



THE CITY OF HUDSON

FIRE & EMS STAFFING AND FACILITY NEEDS STUDY

January 28, 2025

Agenda:

Vaughan Miller, K2M Design

PART 1

Staffing Study

Robert Finn, Matrix

PART 2

Facility Assessment

Mark Wutz, K2M Design

PART 3

Conceptual Fire Station Design

Eric Pros, DS Architecture

Questions



Objectives of the Study

The study aspires to answer the following questions:

- 1. How does Hudson decrease emergency services response times in Hudson and reduce reliability on adjacent fire departments.
What are the appropriate emergency response timeframes?
What Hudson can do in the short, medium and long-term to accomplish that goal?*
- 2. Detail the condition of the existing facility and answer whether it should be remodeled or replaced.*
- 3. Give the pros and cons of remodeling the existing facility to accommodate any increase in staffing.*
- 4. If the answer is 24hr staffing in a new facility, then why is that needed and do you recommend we keep the existing building to be reused?*
- 5. If a new facility is required, show us what that may look like and tell us what that may cost.*
- 6. Tell us if Hudson should have a second FIRE and or EMS facility and if so, what is the recommended location of that facility? What is the recommended timeline for establishing that facility?*
- 7. What is recommended if mitigations occur (like the recent bridge commitment) that call into question whether or not the second facility is needed?*

Part 1 Staffing Study

Robert Finn, Matrix



Matrix Consulting Group

- ◆ The firm is in its 22nd year of providing consulting services.
- ◆ The project team has conducted over 400 fire and EMS studies across the country, including many in Ohio.
- ◆ Our approach is fact-based, emphasizing:
 - ❖ Input from staff through interviews and an employee survey.
 - ❖ Extensive use of data analytics.
 - ❖ Interaction throughout the process.

Study Objectives and Methodologies

- 1 Analyze workloads and service levels to determine staffing needs in every area of the department.
- 2 Evaluate opportunities to improve the effectiveness of fire and EMS services.
- 3 Compare fire and EMS services in Hudson to best practices and recognized industry standards.
- 4 Worked collaboratively with the City and Hudson Fire and EMS throughout the process.

Methodology: Fire and EMS Operations

- There are several components to evaluate fire and EMS Operations performance
 - ❖ Call Processing Time (9-1-1 call to Dispatch of HFD/HEMS)
 - ❖ Turnout Time (Notification of HFD/HEMS to time unit is responding)
 - ❖ Travel Time (Time from initial response to arrival at emergency)
 - ❖ Effective Response Force (Time to assemble enough personnel to effectively mitigate the emergency)
 - ❖ System Reliability (What is the utilization rate of emergency apparatus and how often are they responding outside their first-due area).

Key Findings: Operations 1

System Performance (2019 -2023)

- ❖ Call processing times are longer than industry best practices of 1:00 (2:19 @ 90% for EMS) and (2:09 @ 90% for Fire)
- ❖ Turnout times are longer than industry best practices of 1:00 90% for staffed EMS and can be improved (2:26 @ 90%).
- ❖ Turnout times for unstaffed fire units are also long (2:59 @ 90% for Duty Chief and 8:30 for Suppression units).
- ❖ Travel times are longer than expected for a suburban community (6:30 @90%) Current performance is (7:03 @ 90% for EMS) and (7:53 @ 90% for Fire).
- ❖ Unit utilization rates for all units are within or below ideal ranges

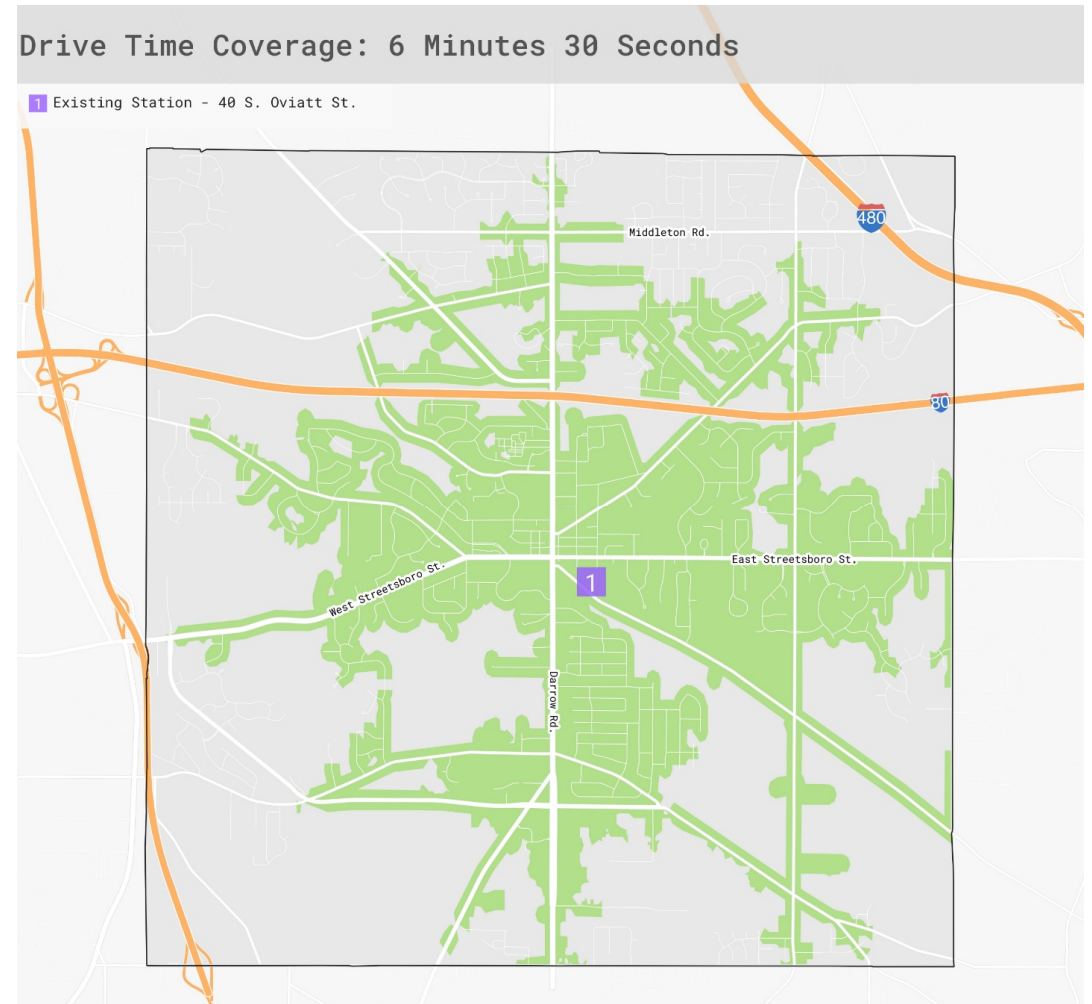
Key Findings: Operations 2

The current station location can cover much of the City in 6:30 or less travel time.

Areas north of I-80, and in the southwestern portion of the City cannot be reached in 6:30.

Call-concurrence is not typically an issue for Fire as 90% of calls typically occur one at a time with a single simultaneous call occurring 7% of the time.

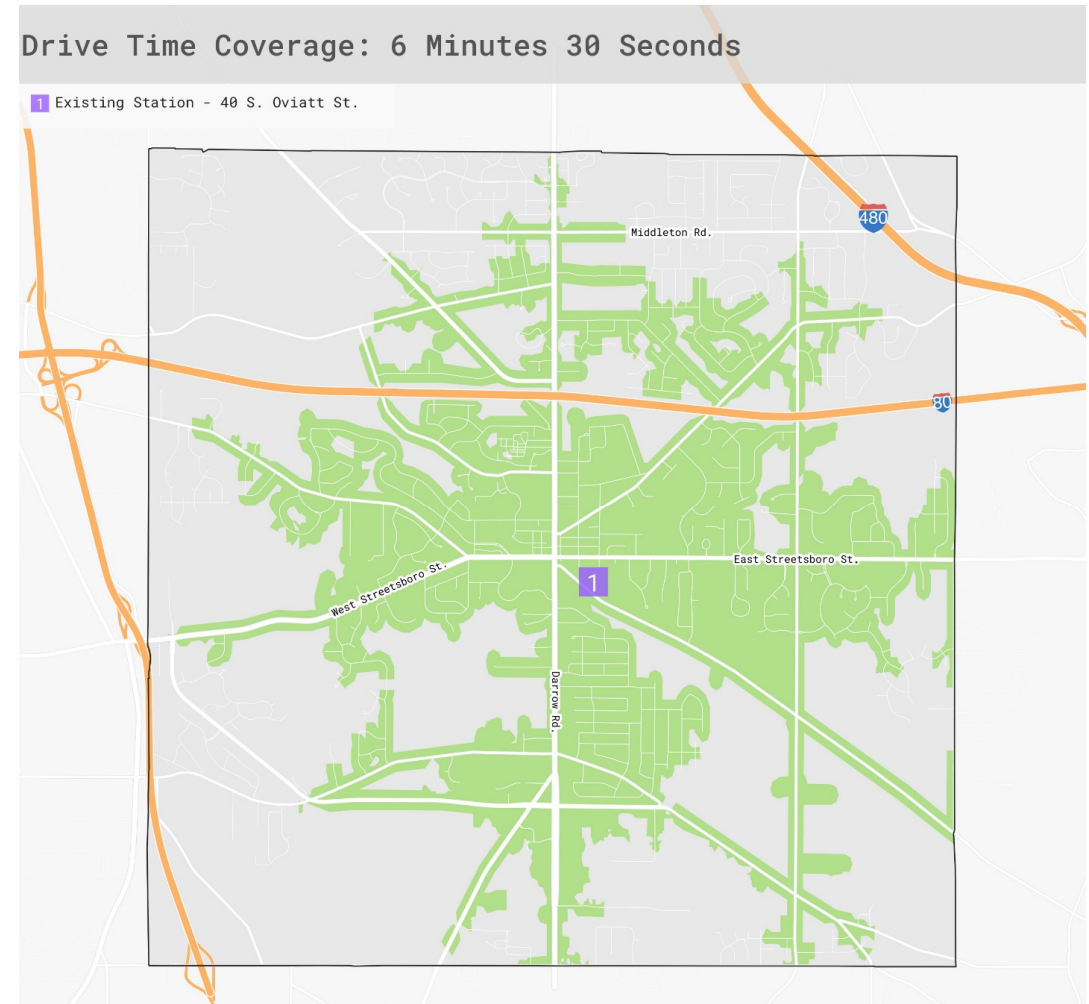
Multiple simultaneous calls are more common for EMS with 60% of calls occurring as a single event, 30% having a second call and 10% more than 2 calls at the same time.



Recommended Station Location

Maintain Station One in the existing location as this allows for good access to areas south of I-80.

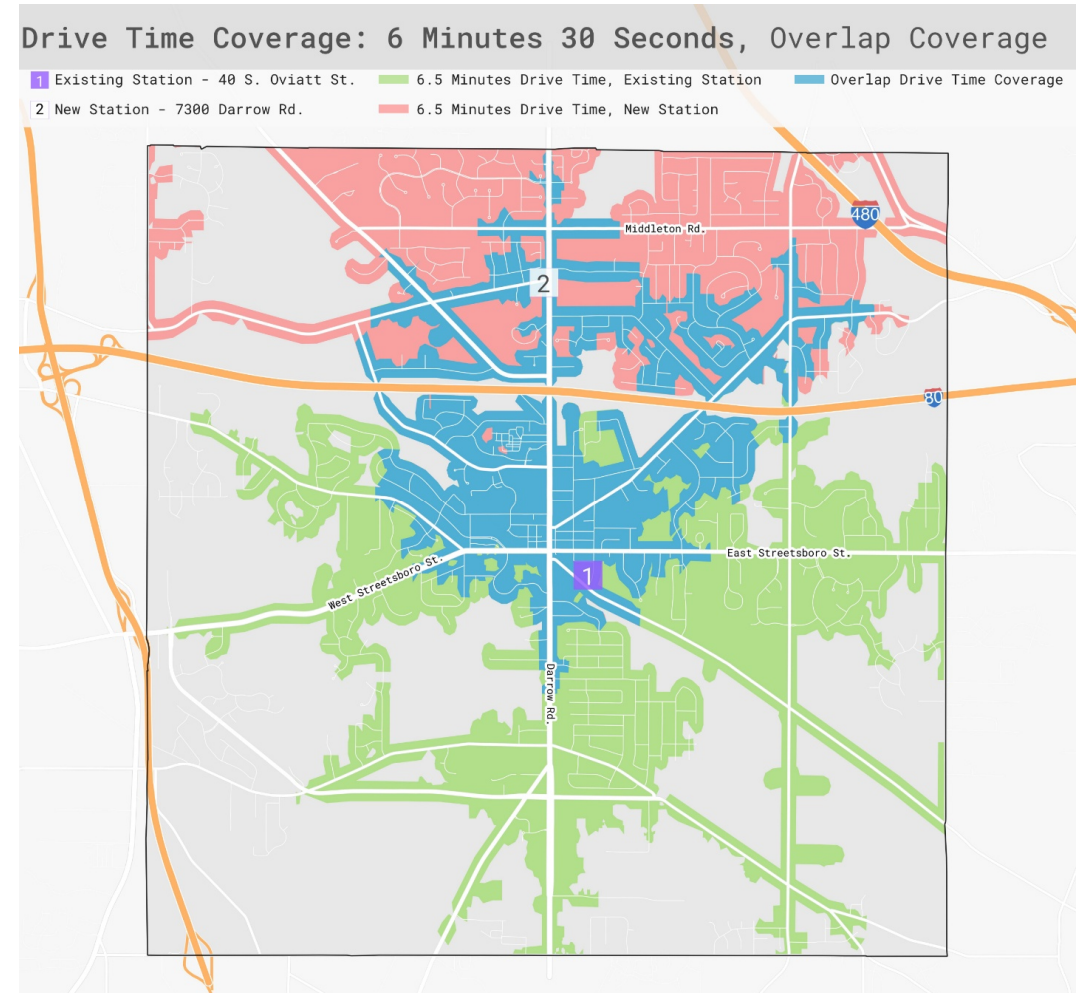
- The current location provides service to about 37% of the city and about 44% of the population in 6:30 travel time.
- There is a good east-west access from the current location with access to SR 303.



Recommended Station Location (Station 2)

A second station is to be located in the area of 7300 Darrow Road.

- This location improves response coverage north of I-80.
- Increases the area protected by 13% and the population by 15% in 6:30 travel time.



Staffing Recommendations

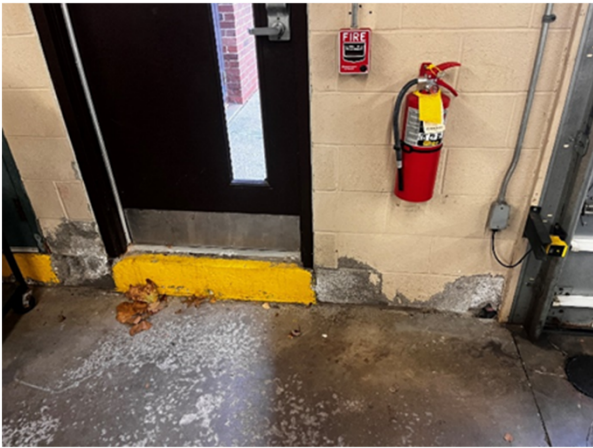
- Fire Department
 - ❖ Use a hybrid staffing model with part-time and full-time staff to create an engine company staffed with four (4) personnel 24/7.
 - ❖ The cost for the staffed engine company is approximately \$1.2 Million for the first year.
- EMS Department
 - ❖ Monitor the workforce availability to ensure adequate personnel are available to fill the required positions and be prepared to move to a career staffing model if staff availability changes.
 - ❖ Increase the pay rate for part-time paramedics by \$2 per hour, to remain competitive with other agencies, at a first-year cost of \$99,551.

Part 2: Facility Assessment

Mark Wutz, K2M Design



Recommended Items to Address:



Cost Estimate to Complete 'Immediate' Items to keep the FS functioning.

Priority	Category	System	Approx. Year Installed	Construction Cost		Project Cost
				in 2024 Dollars	2025	2025
Immediate	Site	Additional Accessible Parking, Pathways & Striping	----	\$10,000	\$10,400	\$13,000
Immediate	Roof	Clean / Repair / Replace Roof Drains	----	\$10,000	\$10,400	\$13,000
Immediate	Systems	Replace EMS Garage Exhaust Fan	1992	\$10,000	\$10,400	\$13,000
Immediate	Systems	Replace H&V Units, CO/NO2 Monitoring & Controls	1992	\$129,000	\$134,160	\$167,700
Immediate	Systems	Replace Apparatus Bay Trench Drain Grating, Clean Lines	1978	\$140,000	\$145,600	\$182,000
Immediate	Interior	Convert Existing (18'x32') Fitness Area to Temporary Dormitories	----	\$57,600	\$59,904	\$74,880
Immediate	Interior	Provide Two (2) Vestibules Between Dayroom & Apparatus Bay	----	\$40,000	\$41,600	\$52,000
Near Term	Site	Concrete Sidewalk and Pavement Repairs	----	\$50,000	\$52,000	\$65,000
Near Term	Site	Vegetation & Debris Removal	----	\$5,000	\$5,200	\$6,500
Near Term	Roof	Repair Roof Leak at Southeast Corner of Apparatus Bay near H&V Unit	1978	\$1,500	\$1,560	\$1,950
Near Term	Roof	Remove Rust, Paint & Repair Ships Ladder	1978	\$1,000	\$1,040	\$1,300
Near Term	Roof	Install a New Ships Ladder to EMS Garage Roof	----	\$2,500	\$2,600	\$3,250
Near Term	Roof	Replace Nat Gas Roof Pipe Supports & Paint Piping	1978	\$5,000	\$5,200	\$6,500
Near Term	Exterior	Replace Facia Board, Flashing and Trim of 1955 Bldg Near Main Entrance	1978	\$10,000	\$10,400	\$13,000
Near Term	Exterior	Tuck Point / Repair Brick & Mortar	1978 / 1992	\$75,000	\$78,000	\$97,500
Near Term	Exterior	Replace HM Doors and Frames	1978 / 1992	\$24,000	\$24,960	\$31,200
Near Term	Exterior	Replace EMS Brick Patio	1992	\$15,000	\$15,600	\$19,500
Near Term	Structure	Install Frost Slabs at Exterior Man Doors	1978 / 1992	\$25,000	\$26,000	\$32,500
Near Term	Structure	Replace & Waterproof CMU Below Grade at SE Corner of Apparatus Bay	1980 / 1992	\$10,000	\$10,400	\$13,000
Near Term	Structure	Repair Apparatus Bay CMU Wall at Floor	1978	\$50,000	\$52,000	\$65,000
Near Term	Systems	Repair Existing RTUs as Required to Keep Operational	2005	\$15,000	\$15,600	\$19,500
TOTAL				\$685,600	\$713,024	\$891,280

Immediate	Site	Additional Accessible Parking, Pathways & Striping	----
Immediate	Roof	Clean / Repair / Replace Roof Drains	----
Immediate	Systems	Replace EMS Garage Exhaust Fan	1992
Immediate	Systems	Replace H&V Units, CO/NO2 Monitoring & Controls	1992
Immediate	Systems	Replace Apparatus Bay Trench Drain Grating, Clean Lines	1978
Immediate	Interior	Convert Existing (18'x32') Fitness Area to Temporary Dormitories	----
Immediate	Interior	Provide Two (2) Vestibules Between Dayroom & Apparatus Bay	----

Immediate	Immediate under all scenarios including near term demolition of entire building		\$396,600	\$412,664	\$515,580
Near Term	Near term if building will remain a fire station and/or be repurposed		\$289,000	\$300,560	\$375,700

FCA "Immediate Items"	LS	\$ 300,560.00
Construction Cost		\$ 300,560.00

Priority	Category	System	Approx. Year Installed	Construction Cost		Project Cost
				in 2024 Dollars	2028	2028
Full Reno	Roof	Replace Modified Bituminous Roof	1978	\$480,000	\$499,200	\$624,000
Full Reno	Exterior	Replace Remaining Windows	1978 / 1992	\$60,000	\$62,400	\$78,000
Full Reno	Interior	Interior Renovation and ADA to Accommodate Repurposed Use	1992	\$1,500,000	\$1,560,000	\$1,950,000
Full Reno	Interior	Replace All Furniture	1992	\$510,000	\$530,400	\$663,000
Full Reno	Systems	Replace Plumbing Fixtures	1992	\$340,000	\$353,600	\$442,000
Full Reno	Systems	Comprehensive HVAC Upgrade to Accommodate Repurposed Use	1992	\$850,000	\$884,000	\$1,105,000
Full Reno	Systems	Electrical MDP and Panelboard Replacement	1992	\$150,000	\$156,000	\$195,000
Full Reno	Systems	Convert Interior Lighting to LED with DS Control	1992	\$153,000	\$159,120	\$198,900
Full Reno	Systems	Convert Exterior Lighting to LED with Daylight Control	1992	\$34,000	\$35,360	\$44,200
Full Reno	Systems	Install a New Security System	----	\$250,000	\$260,000	\$325,000
TOTAL				\$4,327,000	\$4,500,080	\$5,625,100

NR	Systems	Install Supplementary Exhaust & Make Up Air in the Apparatus Bay PPE Area	1992	\$0	\$0	\$0	
NR	Systems	Replace RTUs In Kind	2005	\$0	\$0	\$0	
NR	Systems	Provide Full Emergency Power Back Up	2013	\$250,000	\$260,000	\$325,000	
NR	Interior	Temporary Trailers / In Swing Space During Comprehensive Renovation	----	\$122,000	\$126,880	\$158,600	
NR	Likely Not Required if Building is Repurposed			\$372,000	\$386,880	\$483,600	\$613,600

Part 3 New Facility Concept

Eric Pros, DS Architecture



Conceptual Design: Site Plan



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City of Hudson Fire & EMS
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Conceptual Design: Floor Plan



- Fire Crew Areas
- Dorms
- Fire Administration
- Apparatus Bays
- Apparatus Support
- Clean Apparatus Support
- Utility / Mech / Elec



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January 28th 2025



Conceptual Design:



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Conceptual Design:



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Summary

Vaughan Miller, K2M Design



Objectives of the Study (From the RFP)

- *What is the number of on-duty personnel per shift needed to be considered adequate for current needs, future needs, and industry standards?*
- *What are staffing requirements in the future based on the knowledge and experience of the Consultant?*
- *What is the future of paid volunteer type staffing models?*
- *How can the City reduce response times based on each of the Fire models?*
- *Are there any EMS recommendations to decrease response times?*
- *If additional personnel are needed, how does full-time vs part-time personnel figure into available budgets, training, safety and retention*

Financial Impact of Hybrid Model

Financial Effect of Hybrid Staffing & New Safety Center					
	2025 Budget	2026 Budget	2027 Budget	2028 Budget	2029 Budget
Hybrid Personnel Increase (a)	\$1,191,272	\$1,227,010	\$1,263,820	\$1,301,735	\$1,340,787
Debt Service on New Safety Center (b)	\$0	\$0	\$0	\$1,450,000	\$1,450,000
Total Additional Cost	\$1,191,272	\$1,227,010	\$1,263,820	\$2,751,735	\$2,790,787
General Fund Support Required				\$1,250,000	\$2,800,000

Thank You

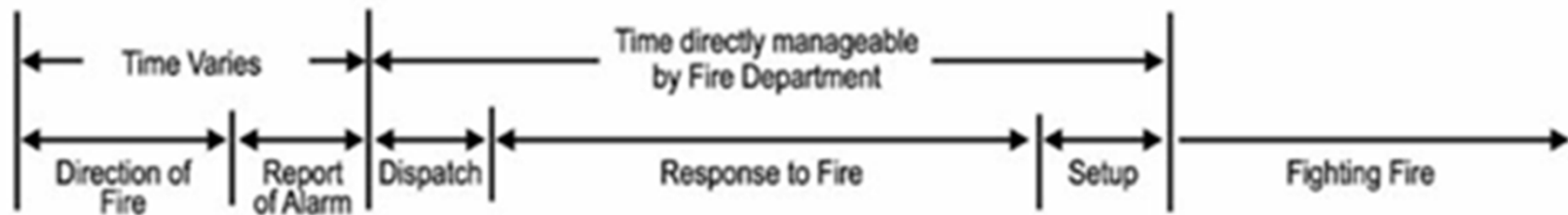
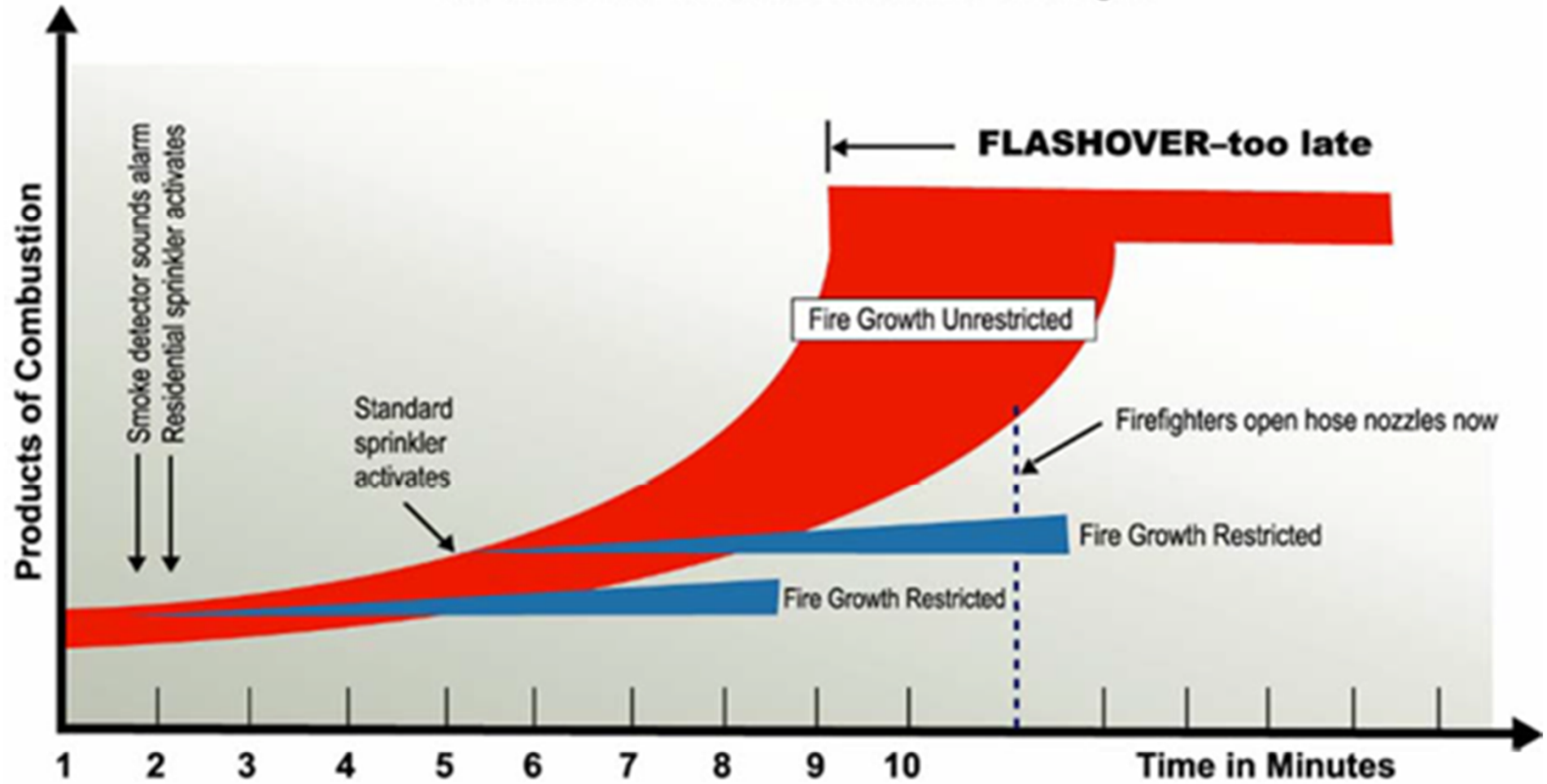


Addendum Graphics



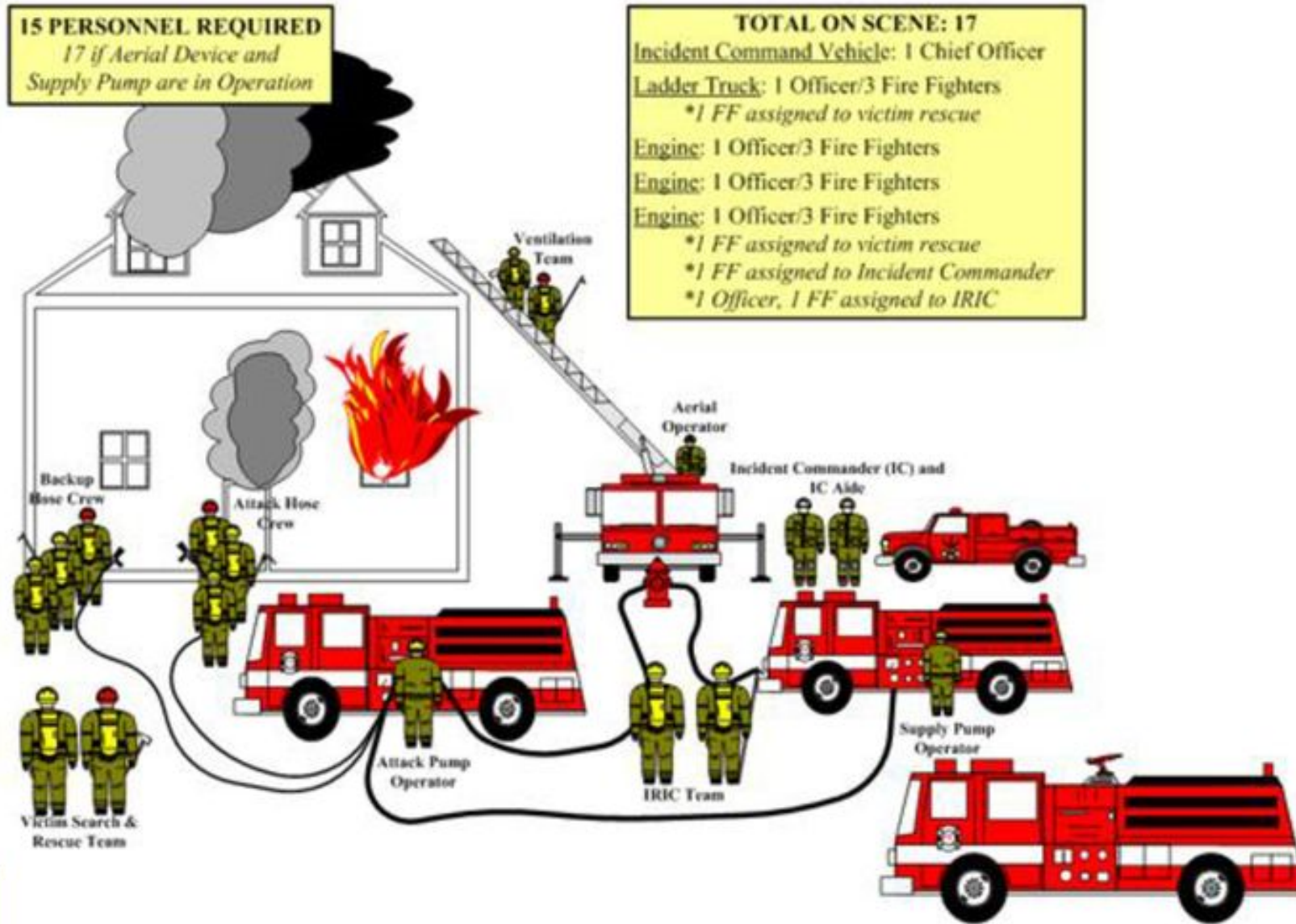
Fire Flashover Timeline

All times are based on national averages



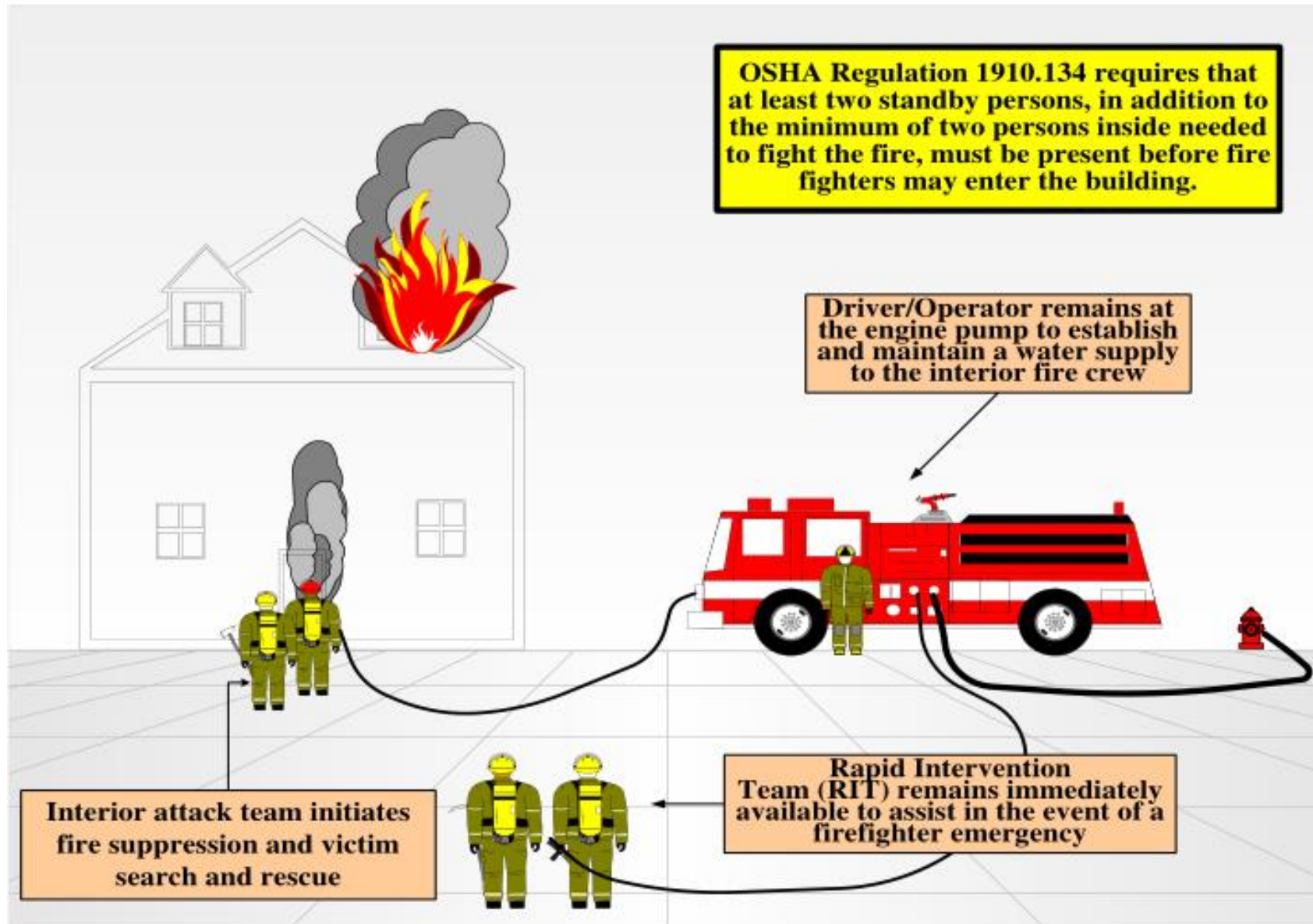
NFPA Structure Fire Staffing Requirements

NFPA 1710 Initial Full Alarm Assignment Deployed Within 8 Minutes

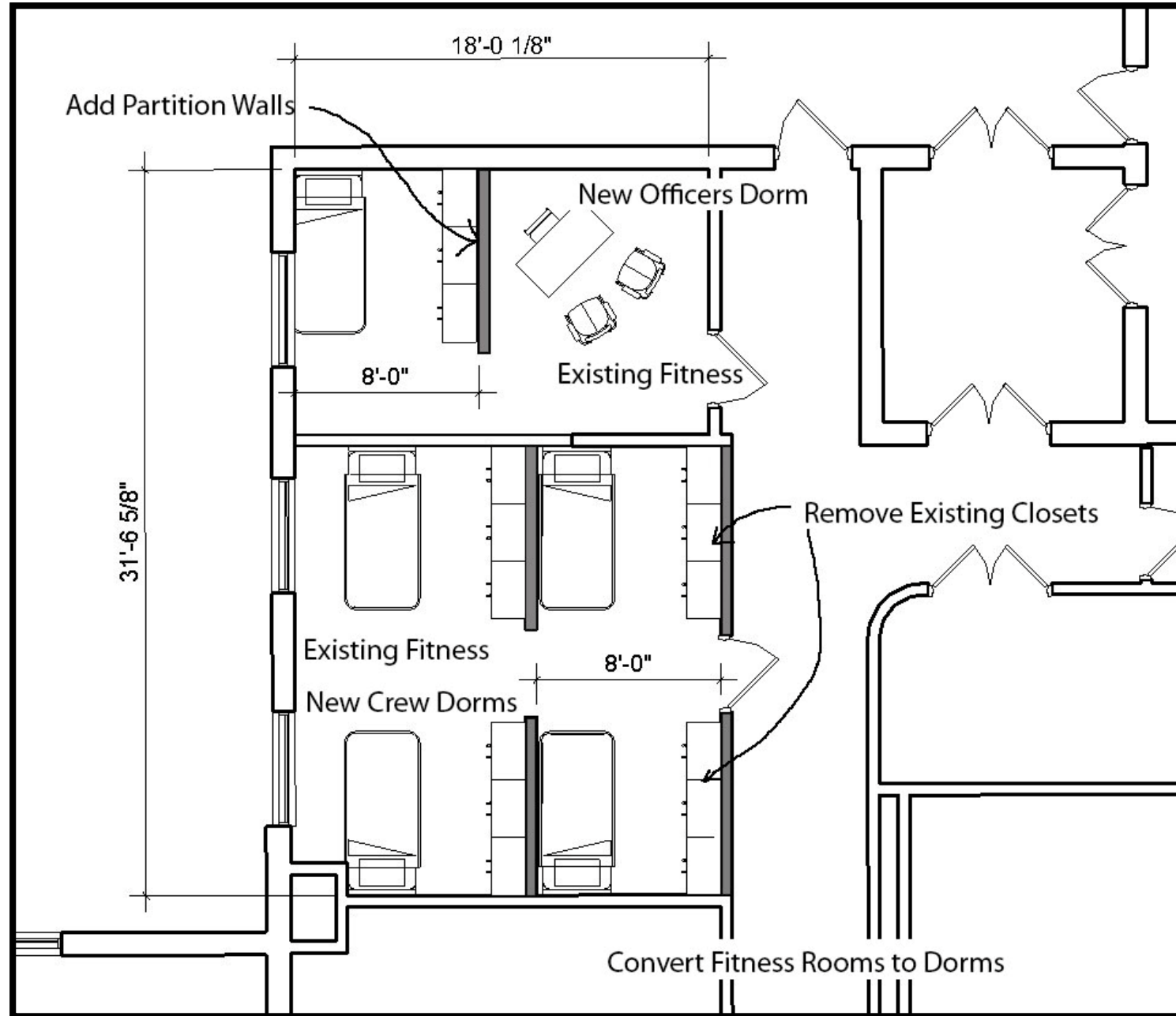


Two-In, Two-Out Staffing Requirements

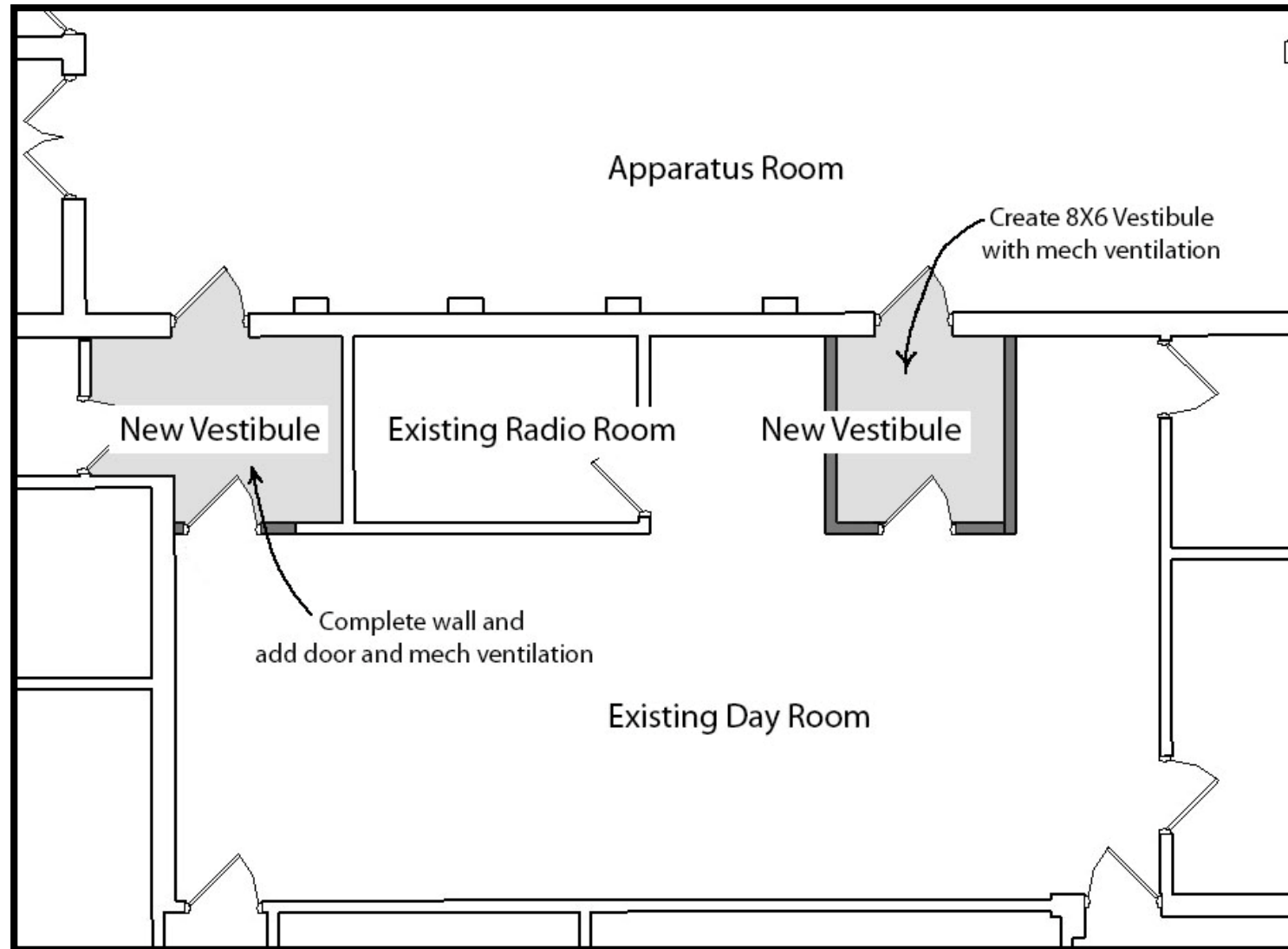
OSHA '2 In/2 Out' Illustrated



Interim Modification Plan



Interim Modification Plan



Interim Modification Plan

