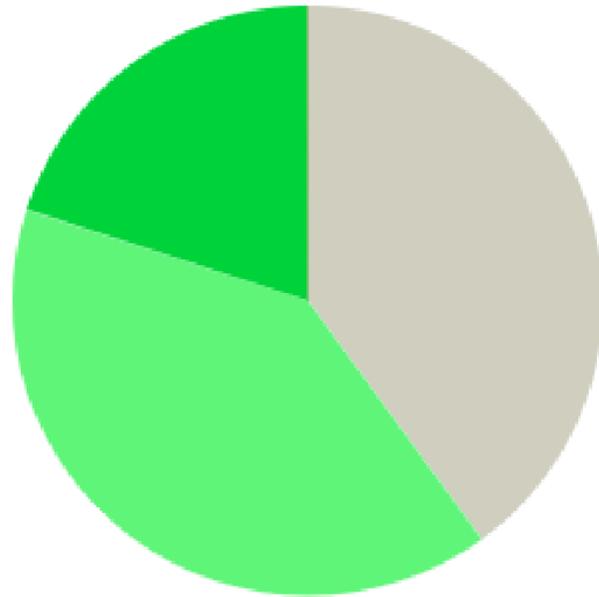


1 2 3 4 5



The Dayton Fire Department is adequately funded

Answered: 5 Skipped: 0



1 2 3 4 5



We should do more, as a city, to recruit and retain firefighters

Answered: 5 Skipped: 0

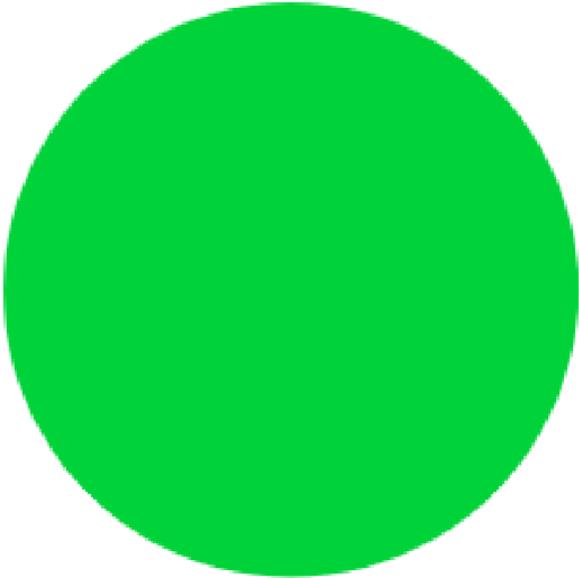


1 2 3 4 5



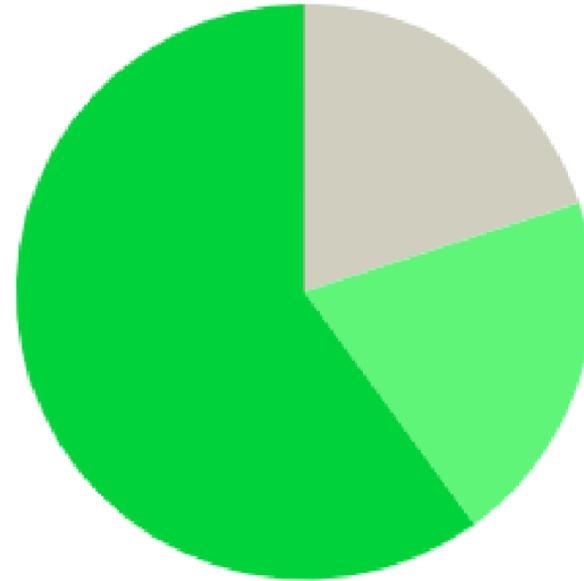
I am proud of the Dayton Fire Department and its personnel for serving the community

Answered: 5 Skipped: 0



The Dayton Fire Department has a good working relationship with other departments

Answered: 5 Skipped: 0

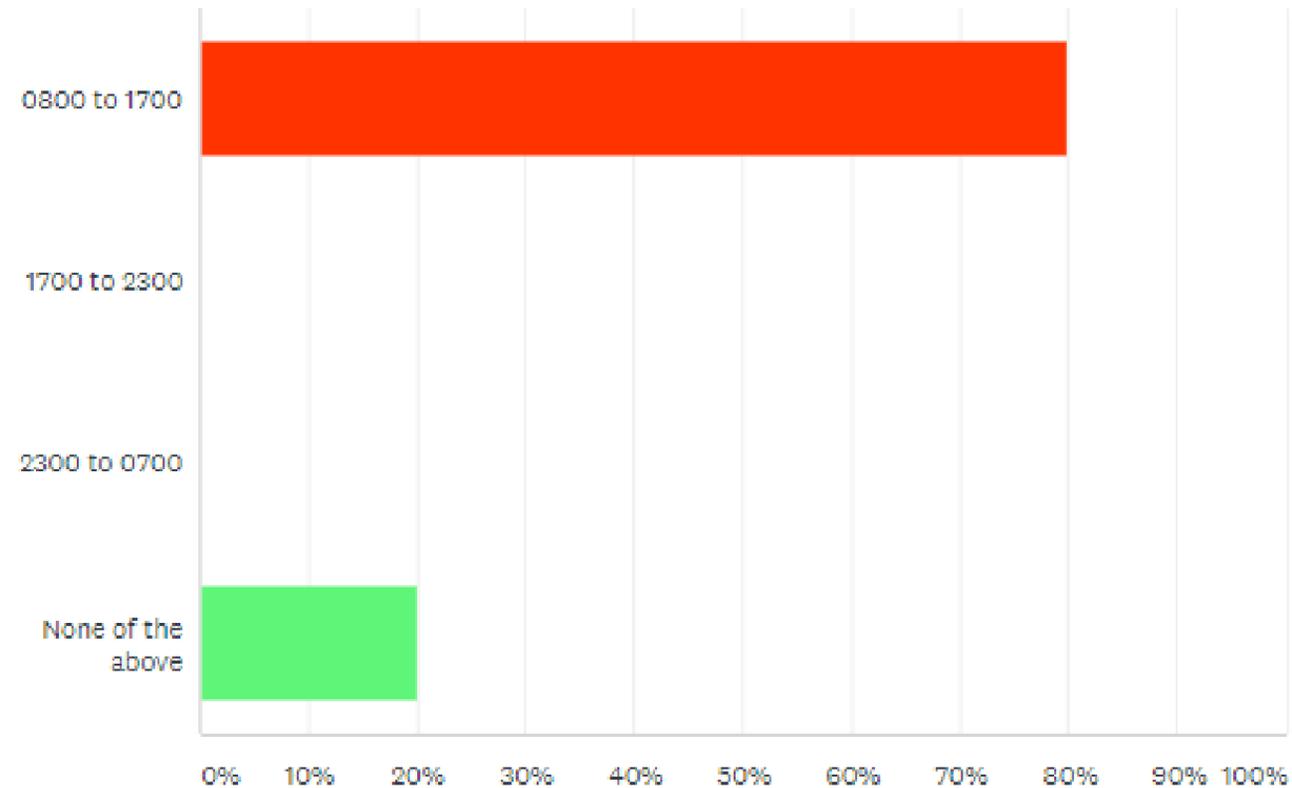


1 2 3 4 5



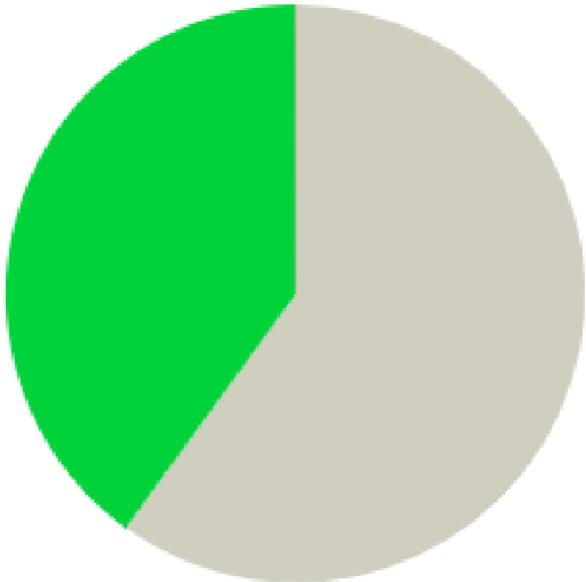
The Dayton Fire Department needs an alternate staffing plan to provide an emergency response during the following times (M-F):

Answered: 5 Skipped: 0



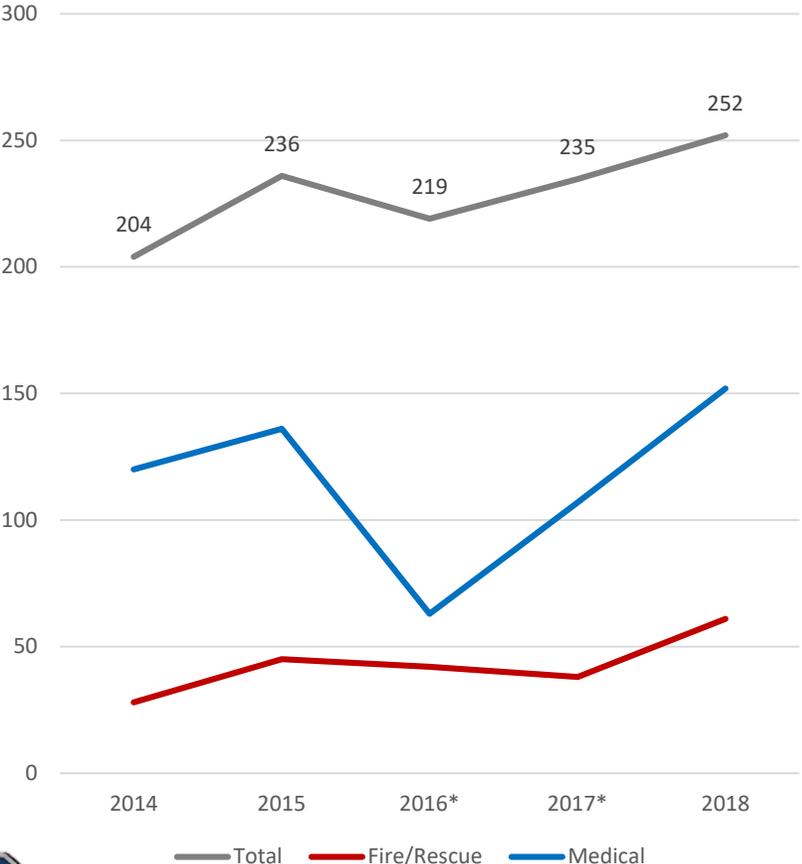
I would support additional funding to provide targeted staffing to provide an appropriate emergency response

Answered: 5 Skipped: 0

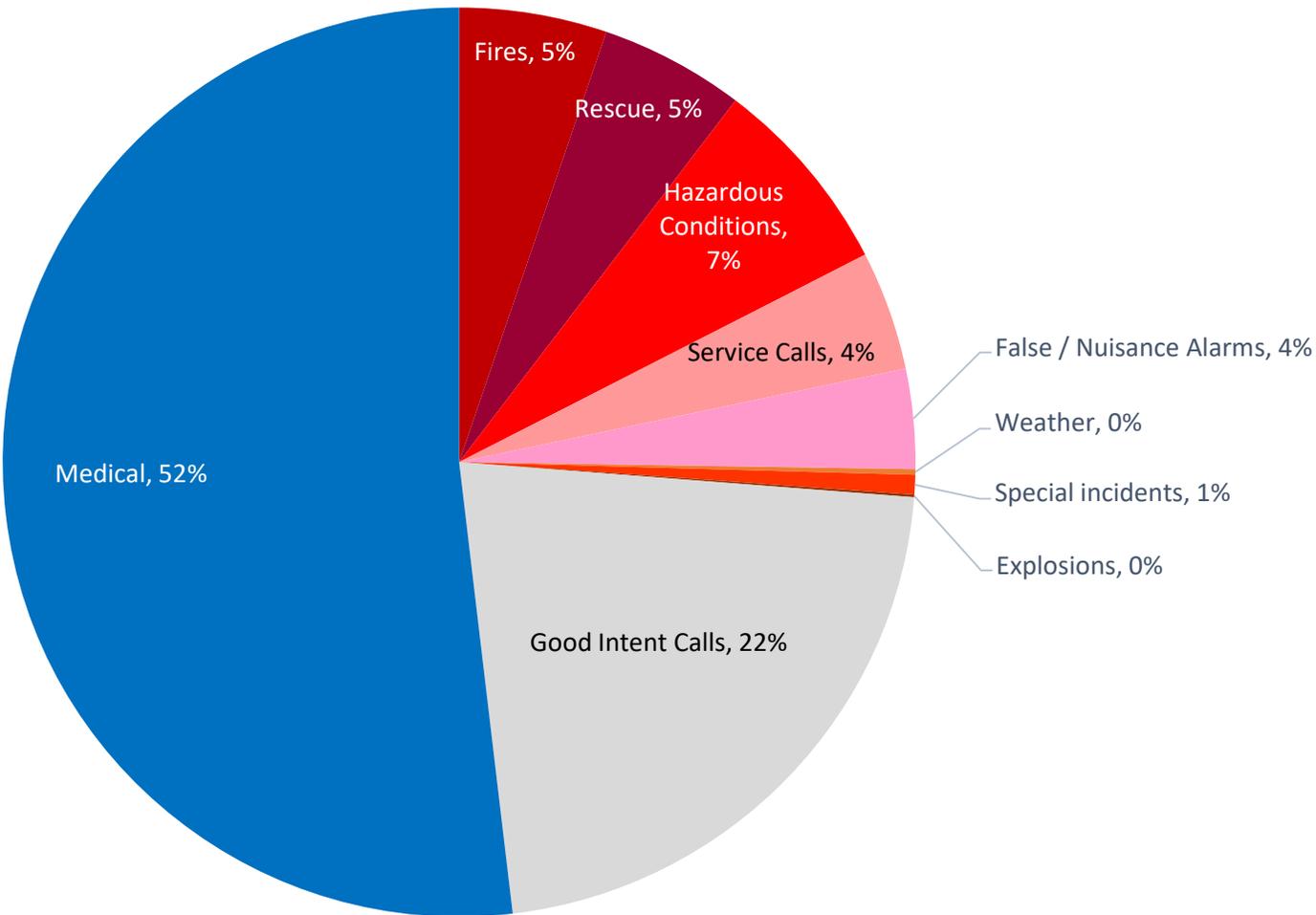


2014 – 2018 Dayton Call Analysis

Number of Runs by Year

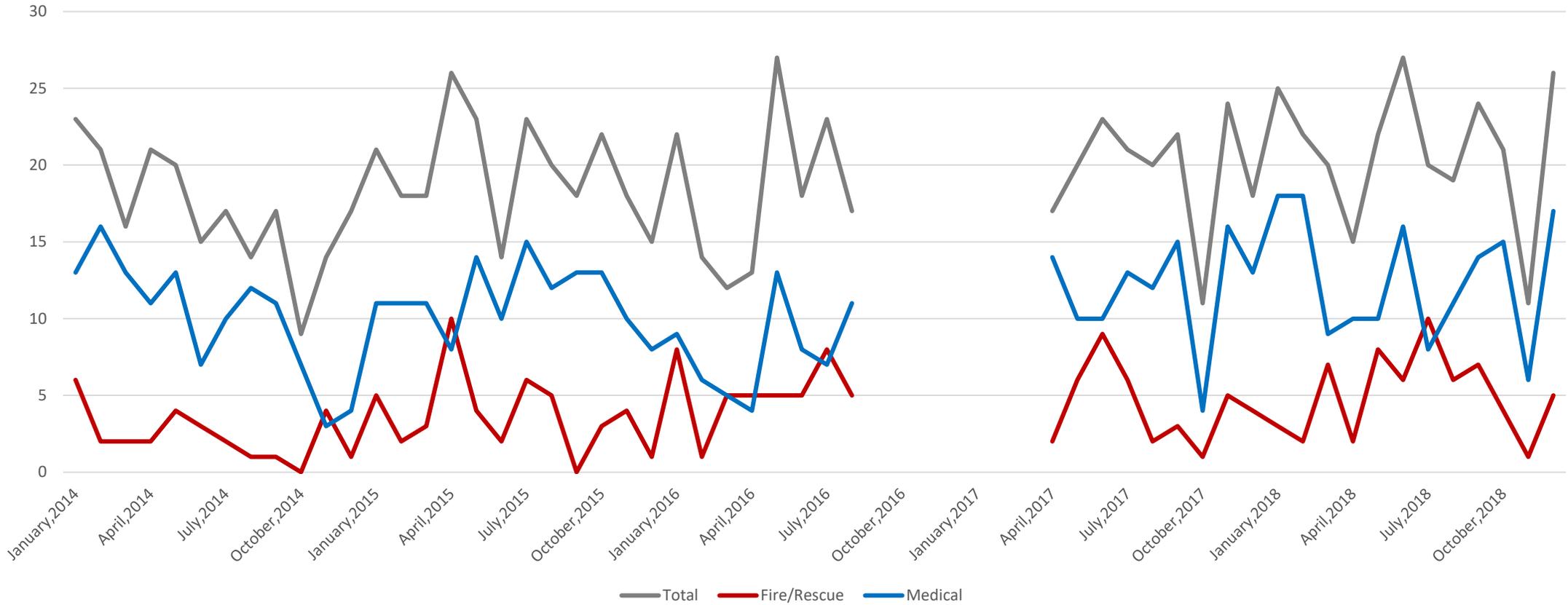


Dayton Fire Department Incident Types (2014-2018)



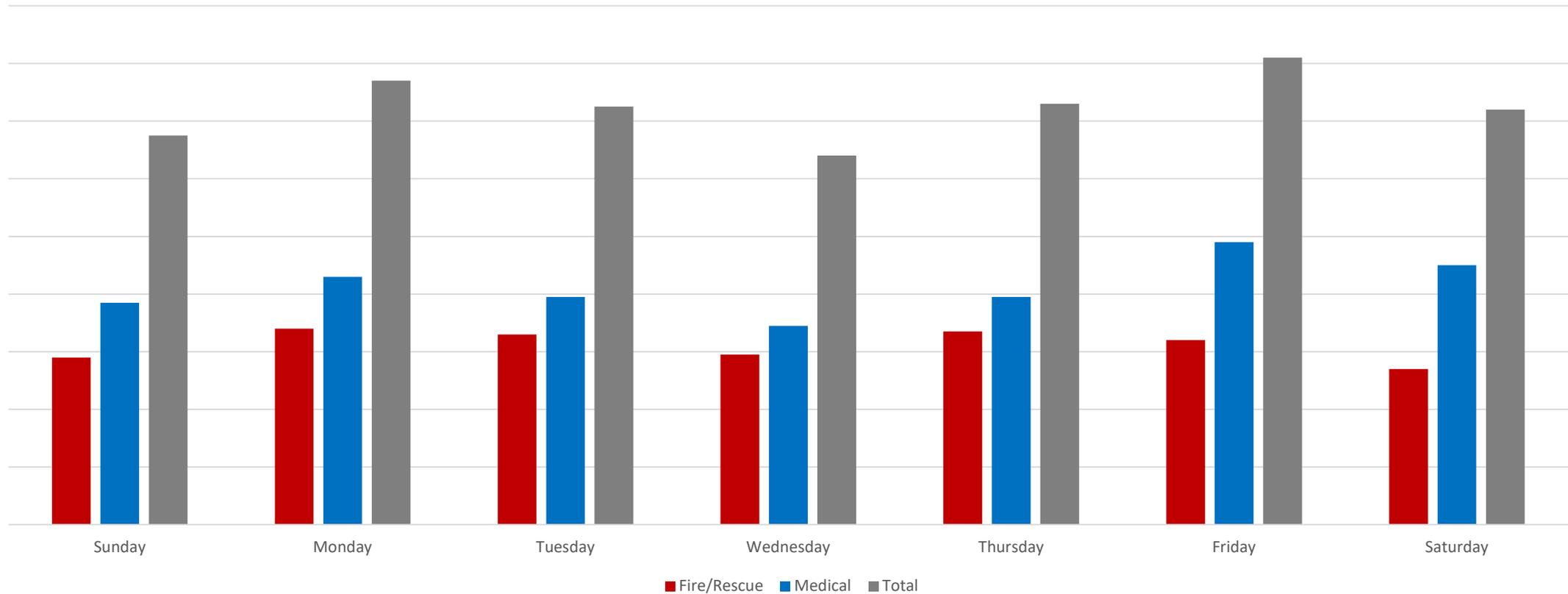
2014 – 2018 Dayton Call Analysis

Number of Runs by Month



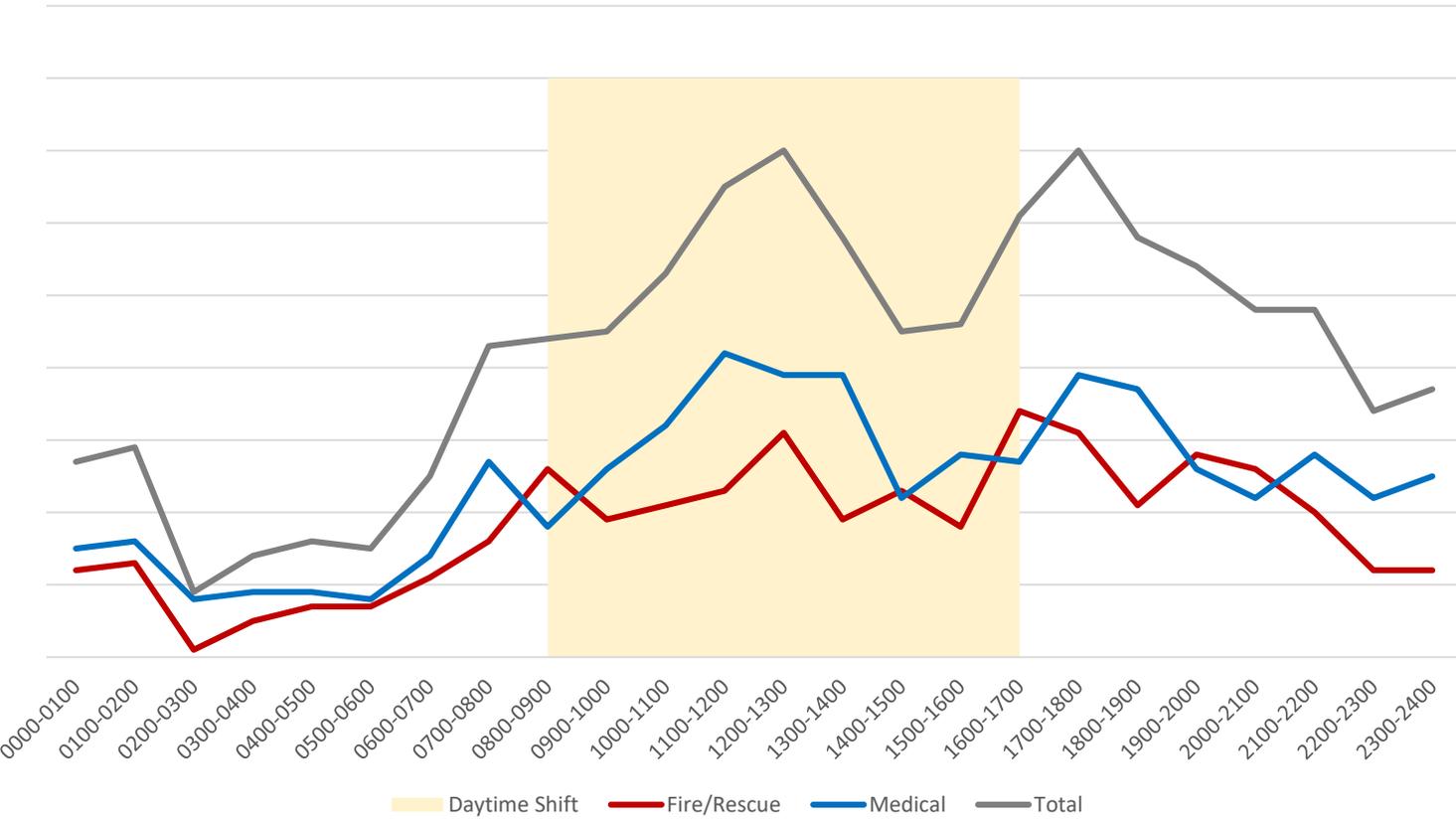
2014 – 2018 Dayton Call Analysis

Call Volume per Day of the Week

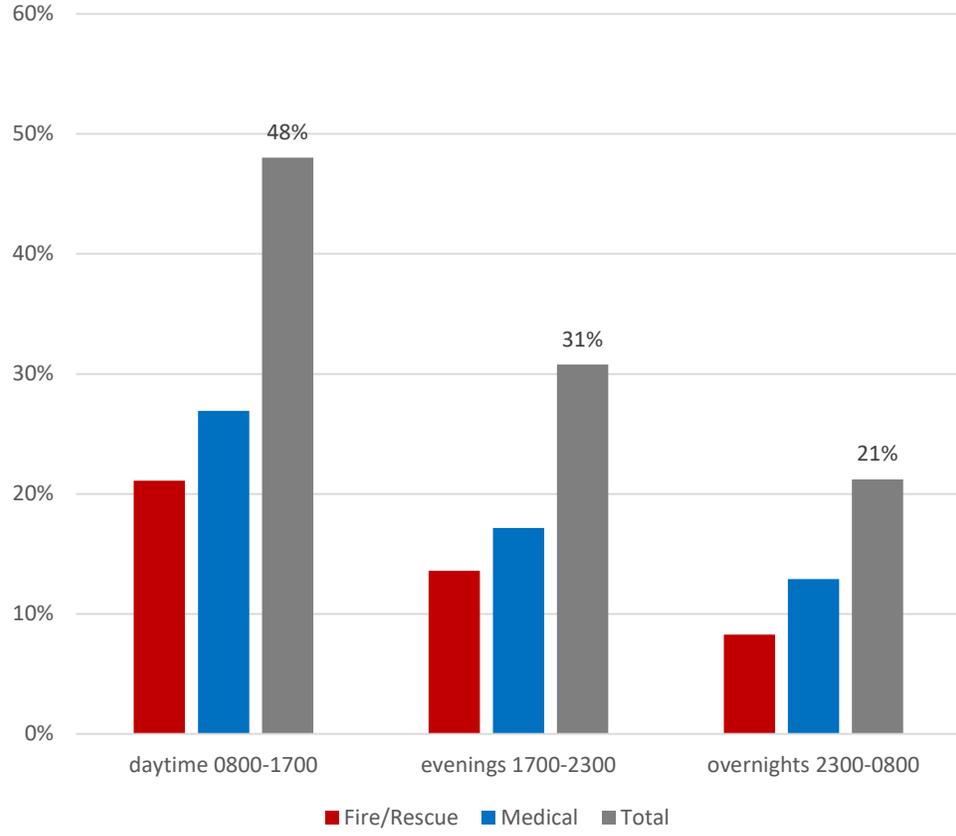


2014 – 2018 Dayton Call Analysis

Call Volume per Hour of Day

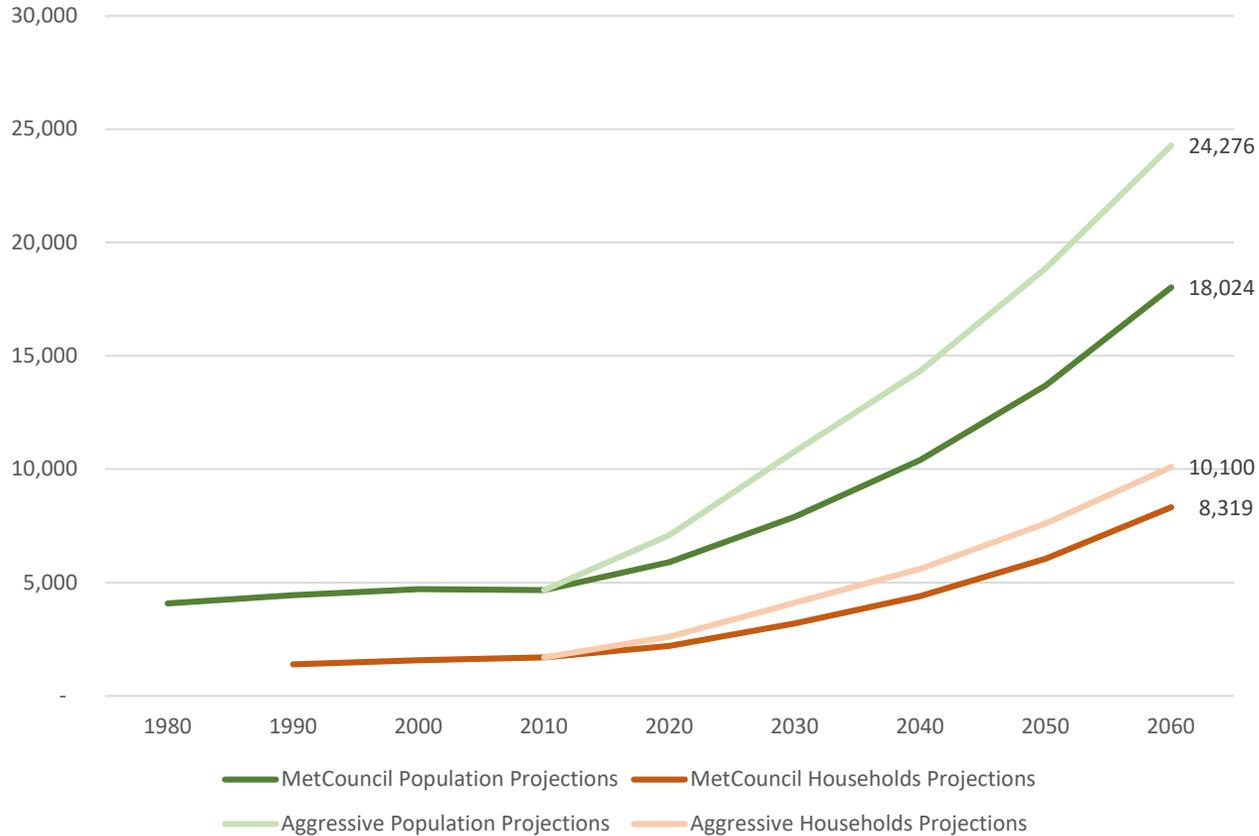


Percentage of Calls that Occur each "Shift"



Population and Call Volume Projections

Growth of Dayton, Minnesota



Fire Department Call Data by County, 2017

County	Population	Annual Call Volume	Runs/ 1,000 population
Hennepin	1,252,024	94,981	75.9
Ramsey	547,974	37,717	68.8
Dakota	421,751	22,015	52.2
Anoka	351,373	19,228	54.7
Washington	256,348	17,009	66.4
	2,829,470	190,950	63.6

Scott	145,827	4,295	29.5
Wright	134,286	3,579	26.7
Carver	102,119	3,223	31.6
Sherburne	94,570	1,720	18.2
Isanti	39,582	1,342	33.9
Chisago	55,308	1,174	21.2
	571,692	15,333	26.8

Dayton 2017	5,427	235	43.3
Dayton 2020	5,900	255	43.3
Dayton 2030	7,900	342	43.3
Dayton 2040	10,400	450	43.3
Dayton 2050	13,691	593	43.3
Dayton 2060	18,024	780	43.3



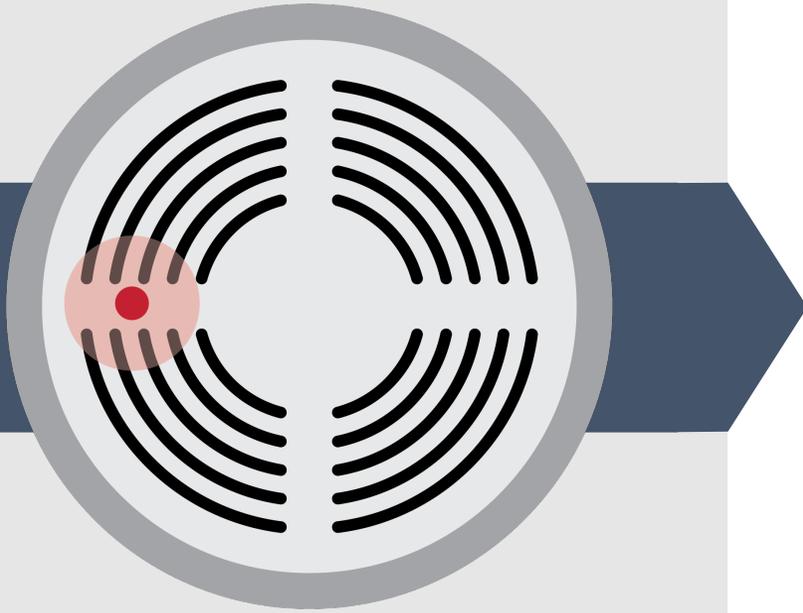
Staffing Implications

- Due to the size and condition of the existing stations, there is no staffing model that can prevent significant investment in facilities.
- Current paid-on-call staffing model is unsustainable
 - Population is increasing leading to more calls but not more volunteers.
 - Percentage of population willing and able to volunteer is declining (currently ~0.5%).
 - Currently ~11 volunteers short of a full contingent.
 - Recruitment is hampered by current station locations – some Dayton residents live too far from the stations.
 - Demands on volunteers' time for training and calls is increasing.
- Currently, there is limited availability for medical response between 0800 and 1700 hours. This is unlikely to change.
- Over the long term, as Dayton reaches 35,000 to 40,000 population
 - Projections show an average of 6 or more calls per day, half during daytime and half during evening and nights.
 - Projections show a fire call approximately every two weeks.
 - We anticipate duty crews at the stations 24/7/365.
 - We anticipate up to 60 volunteers on the department (~0.1% of the population).
 - We anticipate a minimum of five full-time staff to administer the department.
 - Stations might not accommodate all of this today, but they should be organized to allow expansion.



Staffing and Organizational Assessment



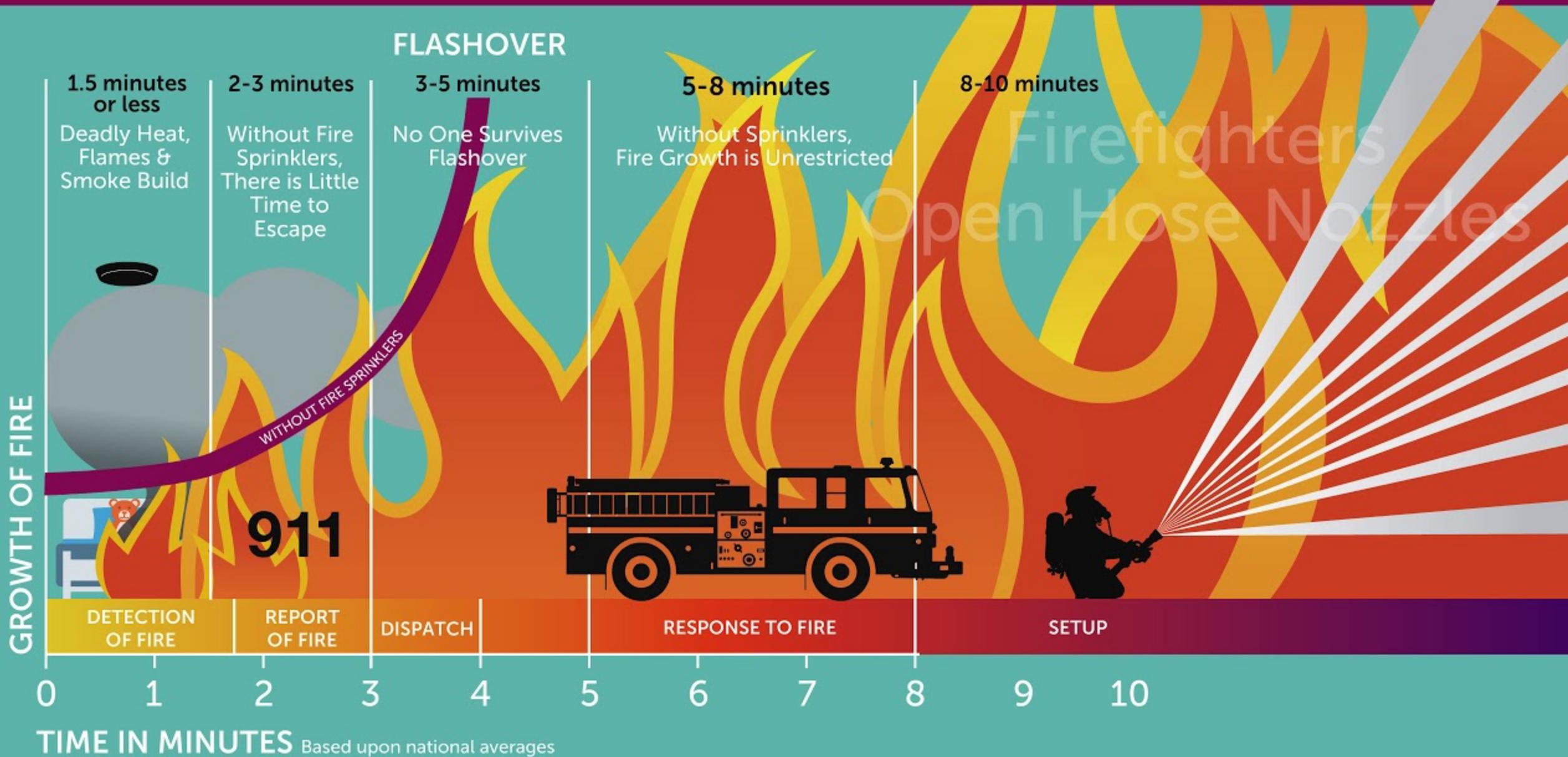


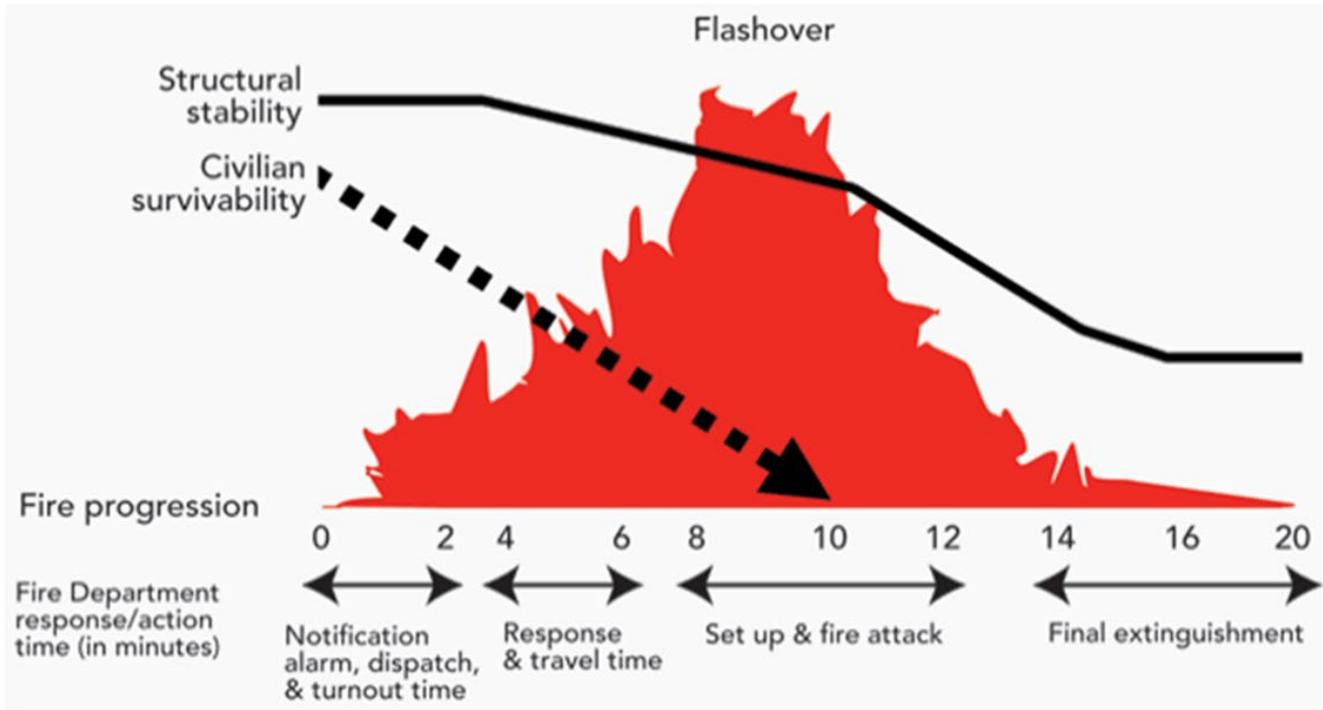
Fire is fast!

- You may have less the 3 minutes to escape.
- Smoke is deadly—kills more people than flames.
- Every home needs fire protection and a plan for escape.

- **Medical Outcomes Depend on time**
- Cardiac event survival diminished greatly > 5 minutes
- Trauma and shock

HOME FIRE TIMELINE





RISK MANAGEMENT

- The structural stability and survivability lines start at 100 percent, when the building is at its maximum strength and occupants have the best chance of escape.
- As the civilian survivability timeline moves toward the horizontal axis, the chance of survival nears zero, as the fire and deadly smoke conditions increase. At the same time, the structure is continuously losing strength and is proceeding toward catastrophic collapse.

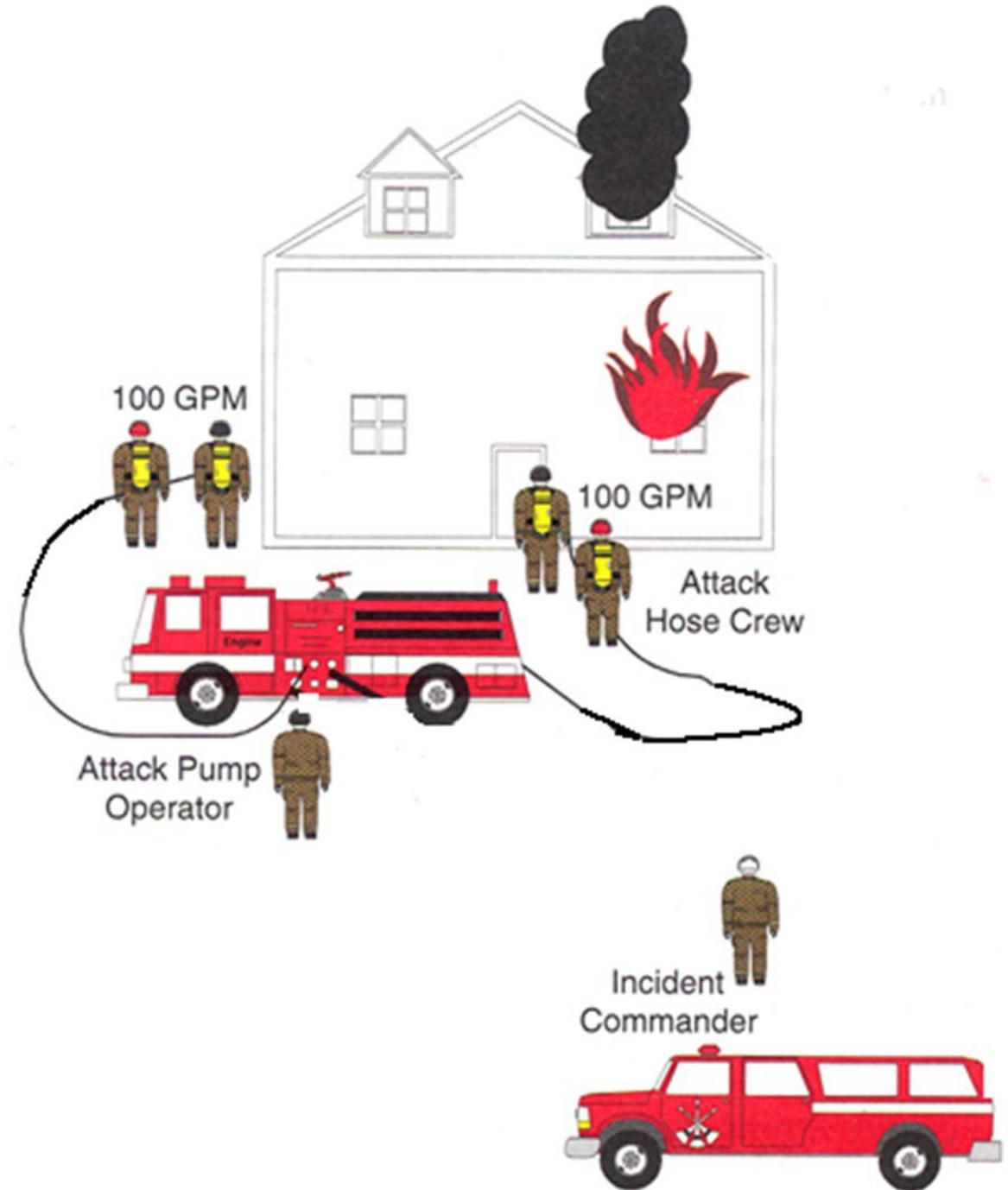
Source: Klaene and Sanders

QUICK RESPONSE

Rescue Mode

Working Structure Fire – Quick Response

- 1 - Incident Commander
- 1 - Pump operator
- 2 - Fire fighters for search and rescue
- 2 - Fire fighters on backup lines



Dayton Fire Department – Working Structure Fire

Working Structure Fire - Staffing

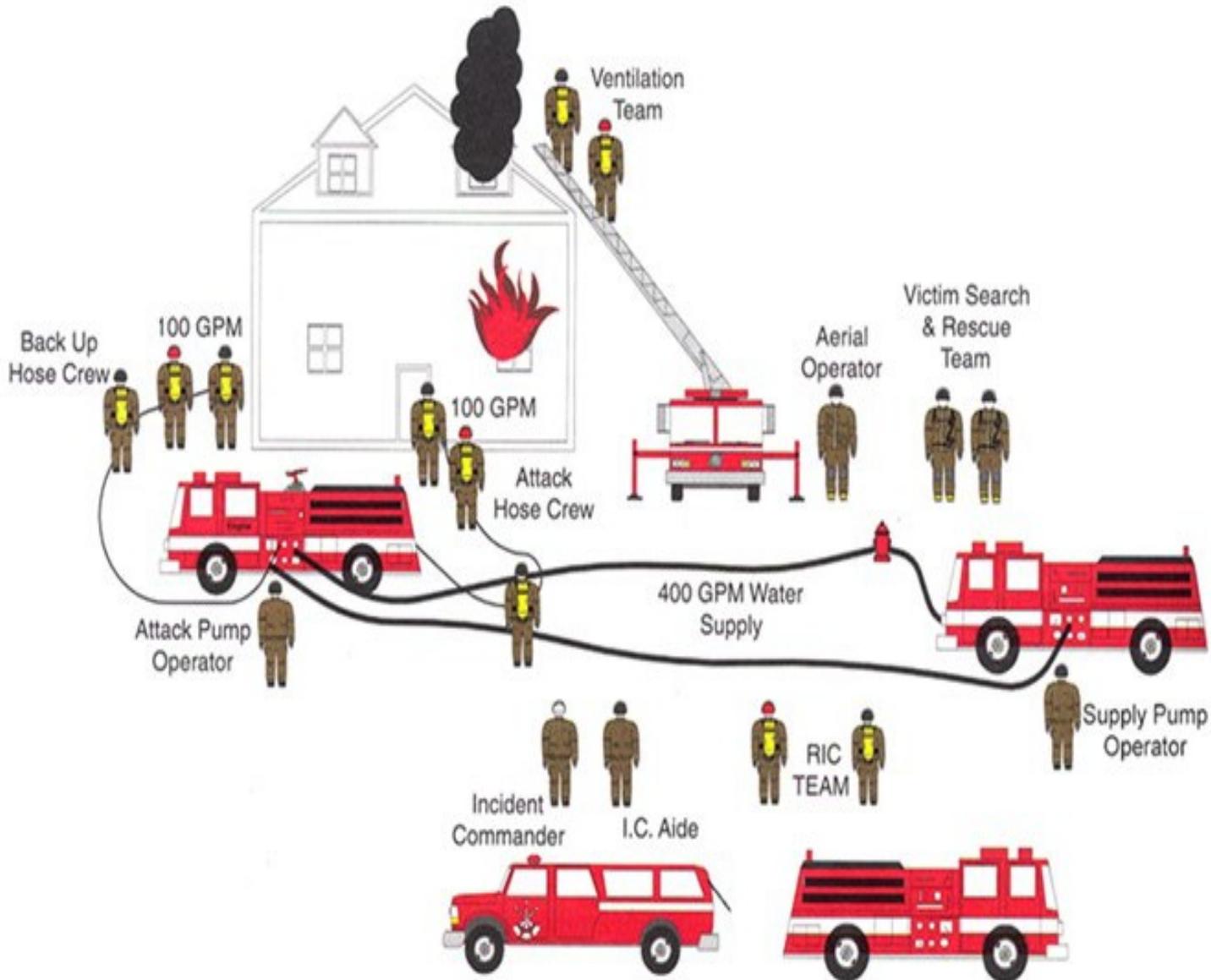
- 1 - Incident Commander
- 1 - Fire Equipment Operator
- 1 - Safety Officer
- 2 - Fire fighters on attack lines
- 2 - Fire fighters on backup lines
- 1 - Fire fighter for attack line support
- 1 - Fire fighter for backup line support
- 2 - Fire fighters for search and rescue
- 2 - Fire fighters for ventilation
- 2 - Fire fighters to serve as Rapid Intervention Team

- 15 - Total if aerial device or tender not in operation

- 2 - Aerial device operators / Tender operators
- 17 - Total if aerial device or tenders are operational

15 Personnel Required

17 personnel required if aerial device and supply pump are in operation



Staffing and Org. Structure Evaluation Steps

- Review current staffing, call volume, response time history.
- Examine demographics and growth.
- Review department mission and community expectations.
- Incorporate data from engagement process.
- Analyze, present and discuss alternatives.
- Provide recommendations.



Center for
Public Safety
Excellence



Staffing Alternatives

1. Full time fire department - \$900K - \$1.2 million per company plus Fire Chief
2. Combination department - \$80K per firefighter plus Fire Chief plus volunteer
3. Contract for service – Cost Negotiable
4. Joint powers Agreement – Cost Negotiable
5. Status quo
6. Resident Firefighters plus Fire Chief
7. Duty crew for peak times plus Fire Chief



Staffing Recommendations

- Hire a full-time Fire Chief
 - Lessen start up costs by starting mid-year
 - Will provide supervision for duty crew
 - Grant work
 - Code Enforcement
 - Revenue possibilities – insurance charge, Required Code Inspections, rental housing, local option sales tax
- Provide Duty Crew coverage
- Cost - \$130K – Wages and benefits



Volunteer Incentives / Retention

- Shift to 10-year vesting in relief – Grandfather current firefighters
- Current pay is on the lower end of the scale
- Implement tiered pay scale based on experience/ evaluations
- Small property tax credit
- Transitioning to a Duty Crew and taking advantage of technology could reduce costs



Operational Recommendations

- Standard Operating Guidelines
 - Start with NFPA 1720 as basis
- Develop a multi-year training plan
- Continue equipment and vehicle consistency
- Expand Automatic Aid through area-wide run cards and boundary drops



Apparatus Assessment



Apparatus Evaluation Steps

- Review history of each apparatus
- Review calls for service, present and future, and ability to meet goals.
- Review budget allowances.
- Review mutual aid agreements.
- Review apparatus deployment model.
- Discuss with Administration.
- Provide Recommendations.



Apparatus Impressions

OVERALL FLEET IS IN GOOD SHAPE

- Develop Fleet for Future
- Replacement Schedule
 - Engine – 20 years
 - Staff – 7 years or 100K
 - Tanker – 25 years
- Controversy with Ranks? Change?
- Does the Fleet reflect current and future mission, services offered and community risk.
 - 2 engines out of both stations?
 - 1 Engine out of each station?
 - Designated reserve concept
- Cost vs Benefit vs Frequency vs Shared resources



FLEET RECOMMENDATIONS

1. Replace Utility 21 with an additional engine that is consistent with the current Engine 11 and Engine 21.
2. Future apparatus should utilize the “clean cab” concept.
3. Replace the tank on Tanker 11. The chassis is in good condition with low miles and reusing the chassis will be cost effective.
4. Ensure that both Rescues are consistent in layout. All future vehicles of this type should be 4-wheel drive



FLEET RECOMMENDATIONS

5. Obtain an ATV access to incidents in forested areas of the city.
6. Develop a replacement schedule for all vehicles in the fire department fleet.
7. Consider leasing or bonding for large expenditures if cash flow concerns are important. (Policy decision for council)



Proposed Apparatus Purchase Schedule – 20 years

DESIGNATION	REPLACES	APPROX. REPLACEMENT YEAR	BALLPARK COST
ENGINE 12	1990 Engine	2019	\$ 600,000
RESCUE 11	2006 Ford	2020 (chassis only)	\$ 40,000
RESCUE 21	2016 Ford	2023 (chassis only)	\$ 40,000
ATV AND TRAILER	n/a	2024	
TANKER 11	2000 Tanker	2025 (tank only)	
ENGINE 22	2006 Utility 21	2025	\$ 600,000
CHIEF 1	2017 Ford	2027	\$ 40,000
RESCUE 11	2020 Rescue	2027	\$ 200,000
UTILITY 22	2008 Ford	2028	(purchase used)
RESCUE 21	2023 Rescue	2030	\$ 200,000
ENGINE 21	2010 Engine	2030	\$ 600,000
ENGINE 11	2017 Engine	2035	\$ 600,000



Facilities Assessment



Facility Evaluation Steps

- Existing Facilities Assessment
 - Site Improvements
 - Building Enclosure
 - Interior Elements
 - Fire Protection
 - HVAC
 - Plumbing
 - Electrical
 - Communications
 - Code Compliance
 - Functionality
- Health & Safety Assessment
- Space Needs
 - Existing spaces
 - Industry Standards
 - Future Trends
 - Work with City to create the program
- Renovate vs. New
- Station Location Options
- Cost Estimates
 - Maintenance Issues
 - Renovation Expenses
 - Build-new Expenses



Station #1 Capital Needs

	Estimated Construction Cost as of July '19
Remove, regrade, and repave asphalt parking lot	\$ 220,000
Replace asphalt in right-of-way	\$ 16,000
Replace front apparatus apron	\$ 30,000
Replace concrete at west parking lot entry	\$ 12,500
Replace areas of settled concrete sidewalk	\$ 3,500
Replace handrails at sidewalk	\$ 3,000
Replace site signage	\$ 1,000
Provide new on-site generator for Fire Department emergency backup power	\$ 70,000
Repair roof	\$ 40,000
Replace sealants where base of wall meets concrete.	\$ 3,000
Replace sealant at conduit and piping penetrations through exterior wall	\$ 500
Lightly sandblast exterior walls and repaint to maintain weather resistive barrier (every five years)	\$ 10,000
Replace apparatus door weatherstripping	\$ 1,200
Repaint at apparatus door jambs	\$ 1,000
Repaint hollow metal pedestrian doors	\$ 1,600
Replace rusting hinges at pedestrian doors	\$ 1,600
Replace sealant at pedestrian doors	\$ 1,200
Provide drip at north pedestrian door into app bays	\$ 500
Replace closer cover at east pedestrian door into app bays	\$ 500
Rake back mortar and provide sealant at horizontal masonry joints at windows	\$ 1,200
Replace sealant at windows	\$ 900
Replace cracked sill blocks at windows	\$ 1,200
Replace damaged flooring in turnout storage, office, shop, and app bays with epoxy flooring	\$ 30,000
Replace gypsum board around south exit from app bays, paint to match	\$ 1,600
Replace missing rubber base	\$ 500

Replace cabinets and countertop in Shop	\$ 2,500
Replace upper section of dryer exhaust ventilation	\$ 500
Replace water heater	\$ 2,500
Toilet Room Upgrade(currently underway)	
Replace corroded floor drains	\$ 1,600
Add continuous ventilation in app bays as required by building code (least expensive option)	\$ 16,000
Provide office with ventilation air, heating, and cooling (thru wall)	\$ 2,000
Replace exhaust fans in restrooms	\$ 600
Replace outlets in app bays with GFI outlets	\$ 600
Provide truncated dome detectible warnings as required (surface applied)	\$ 5,200
Repaint accessible parking striping	\$ 1,000
Replace concrete sidewalk to provide accessible clear floor area to operate exterior side of doors	\$ 2,000
Replace knob hardware with lever hardware	\$ 500
Insulate domestic hot water piping	\$ 500
Add sensor bottom and bumper-height photoeye to apparatus doors	\$ 1,800
Replace apparatus door track and springs	\$ 9,000
Add fall protection cage to hose tower ladder	\$ 10,000
Replace apparatus doors	\$ 45,000
Install sprinkler system	\$ 140,000
Install direct capture exhaust system	\$ 60,000
Enclose the turnout gear storage room and provide exterior exhaust and makeup air	\$ 30,000
Provide bollards at front bay doors	\$ 2,000
	\$ 785,800



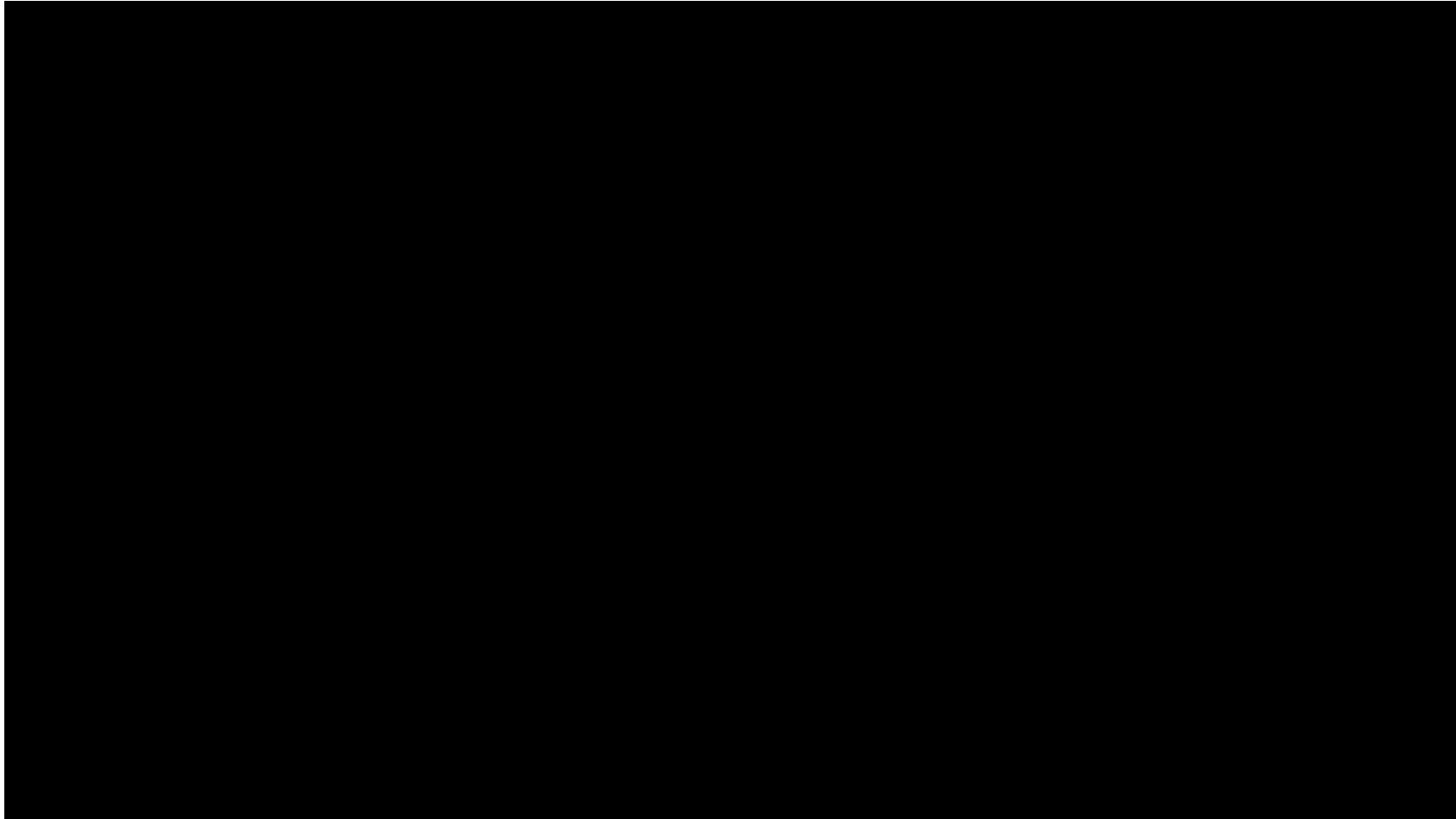
Station #2 Capital Needs

	Estimated Construction Cost as of July '19
Replace concrete response apron	\$ 13,000
Remove, regrade, and repave asphalt at employee parking lot and return apron	\$ 200,000
Patch and seal asphalt at public parking lot	\$ 2,000
Replace concrete sidewalk west of building	\$ 7,500
Provide sealant at base of bollards	\$ 500
Replace site signage	\$ 1,000
Provide new on-site generator for Fire Department emergency backup power	\$ 70,000
Repair roof	\$ 40,000
Replace sealants where base of wall meets concrete.	\$ 3,000
Replace sealant at conduit and piping penetrations through exterior wall	\$ 500
Lightly sandblast exterior walls and repaint to maintain weather resistive barrier (every five years)	\$ 10,000
Provide sealant where EIFS meets downspouts	\$ 1,500
Replace apparatus door weatherstripping	\$ 1,200
Repaint at apparatus door jambs	\$ 1,000
Repaint hollow metal pedestrian doors	\$ 1,600
Replace rusting hinges at pedestrian doors	\$ 1,000
Provide drip at pedestrian doors into app bays	\$ 900
Replace sealant at pedestrian doors	\$ 1,200

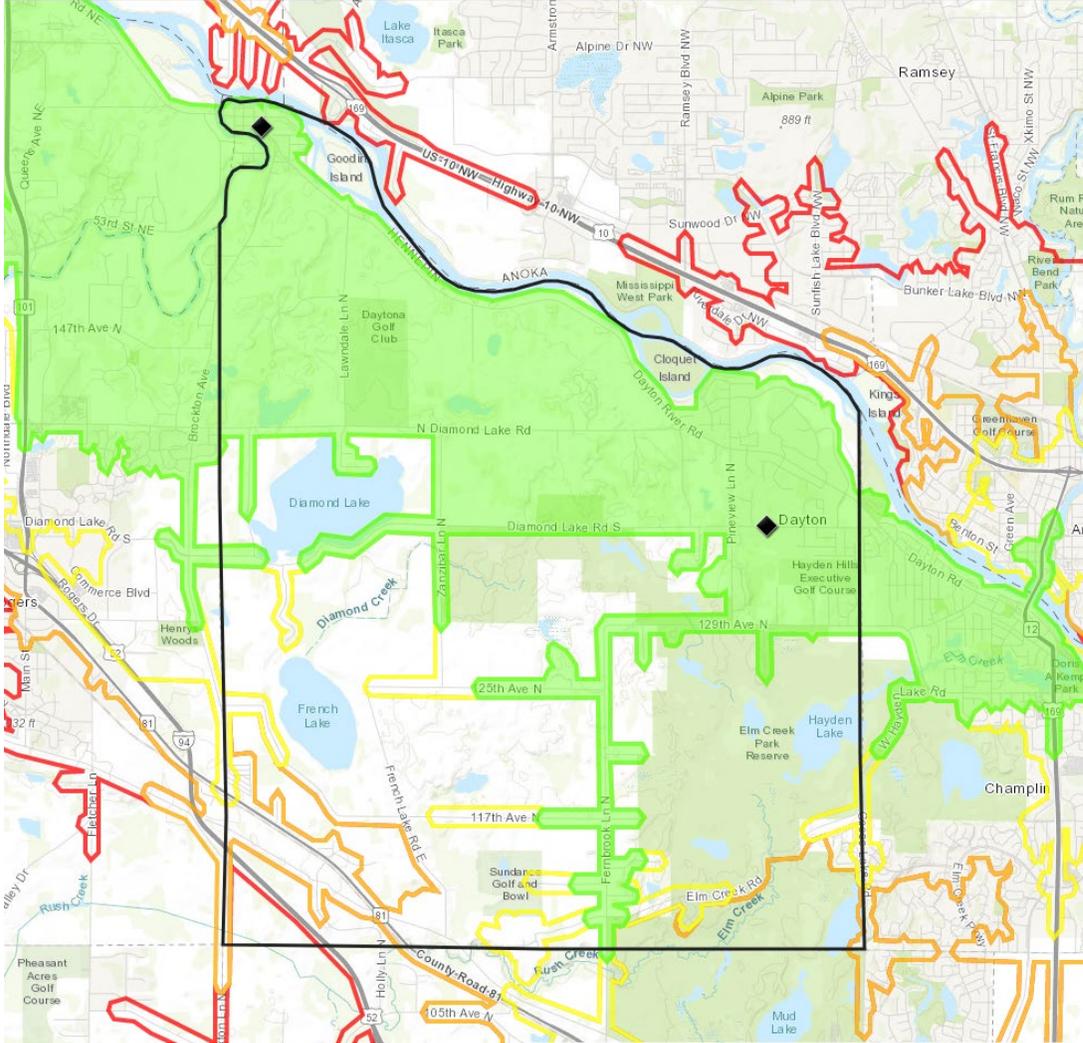
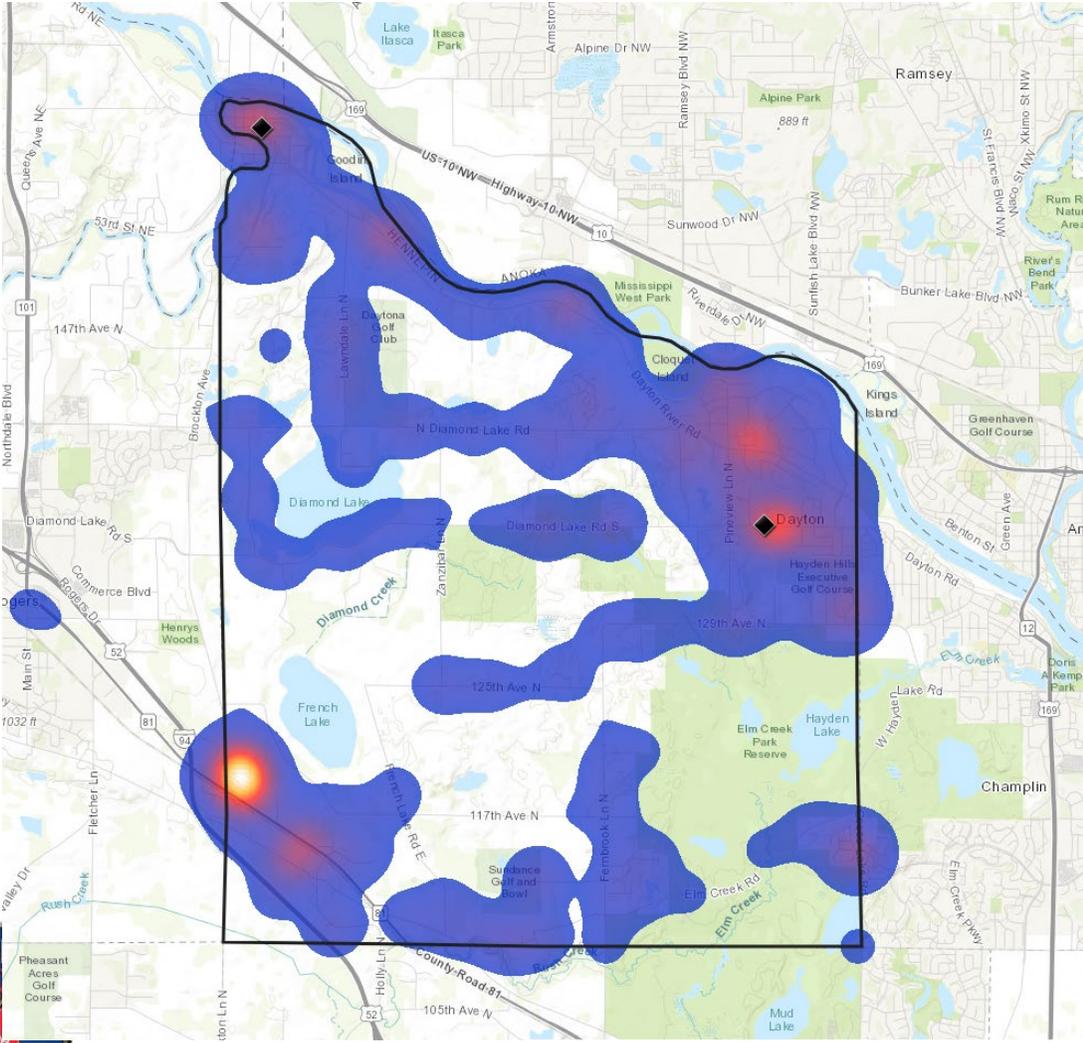
Replace damaged flooring in turnout storage, office, shop, and app bays with epoxy flooring	\$ 30,000
Provide sealant at crack in gypsum board above east entry into app bays	\$ 500
Patch gypsum board at locations of fire alarm installation	\$ 1,400
Replace gypsum board around mop sink and protect with FRP	\$ 800
Replace cabinets and countertop in Shop	\$ 3,500
Provide dryer exhaust vent	\$ 800
Replace water heater	\$ 2,500
Replace air compressor	\$ 2,500
Remodel restrooms	\$ 30,000
Add continuous ventilation in app bays as required by building code (least expensive option)	\$ 16,000
Provide office with ventilation air, heating, and cooling (thru wall)	\$ 2,000
Replace outlets in app bays with GFI outlets	\$ 600
Provide sidewalk between walking path and front entry	\$ 1,100
Provide truncated dome detectible warnings as required (surface applied)	\$ 4,500
Repaint accessible parking striping	\$ 1,000
Replace knob hardware with lever hardware	\$ 500
Re-insulate domestic hot water piping	\$ 500
Add sensor bottom and bumper-height photoeye to apparatus doors	\$ 1,800
Replace apparatus door track and springs	\$ 9,000
Add fall protection cage to hose tower ladder	\$ 10,000
Replace apparatus doors	\$ 45,000
Install sprinkler system	\$ 200,000
Install direct capture exhaust system	\$ 60,000
Enclose the turnout gear storage room and provide exterior exhaust and makeup air	\$ 30,000
Provide bollards at front bay doors	\$ 2,000
	\$ 854,000



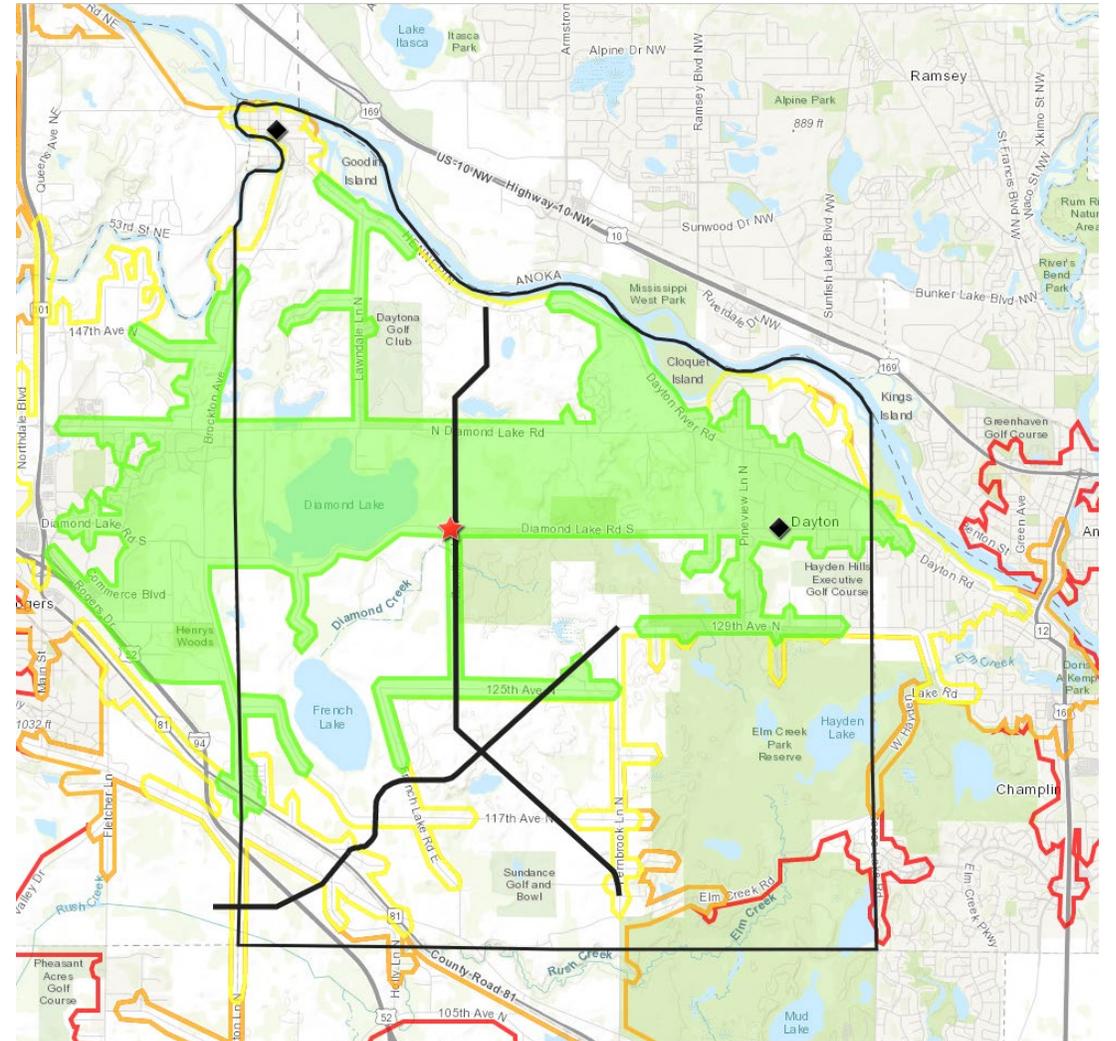
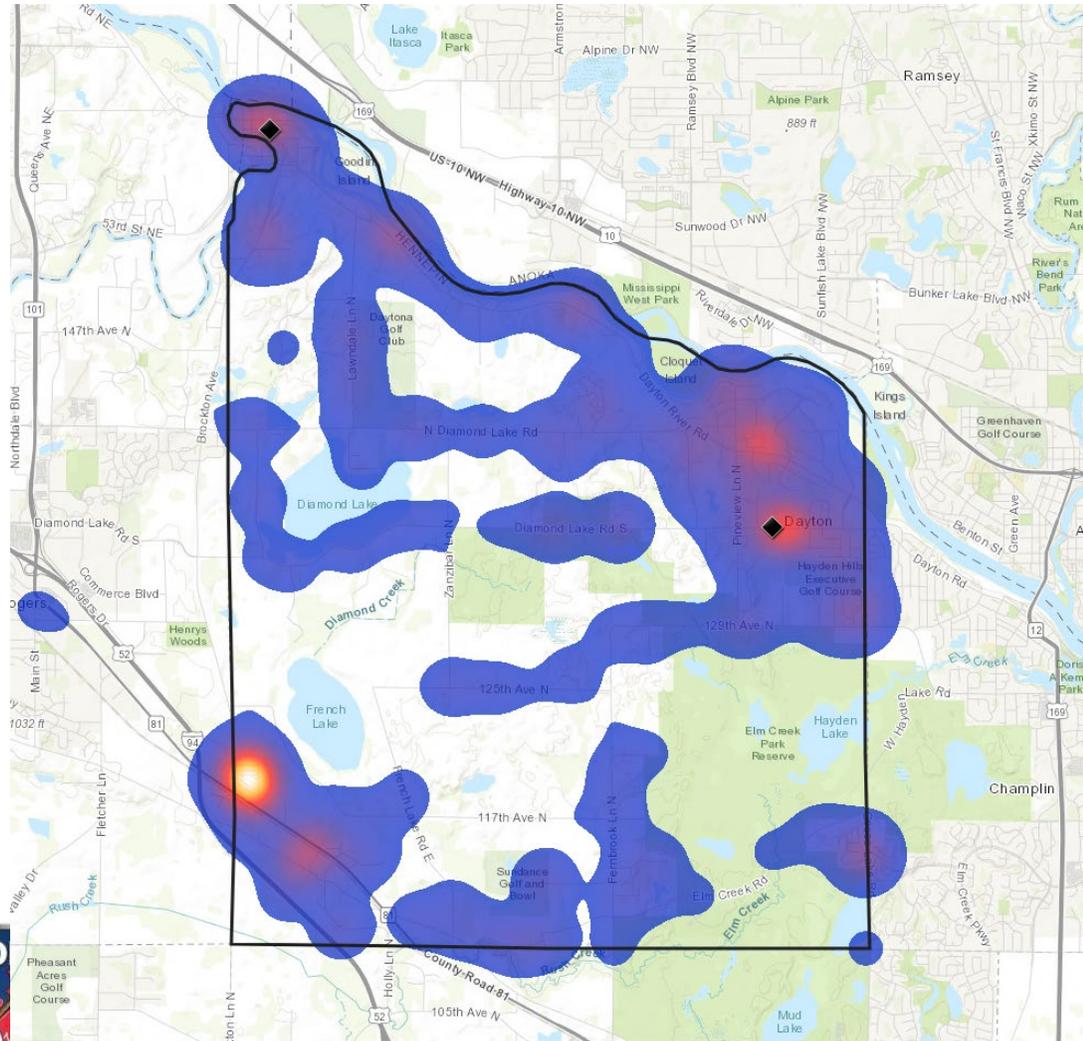
The Invisible Danger of Bunker Gear Transfer



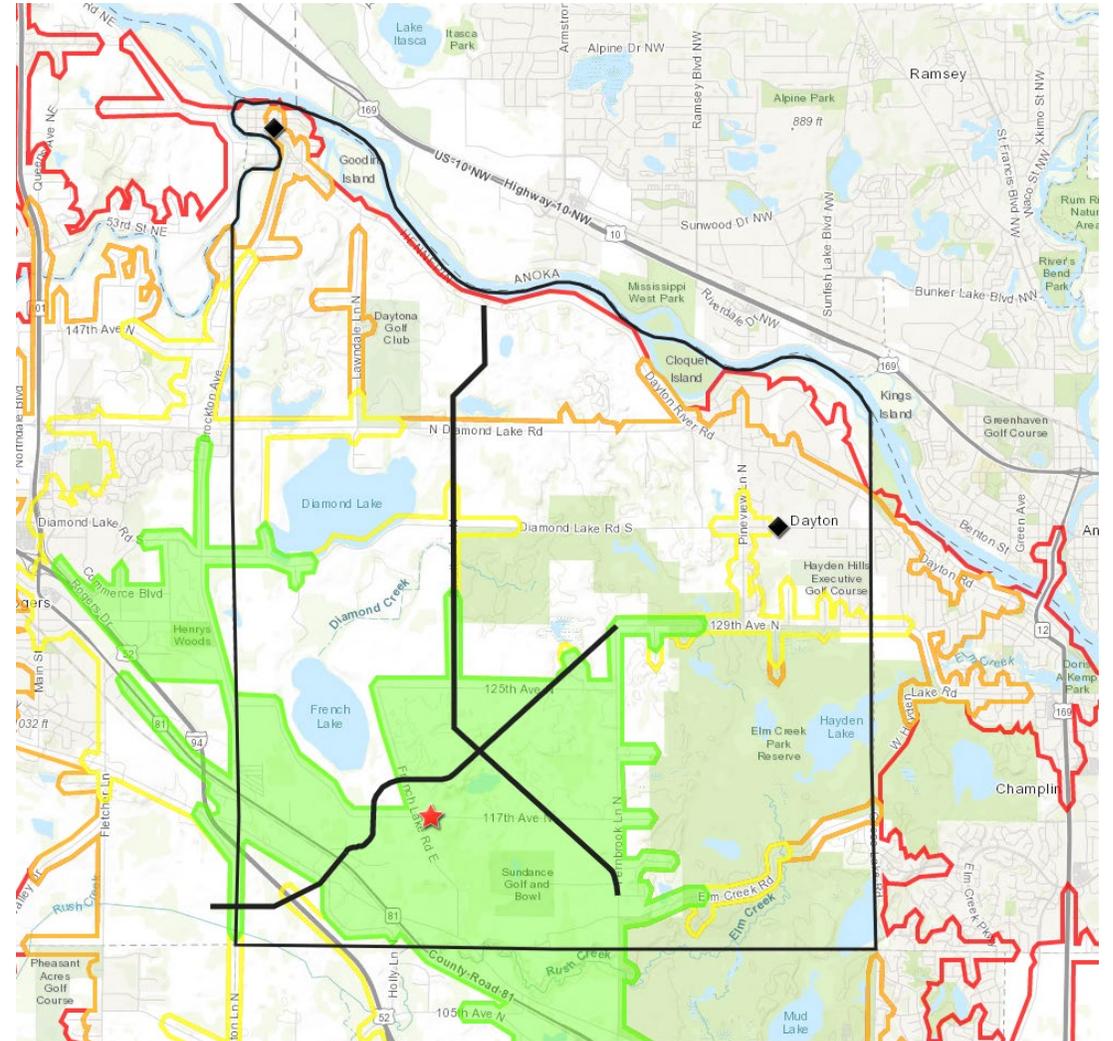
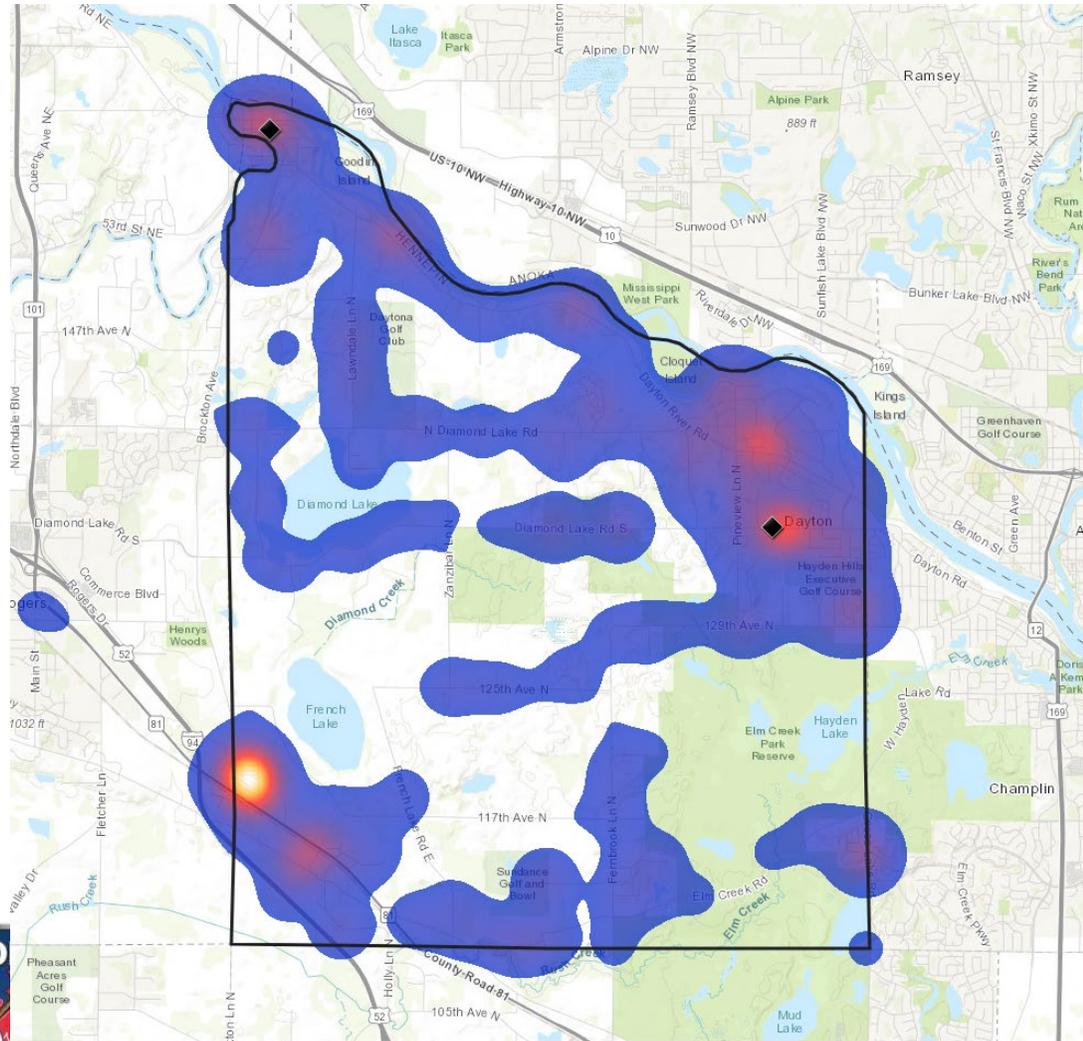
Station Location – Existing Conditions



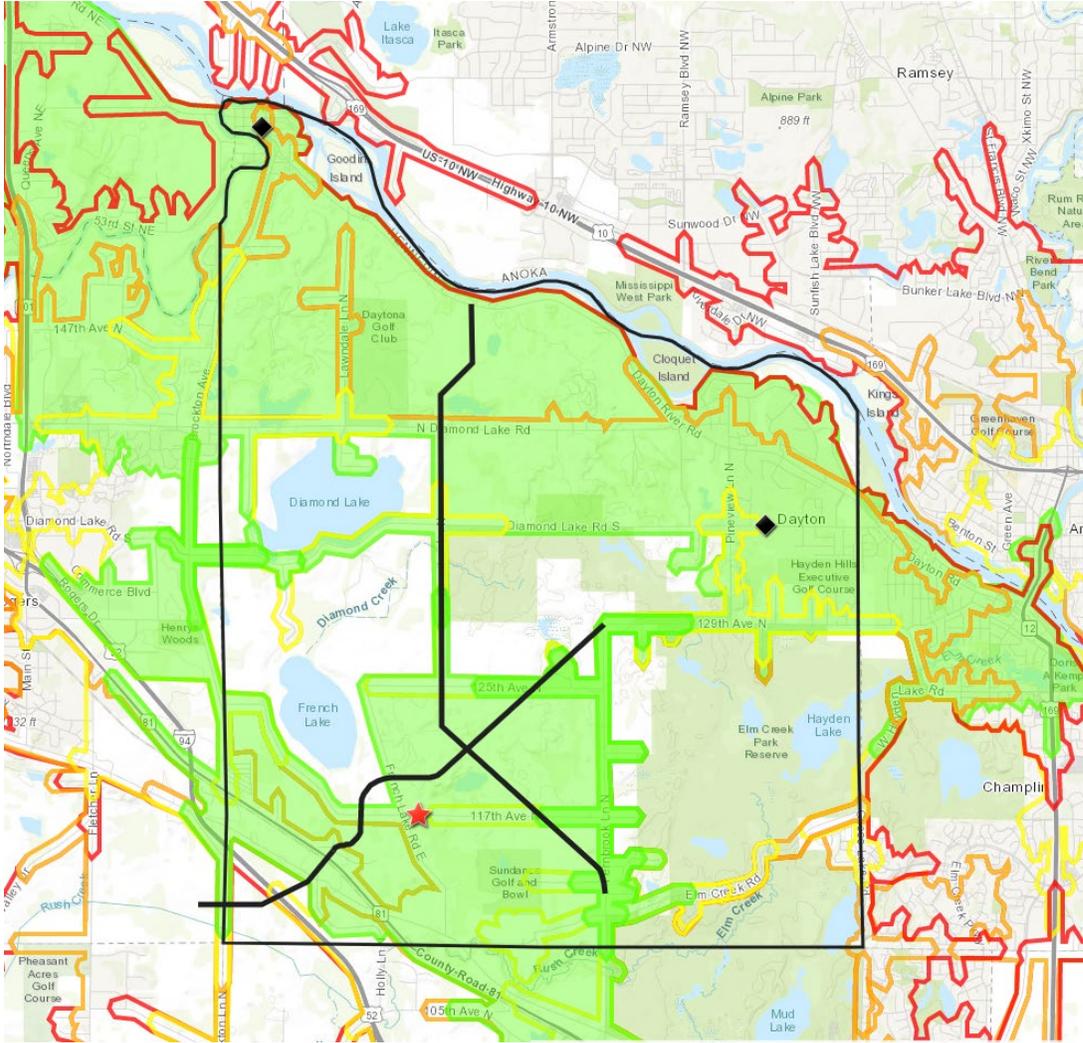
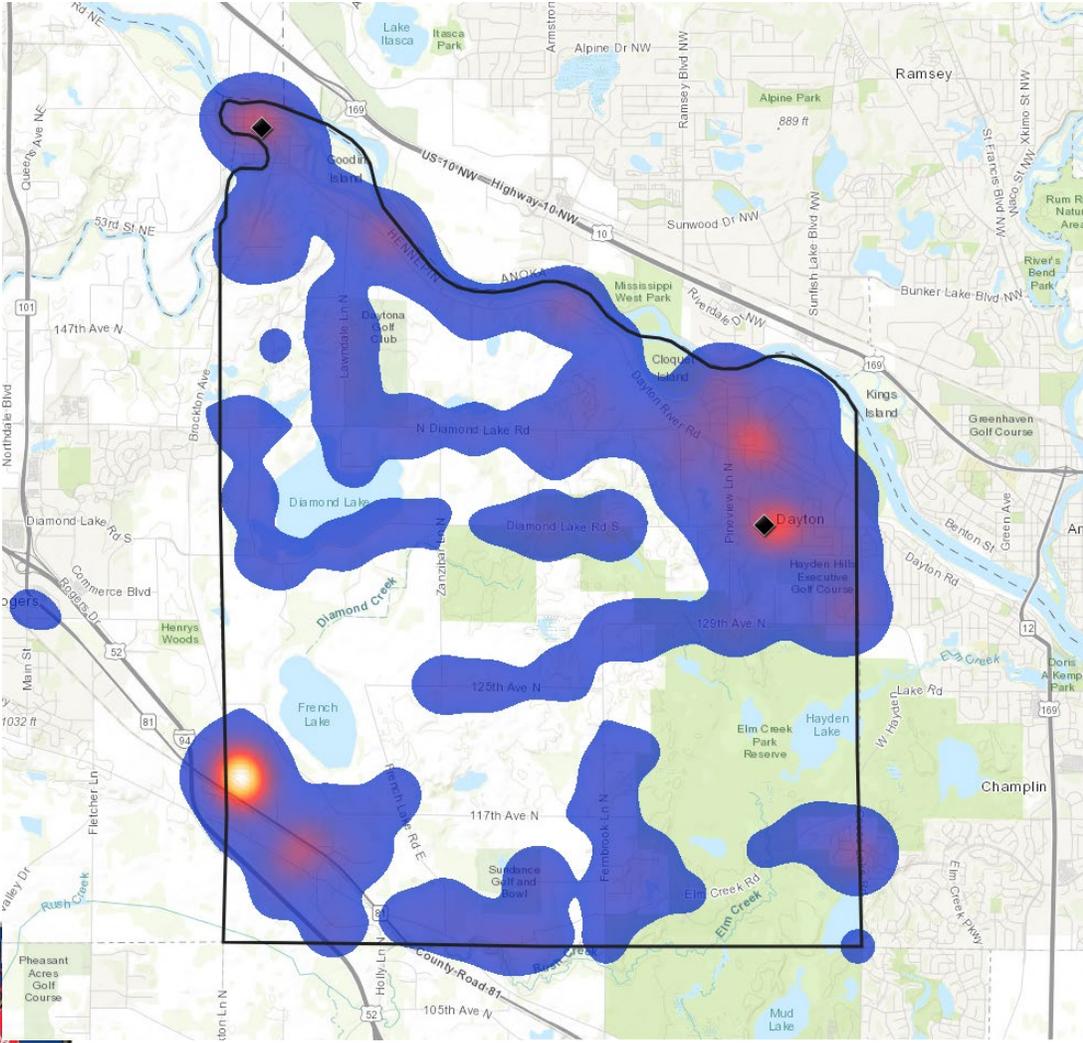
Station Location – One Station, Center of Town



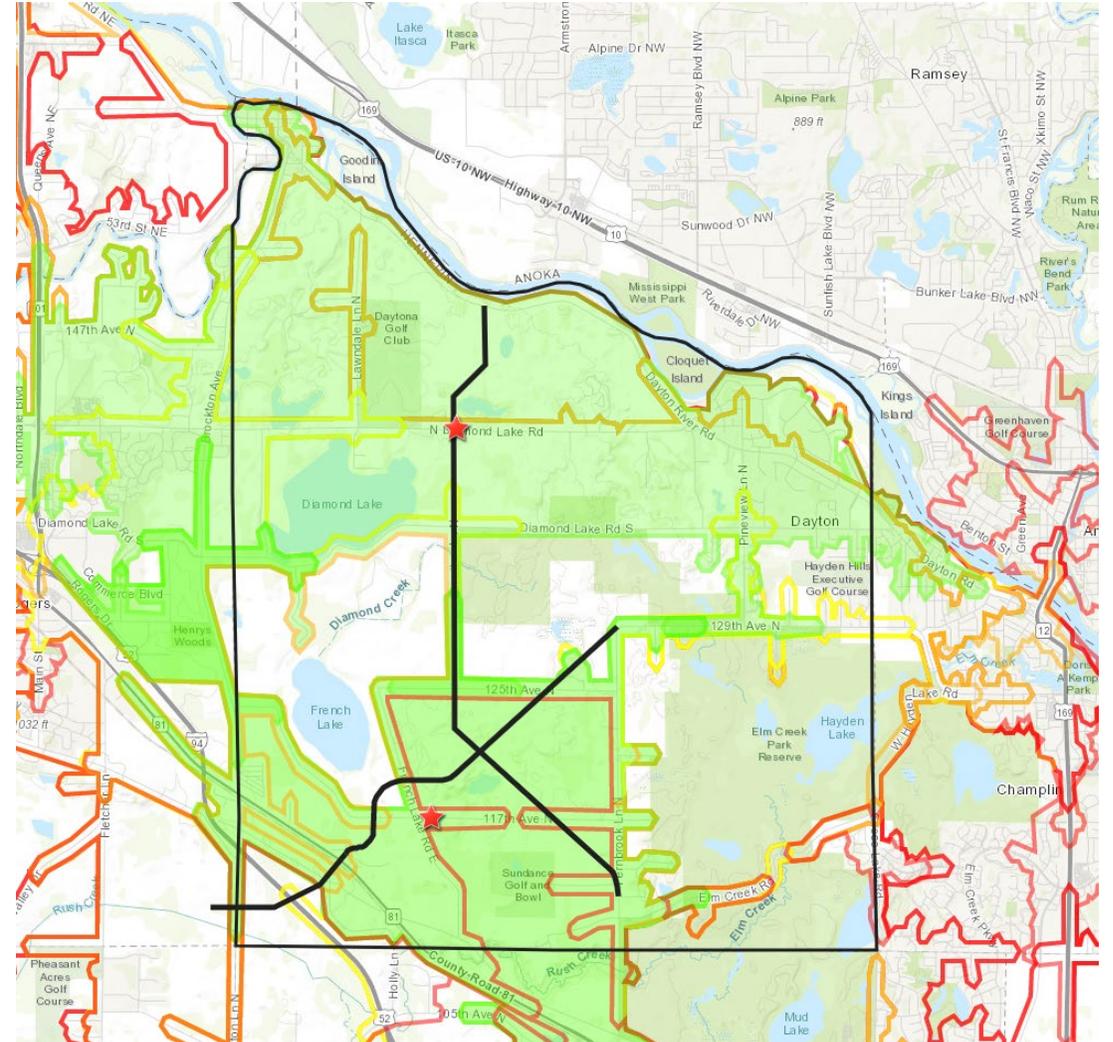
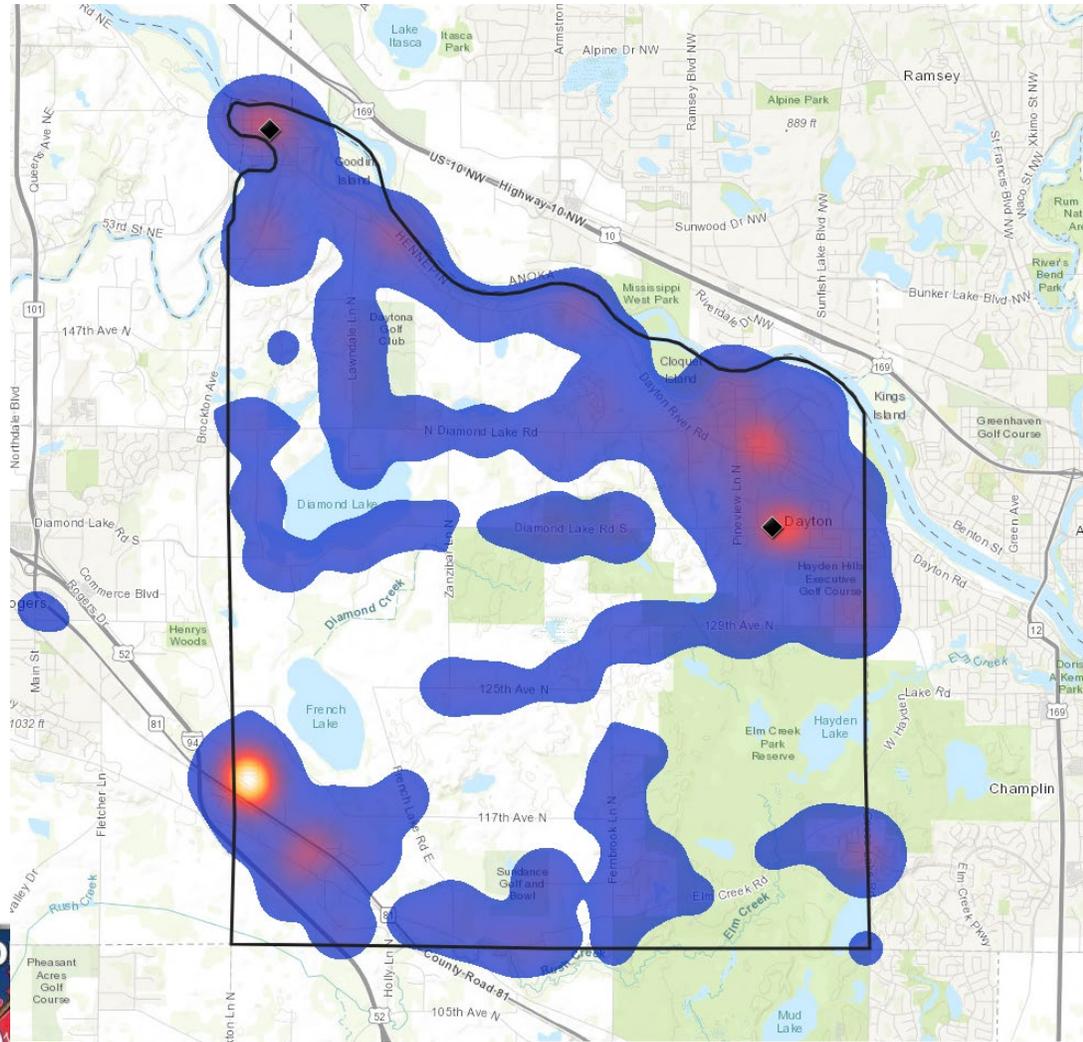
Station Location – One Station, “City Center”



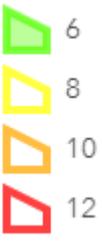
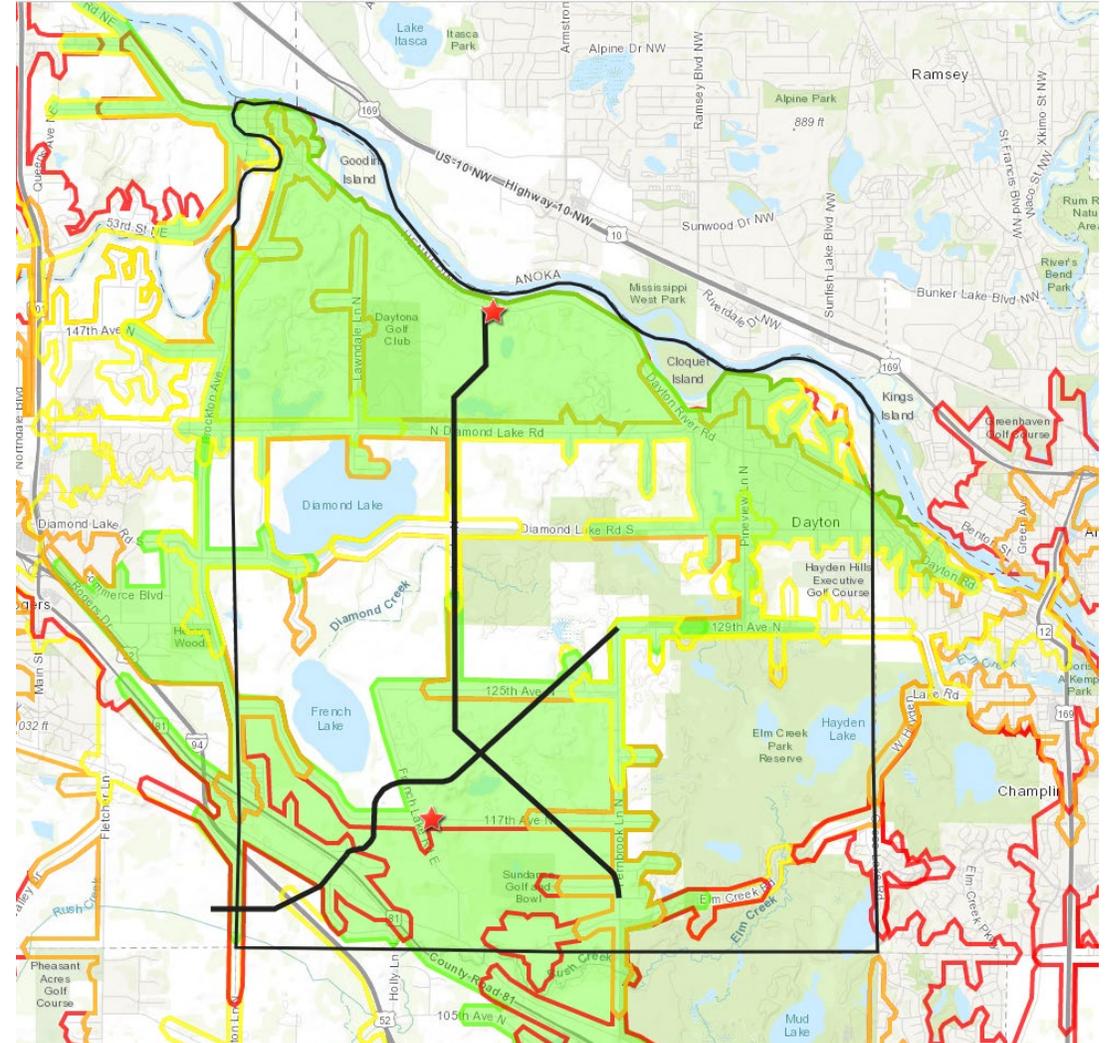
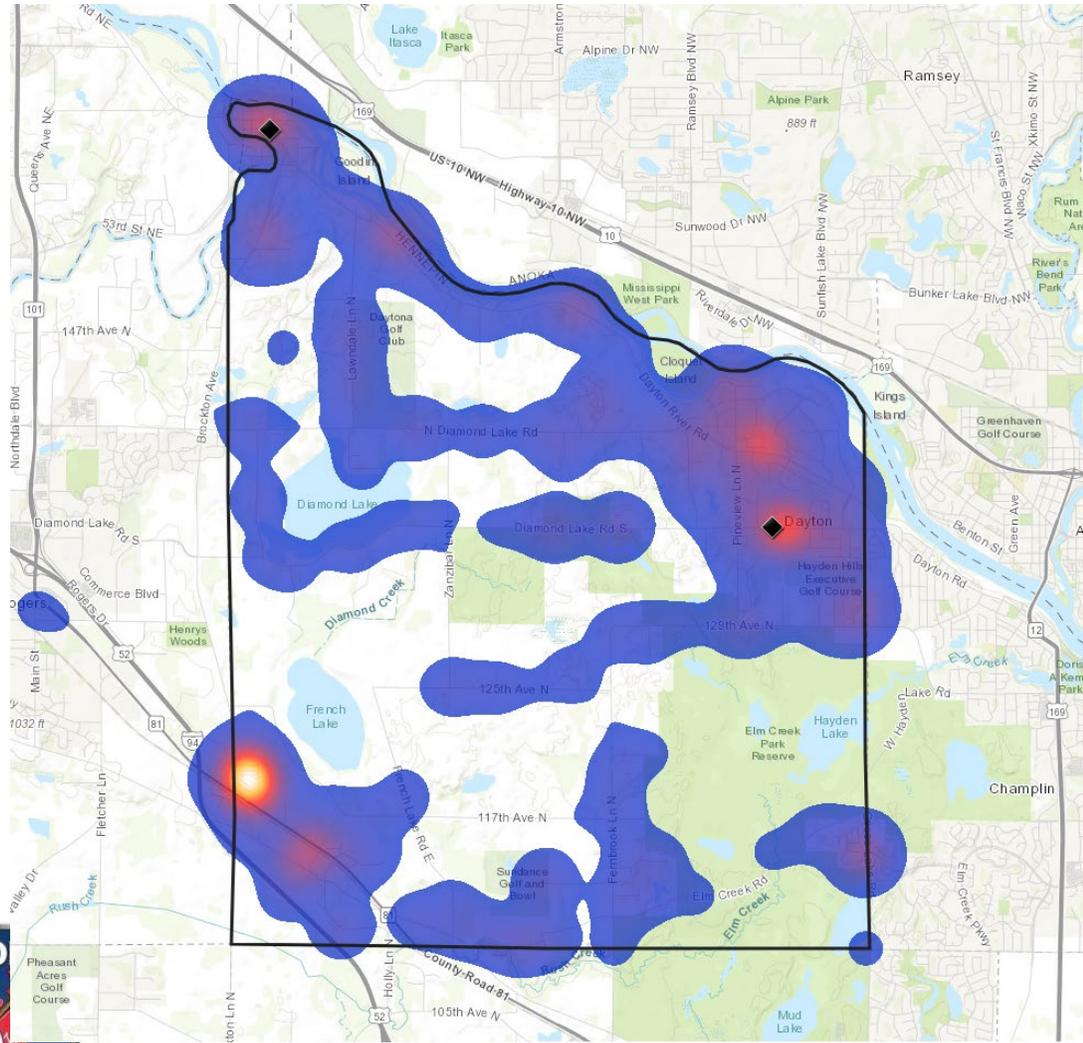
Station Locations – Three Stations



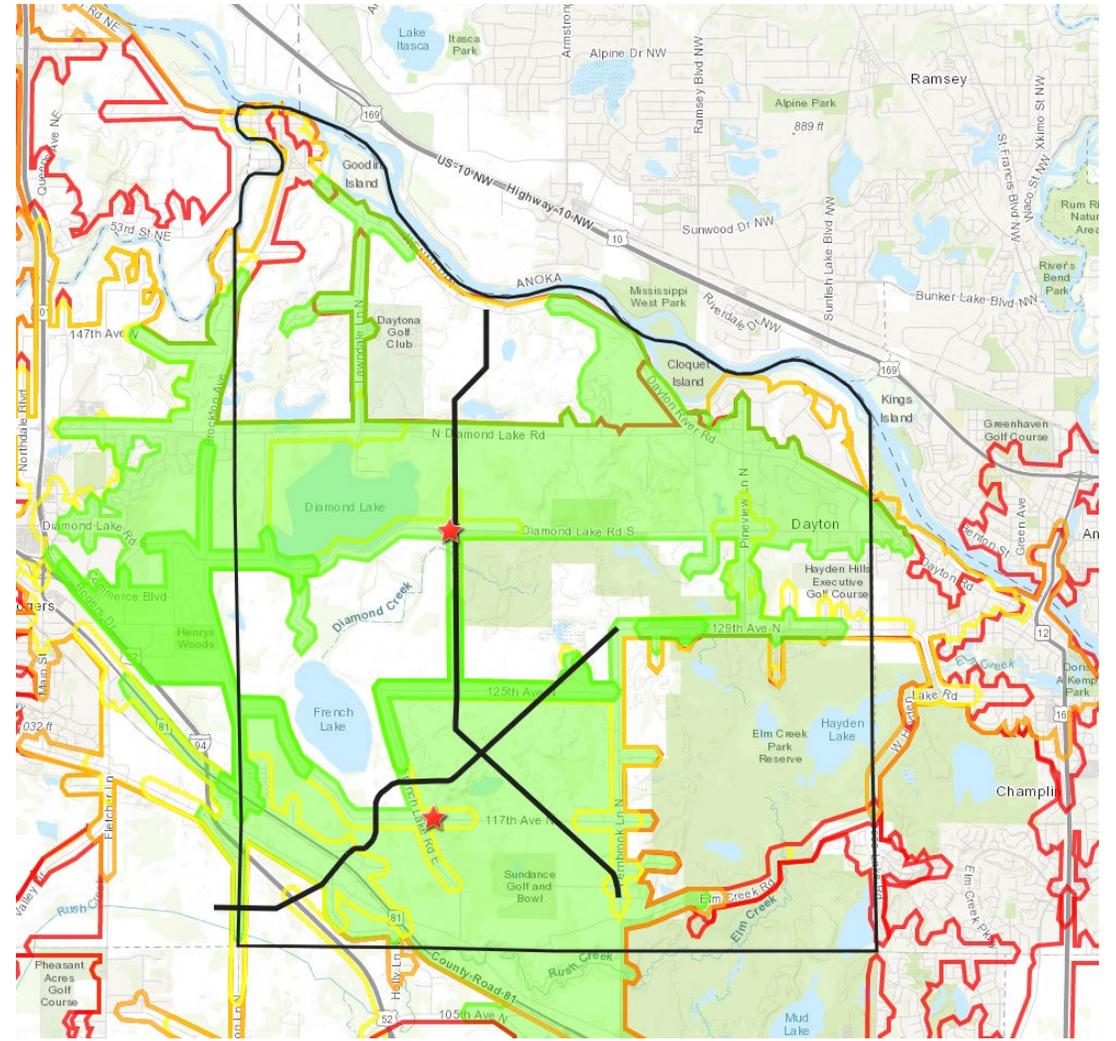
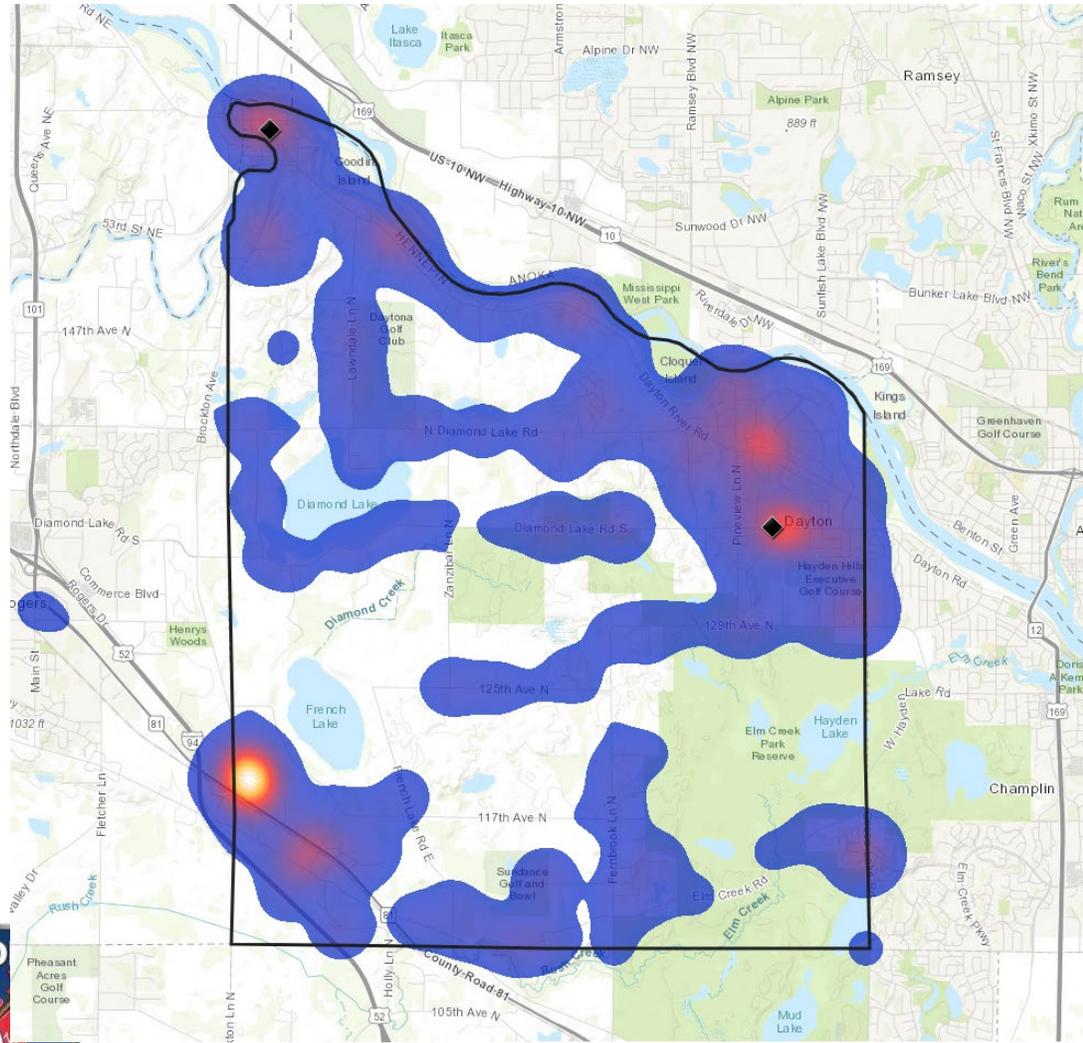
Station Locations – Two Stations, Option A



Station Locations – Two Stations, Option B



Station Locations – Two Stations, Option C



Space Needs Program

	Headquarters			Satellite			
	count	unit area (sf)	net total (sf)	count	unit area (sf)	net total (sf)	
Public Areas							
Vestibule	1	80	80	2	80	160	
Lobby/ Waiting Room	1	200	200			0	
Public Restrooms	2	135	270				2 fixtures each, 1 lav each
Single User Restroom				1	56	56	
Training Room	1	1,520	1,520			0	seats 60 at tables
Training Room Storage	1	150	150			0	approximately 10% of training room area
subtotal, Public Areas			2,220			216	
Administration Areas							
Chief's Office	1	180	180			0	
Assistant Chief's Office	1	140	140			0	
Training Office	1	140	140			0	
Fire Prevention Office	1	140	140			0	
Conference Room	1	240	240			0	12-person table
Workstation	2	64	128			0	
Copy Room	1	108	108			0	
Kitchenette	0	40	0			0	use station kitchen
Admin Restrooms	0	56	0			0	use firefighter restrooms
Quartermaster Storage	1	300	300			0	store spare uniforms, station wear, PPE, etc.
Storage Room	1	120	120			0	
subtotal, Administration Areas			1,496			0	



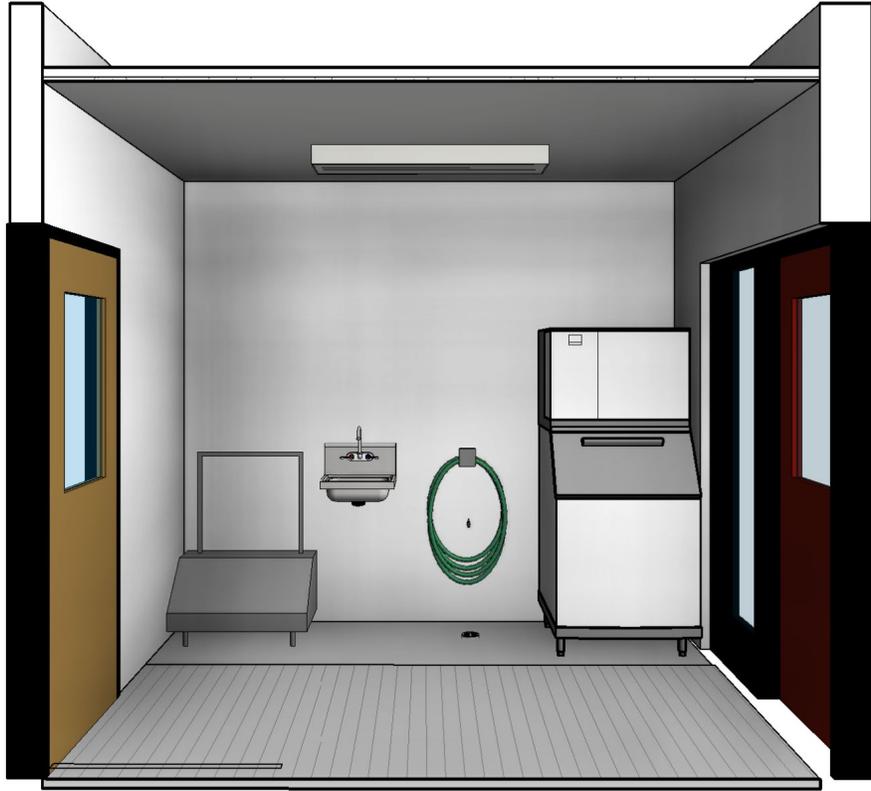
	Headquarters			Satellite			
	count	unit area (sf)	net total (sf)	count	unit area (sf)	net total (sf)	
Firefighter Areas							
Captain's Office	1	120	120	1	120	120	
Station Office/ Radio Room	1	140	140	1	140	140	
Shared Locker Room	24	10	240	24	10	240	
Single User Shower Rooms	3	85	255	3	85	255	enough to cover paid-on-call staff
Bunk Room	3	80	240	3	80	240	severe weather spaces
Janitor/Laundry	1	120	120	1	120	120	
Kitchen	1	144	144	1	144	144	stove, microwave, fridge, sink, dishwasher
Kitchen Table	1	144	144	1	144	144	seats six
Dayroom	1	400	400	1	400	400	debriefing, team building space
Physical Conditioning Room	1	600	600	1	600	600	
<i>subtotal, Living Areas</i>			2,403			2,403	
Apparatus Bays							
Apparatus Bays	4	1,620	6,480	3	1,620	4,860	
<i>subtotal, Apparatus Bays</i>			6,480			4,860	
Apparatus Bay Support Areas							
Decon Vestibules	2	80	160	2	80	160	
Turnout Gear Storage	24	12	288	24	12	288	arranged for volunteer response
Turnout Gear Laundry	1	100	100	1	100	100	
Equipment Decontamination	1	120	120	1	120	120	
Hose Storage	1	100	100	1	100	100	
Bay Restroom	1	64	64	1	64	64	
SCBA Compressor/ Fill	1	120	120	1	120	120	
SCBA Maintenance	1	180	180	0		0	
Medical Supply Closet	1	20	20	1	20	20	
Training Tower	1	400	400	0		0	
General Storage	1	400	400	1	400	400	
Maintenance Shop	1	150	150	1	150	150	
<i>subtotal, Apparatus Bay Support</i>			2,102			1,522	



Program

	Headquarters			Satellite			
	count	unit area (sf)	net total (sf)	count	unit area (sf)	net total (sf)	
Building Support							
Mechanical	1	300	300	1	150	150	
Sprinkler Riser	1	40	40	1	40	40	
Electrical	1	100	100	1	100	100	
Communications	1	100	100	1	100	100	
Mezzanine	1	1,000	1,000	1	1,000	1,000	
<i>subtotal, Building Support</i>			540			390	<i>excludes mezzanine area</i>
Exterior Areas							
Visitor Parking	5			3			
Firefighter Parking	60			24			
Flagpoles	1			1			
Generator Enclosure	1			1			
Total Programmed Area (sf)			15,241			9,391	
Circulation Factor (sf)		10%	1,524		10%	939	
Envelope Factor (sf)		12%	1,829		12%	1,127	
Building Footprint (sf)			18,594			11,457	





Community Comparisons

Headquarters

Station	Size	Area (sf)
Long Lake	5 bays	17,500
Eden Prairie #1	4 bays	18,200
Shakopee #2	5 bays	25,000
Lino Lakes	3 bays	15,014
Proposed for Dayton	4 bays	18,594

Satellite

Station	Size	Area (sf)
Maple Grove #5	3 bays	9,181
Chisago	3 bays	11,725
Ramsey #2	3 bays	11,850
Plymouth #3	3 bays	14,845
Proposed for Dayton	3 bays	11,457



Master Plan Option 0 – Status Quo

- Cannot provide a “do nothing” option because of the lack of spaces to support decontamination
- Small addition to both stations to provide spaces critical to functionality and to the long-term health of the firefighters

PROS

- Least-cost

CONS

- Does not solve response time issues at south end of City
- Limits what apparatus can be purchased because most of the bays will still be too small
- Does not prepare the City for a change in staffing model



Master Plan Option 1

- Build new Headquarters station at City Center location
- Retain the existing stations as “Response Garages” that have no function except to store apparatus for volunteer response

PROS

- Low-cost
- Future flexibility between two-station and three-station models

CONS

- Relies upon policy to protect the health and safety of the firefighters



	Area	Cost / SF	Estimated Total	Year of Work	Escalated Total
Repairs at Station 1			\$ 322,500	2020	\$ 338,625
Repairs at Station 2			\$ 232,200	2020	\$ 243,810
New South Station	18,594	\$ 275	\$ 5,113,350	2021	\$ 5,637,468
	Contingency	10%			\$ 621,990
Total Estimated Construction Costs					\$ 6,841,894
Property Purchase	2.5 acres	\$ 60,000			\$ 150,000
Property Sale					\$ 0
Soft Costs (FF&E, design, testing, etc.)		20%			\$ 1,368,379
TOTAL ESTIMATED PROJECT COSTS					\$ 8,360,272



Master Plan Option 2

- Repair and upgrade existing stations into state-of-the-art facilities.
- Build new Headquarters station at City Center location.

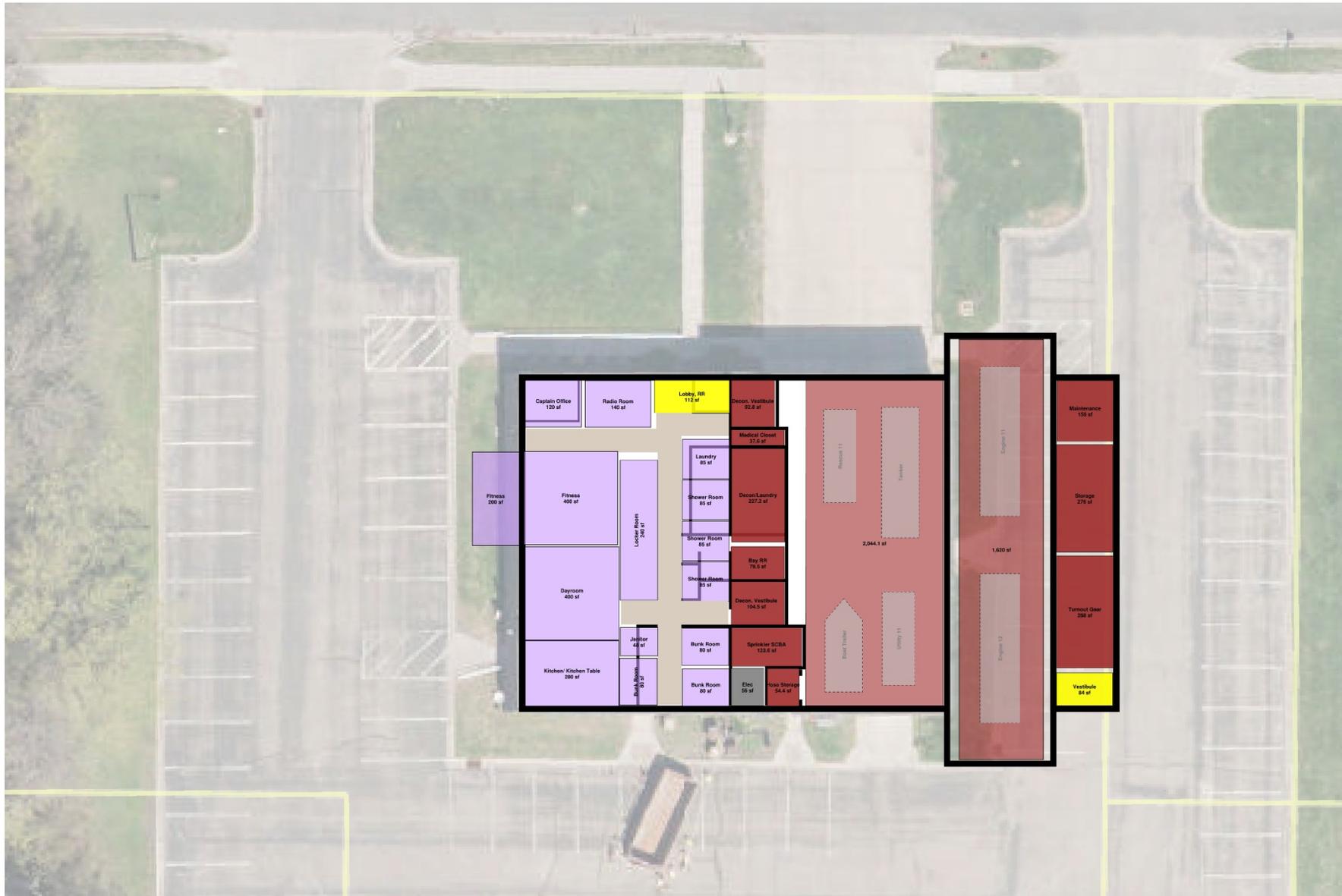
PROS

- Makes use of existing buildings.
- Could start work on existing buildings right away.

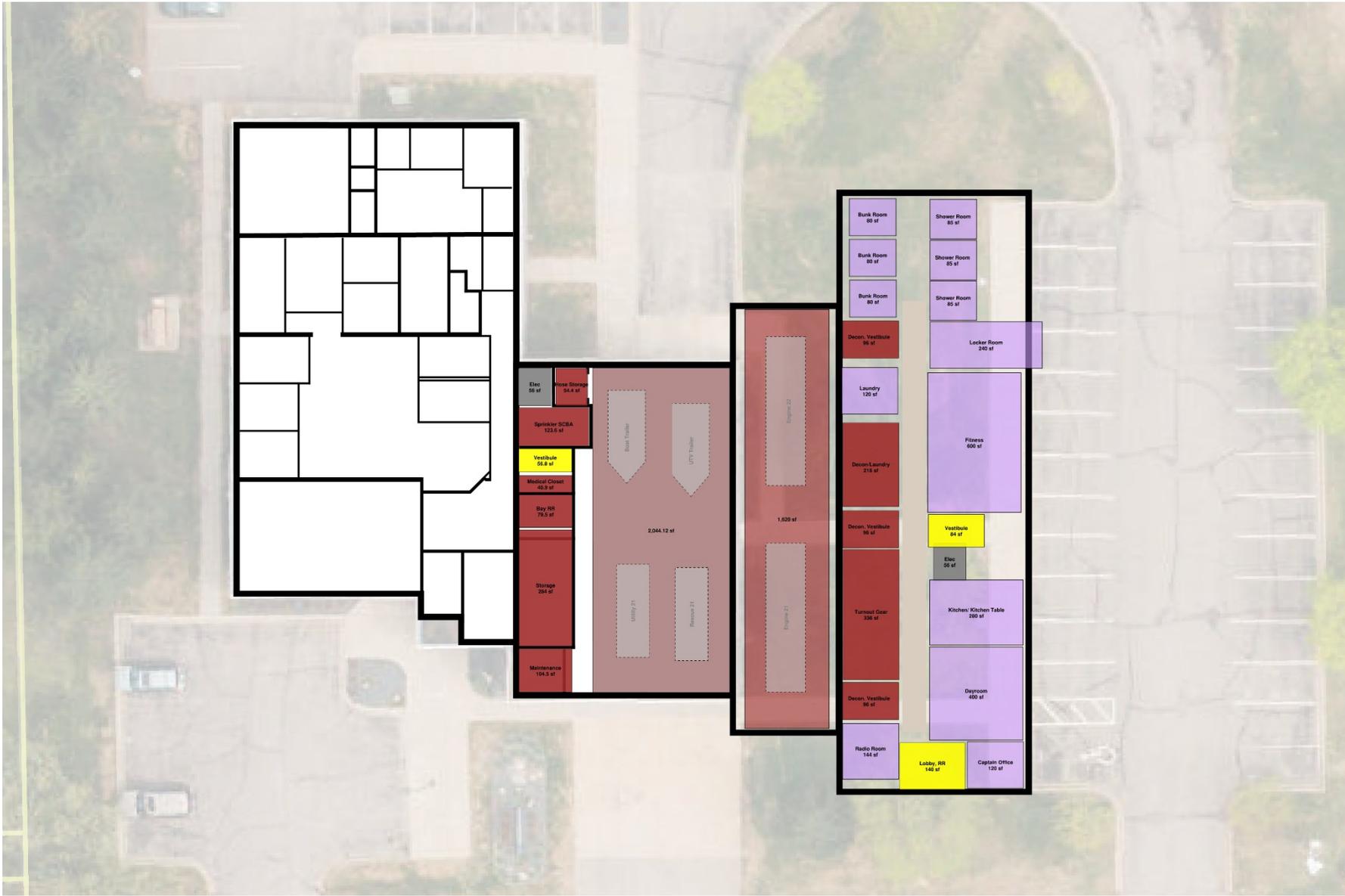
CONS

- Would require moving the Senior Center.
- Existing stations are not ideally located for response within the City.





Dayton Fire Department Study



Dayton Fire Department Study

	Area	Cost / SF	Estimated Total	Year of Work	Escalated Total
Repairs at Station 1			\$ 743,400	2020	\$ 780,570
Major Remodel Station 1	6,800	\$ 90	\$ 1,190,000	2021	\$ 1,311,975
Addition at Station 1	3,240	\$ 275	\$ 891,000	2021	\$ 982,328
Relocate Senior Center	3,200	\$ 90	\$ 288,000	2020	\$ 302,400
Repairs at Station 2			\$ 749,400	2020	\$ 786,870
Minor Remodel Station 2	3,450	\$ 90	\$ 310,050	2021	\$ 342,326
Addition at Station 2 (temp HQ)	7,580	\$ 275	\$ 2,084,500	2021	\$ 2,298,161
New South Station	18,594	\$ 275	\$ 5,113,350	2031	\$ 9,182,842
		Contingency	12%		\$ 1,918,497
Total Estimated Construction Costs					\$ 17,905,969
Property Purchase	2.5 acres	\$ 60,000			\$ 150,000
Property Sale					\$ 0
Soft Costs (FF&E, design, testing, etc.)		20%			\$ 3,581,194
TOTAL ESTIMATED PROJECT COSTS					\$ 21,637,162



Master Plan Option 3

- Build three new stations over time at optimal locations for quick response.
- Repair existing buildings to keep the buildings in occupiable condition as fire stations

PROS

- Will provide best-case drive times throughout the City

CONS

- Short- and long-term cost implications
- Phasing implications results in more than cursory investment in existing stations because they need to be used as Response Garages until replacements are built.



	Area	Cost / SF	Estimated Total	Year of Work	Escalated Total
New South Station	18,594	\$ 275	\$ 5,113,350	2021	\$ 5,637,468
Repairs at Station 1			\$ 646,000	2020	\$ 678,300
Relocate Station 1	11,457	\$ 275	\$ 3,150,675	2026	\$ 4,433,316
Repairs at Station 2			\$ 654,000	2020	\$ 686,700
Relocate Station 2	11,457	\$ 275	\$ 3,150,675	2031	\$ 5,658,160
		Contingency	10%		\$ 1,709,394
Total Estimated Construction Costs					\$ 18,803,339
Property Purchase	6.5 acres	\$ 60,000			\$ 390,000
Property Sale					
Soft Costs (FF&E, design, testing, etc.)			20%		\$ 3,760,668
TOTAL ESTIMATED PROJECT COSTS					\$ 22,954,006



Master Plan Option 4

- Build two new stations at optimal locations for quick response.
- Repair existing buildings to keep the buildings in occupiable condition for other uses

PROS

- Two-station model has less short- and long-term cost than three-station model

CONS

- Response times longer than three-station model



Quick Phasing	Area	Cost / SF	Estimated Total	Year of Work	Escalated Total
New Headquarters Station	18,594	\$ 275	\$ 5,113,350	2022	\$ 5,919,342
New Satellite Station	11,457	\$ 275	\$ 3,150,675	2021	\$ 3,473,619
Repairs at Station 1 (non-fire)			\$ 322,500	2020	\$ 338,625
Repairs at Station 2 (non-fire)			\$ 232,200	2020	\$ 243,810
Contingency		10%			\$ 997,540
Total Estimated Construction Costs					\$ 10,972,936
Property Purchase	4.5 acres	\$ 60,000			\$ 270,000
Property Sale					
Soft Costs (FF&E, design, testing, etc.)		20%			\$ 2,194,587
TOTAL ESTIMATED PROJECT COSTS					\$ 13,437,523



Long Phasing	Area	Cost / SF	Estimated Total	Year of Work	Escalated Total
New Headquarters Station	18,594	\$ 275	\$ 5,113,350	2031	\$ 9,182,842
New Satellite Station	11,457	\$ 275	\$ 3,150,675	2021	\$ 3,473,619
Repairs at Station 1 (non-fire)			\$ 322,500	2020	\$ 338,625
Repairs at Station 2 (non-fire)			\$ 232,200	2020	\$ 243,810
Contingency		10%			\$ 1,323,890
Total Estimated Construction Costs					\$ 14,562,786
Property Purchase	4.5 acres	\$ 60,000			\$ 270,000
Property Sale					
Soft Costs (FF&E, design, testing, etc.)		20%			\$ 2,912,557
TOTAL ESTIMATED PROJECT COSTS					\$ 17,745,343



Facility Recommendations

- Adopt Option 1 as the preferred Master Plan Option and build a new headquarters station at the City Center as soon as feasible.
- Conduct a discussion at the council level about future response time goals, which will allow the Council to decide upon a two-station vs. three-station model for the long term.
- Work with developers submitting subdivision plans for the north portion of the City to identify and set aside property for future fire station(s)
- Appropriate funds over the next 10 years to conduct repair and maintenance activities at the existing buildings to keep them occupiable.
- Consider other City uses for current Station 1 and 2, or consider the option of selling the land.



QUESTIONS

