NOLENSVILLE FIRE & RESCUE

STATION NEEDS ANALYSIS

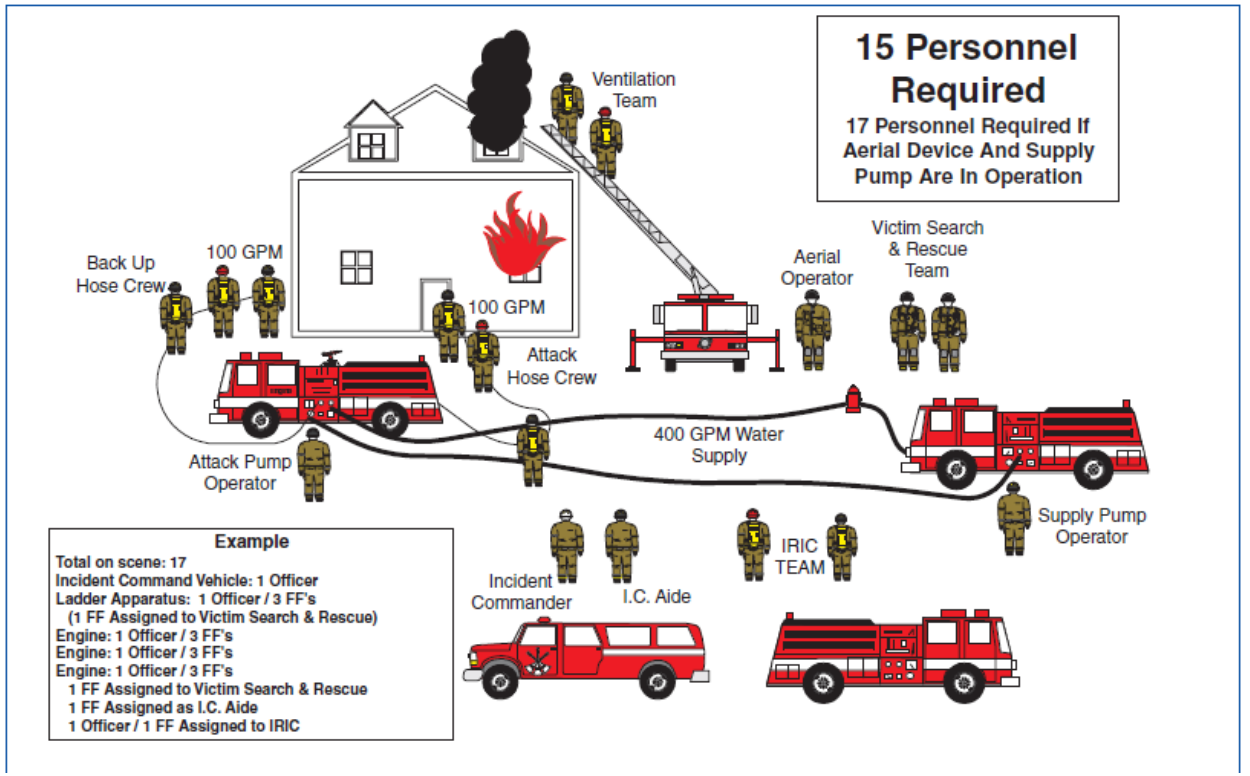
CONTENT

- NFPA Guidelines for response time and personnel on scene
- Nolensville Fire & Rescue incident response heat map and response time maps
- Current station with apparatus layout and needs for staffing and equipment
- Option A with the TMP designed 4-bay station and projected apparatus and staffing needs
- Option B with the minimized station dropping to 3 bays and less staffing capacity
- Option C with two efficiently designed stations
- Future cost analysis

NFPA 1710

For a suburban setting, NFPA Guideline 1710 calls for 10 personnel to be on scene within 10 minutes. A full alarm is considered 15 - 17 personnel on scene. NFPA has identified 22 tasks that must be completed rapidly at a structure fire that is manpower intensive and adequate resources such as the appropriate apparatus.

These numbers also assumes the personnel are qualified and capable of performing their assigned roles. Interior firefighters, pump operators, and incident commanders that are trained and certified.

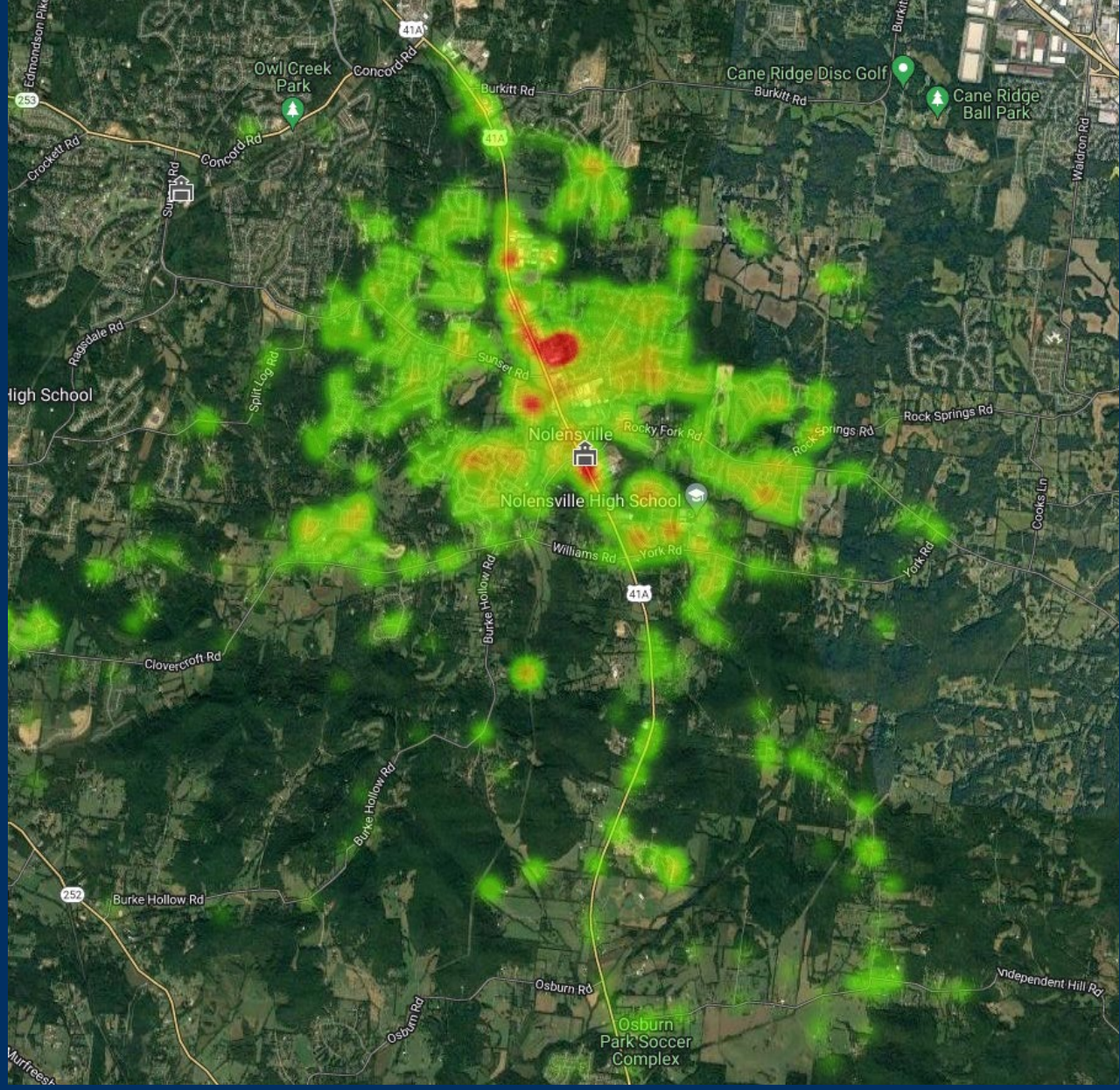


Calls for Service Heat Map

Map showing call locations between January of 2021 and July of 2022.

The redder the area gets, the more frequent calls for service are present in the area.

This is around 1800 calls in 1 ½ years with the trend increasing the number of calls by around 18% from each month in 2021 to the same month in 2022.



CURRENT STATION

LAYOUT AND NEEDS

CURRENT STATION 16

7347 Nolensville Road

- 3 Career members on duty
- 2 Chief officers business hours
- 1 Chief that lives locally for after hours
- 20 Volunteers

Currently Lacking

- Gear storage room (away from diesel exhaust)
- Gear cleaning room
- Personnel Decontamination room
- Air compressor room (away from diesel exhaust)
- Apparatus bays (vehicles parked outside)
- Bunk rooms for additional staffing
- Administrative offices
  - Fire Chief (office with administration)
  - Fire Marshal
  - Future positions
    - Deputy Chief
    - Training Officer
    - Administrative Assistant

CURRENT STATION 16

Current Apparatus

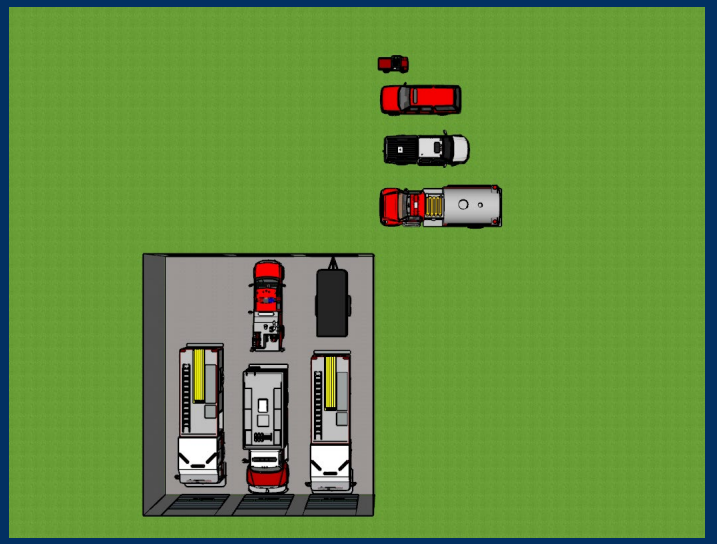
- 2021 Pierce Enforcer Engine (TON)
- 2013 Pierce Enforcer Engine (501(c)3)
- 1994 International Tanker (501(c)3)
- 2009 F550 Brush Truck (501(c)3)
- 2000 Freightliner FL70 Rescue (501(c)3)
- 2016 Chevy Suburban Command (501(c)3)
- 2021 F350 Utility Pickup (TON)
- Kawasaki Mule UTV (County)

Station 16

The current building is owned by Williamson County Intentions of stationing an ambulance there. An ambulance would occupy 1 bay and 2 bunk rooms.

- 3 pull through bays at 59’ long
- 5 apparatus and 4 of them doubled up
- 3 vehicles and the UTV outside or elsewhere
- 3 single bunk rooms
- 1 training room with 4 additional beds


NO PARKING
NO PARKING
NO PARKING



PROJECTED STATUS

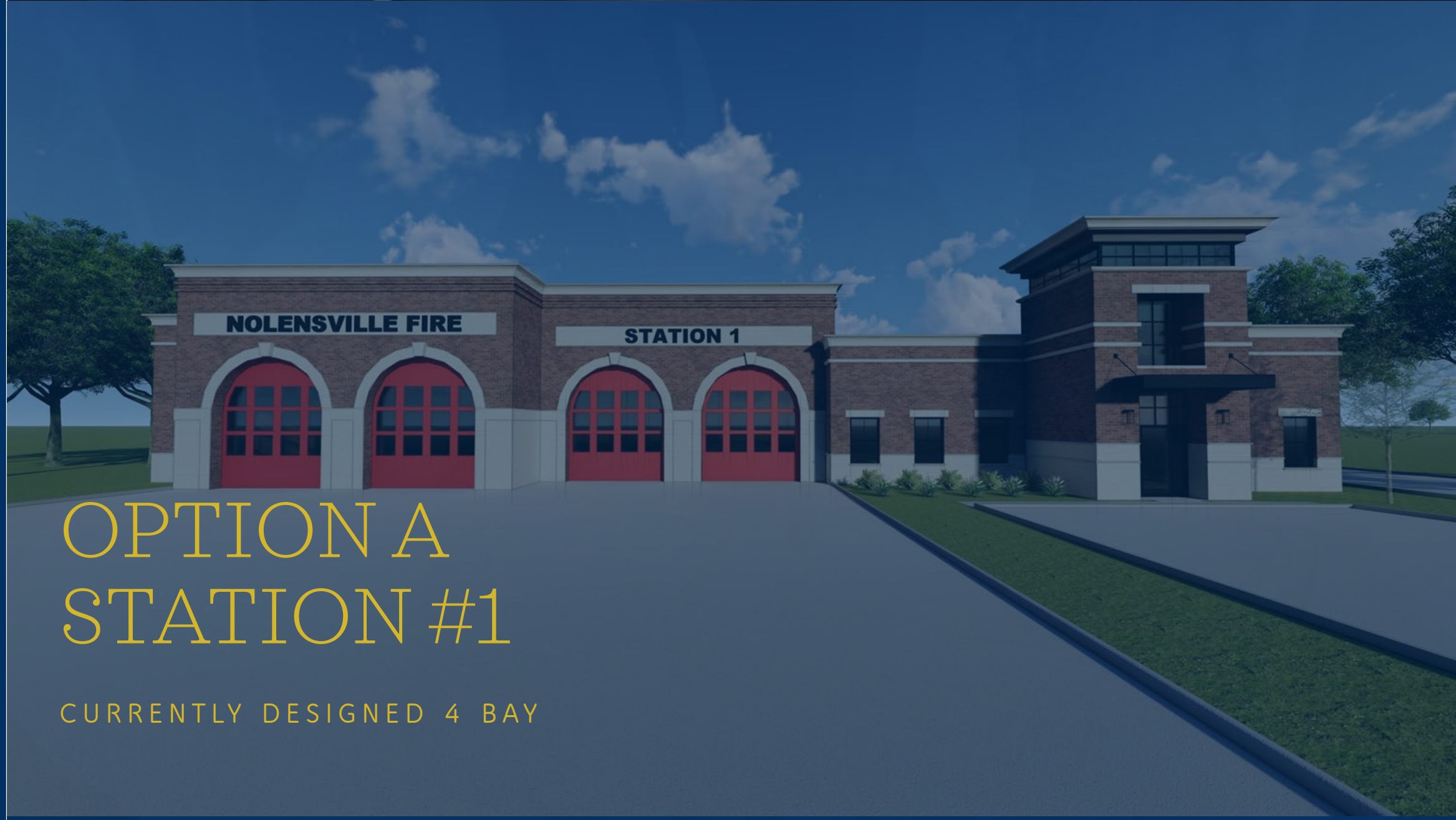
Projected Apparatus

- New ladder truck
- Additional Engines for new stations
- Maintain a reserve engine
- Class 3 pumper (capable of handling long gravel driveways, hills, and off-road)
- Vehicle for Shift Officer

Future Stations

In the capital growth plan, there is an immediate need for 2 stations with an ideal total of 6 bays to accommodate all emergency response vehicles, 12 line personnel and bunk rooms, and 5 administrative personnel and offices for each.

- 6 pull through bays at 80’ long
- Minimum of 12 bunks rooms with additional space needed for volunteers
- Personnel decontamination rooms
- Gear and equipment cleaning room
- Gear storage room to avoid diesel exhaust
- Air compressor rooms to fill air packs with intake away from diesel exhaust
- Health and fitness room

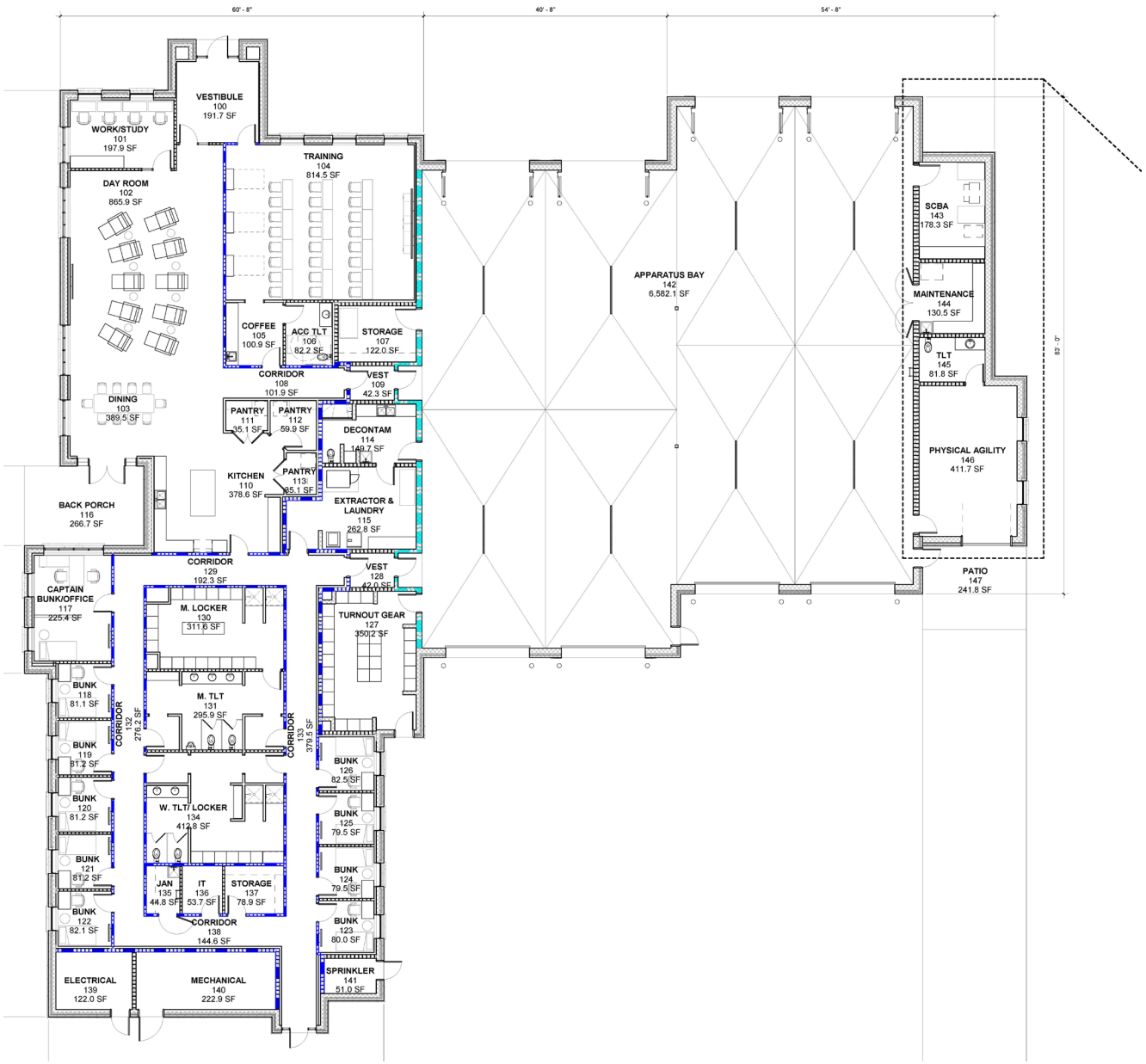


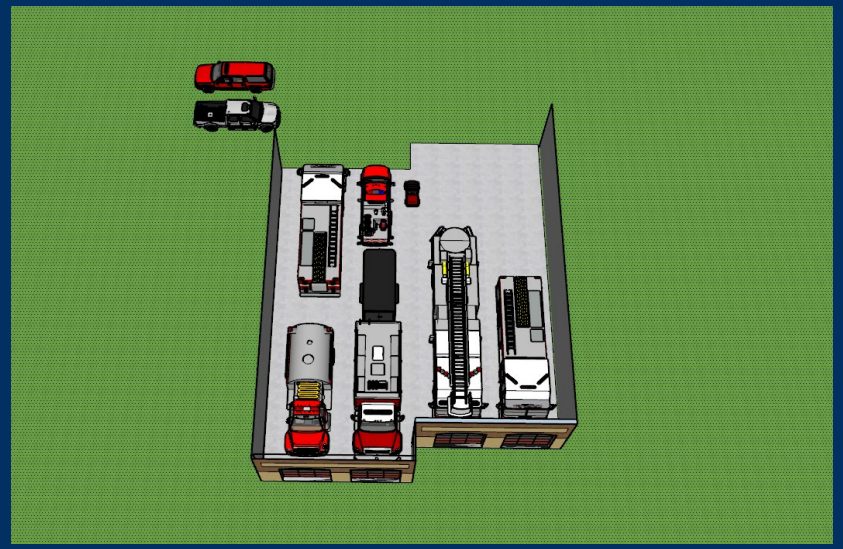
OPTION A
STATION #1

CURRENTLY DESIGNED 4 BAY

STATION #1

The current design with features to provide an efficient and safe environment for the employees to work in, train, and inhabit for 48-hour shifts.

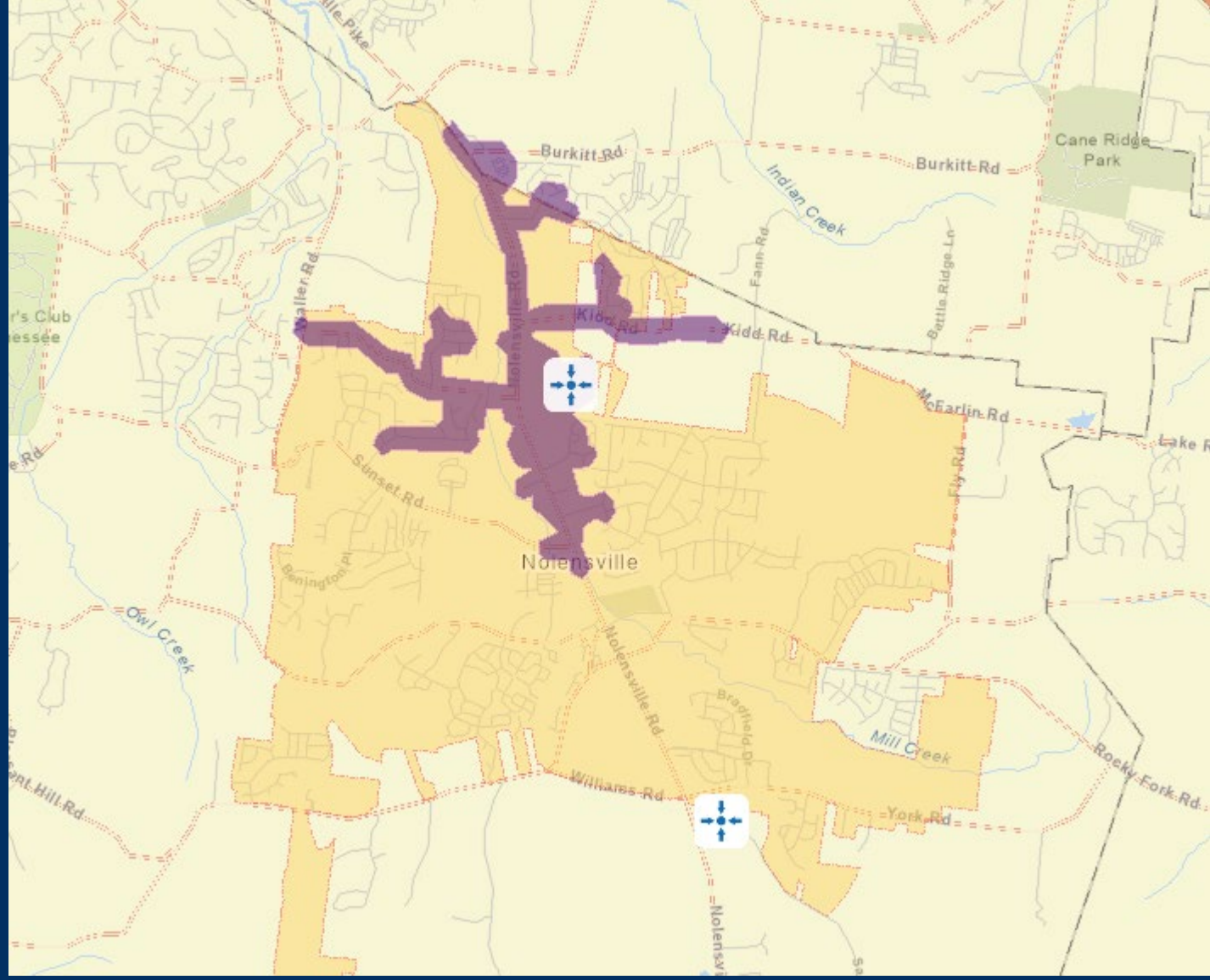




4 ½ Mins after notification if available at the station

Station 1 only ideal medical response, the area in purple

Car wrecks that involve medical or extrication fall into this category

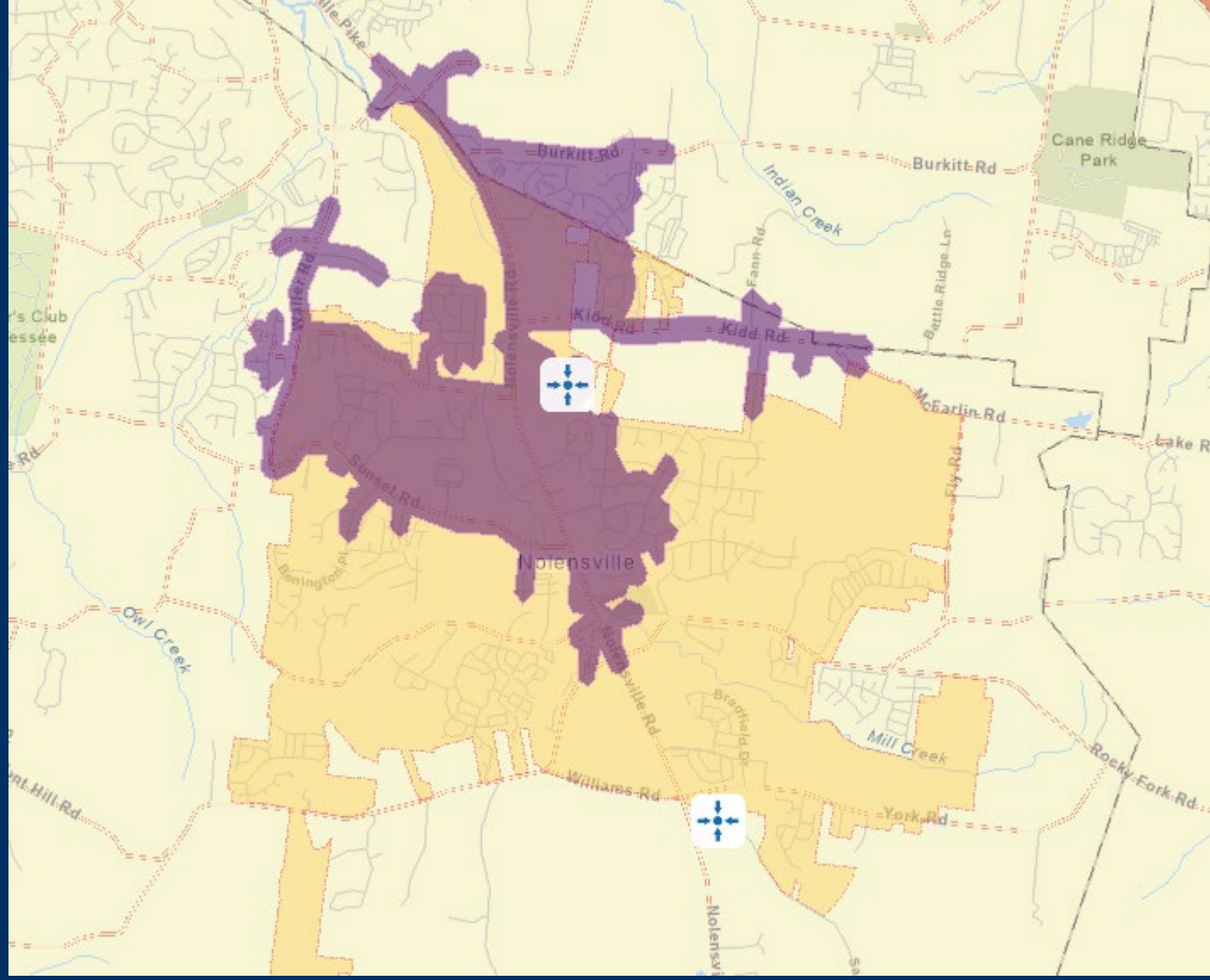


6 ½ Mins after notification if available at the station

Station 1 only first engine on scene fire response the area in purple

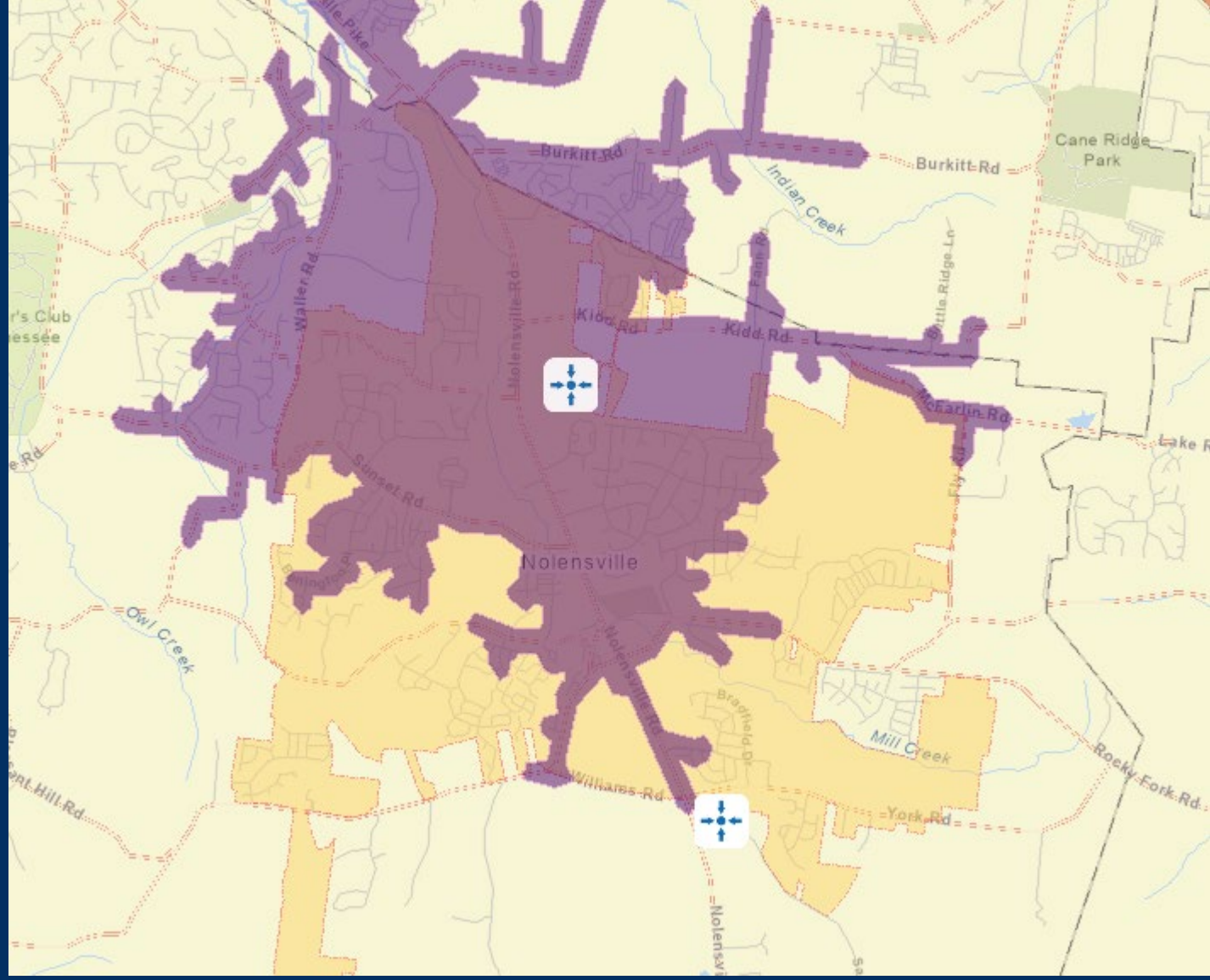
Guaranteed 1 engine, chief car, and 4 personnel total

Reliant on volunteers and mutual aid to meet minimum staffing of 15



8 Mins after notification if available at the station

Station 1 only fire response the area in purple

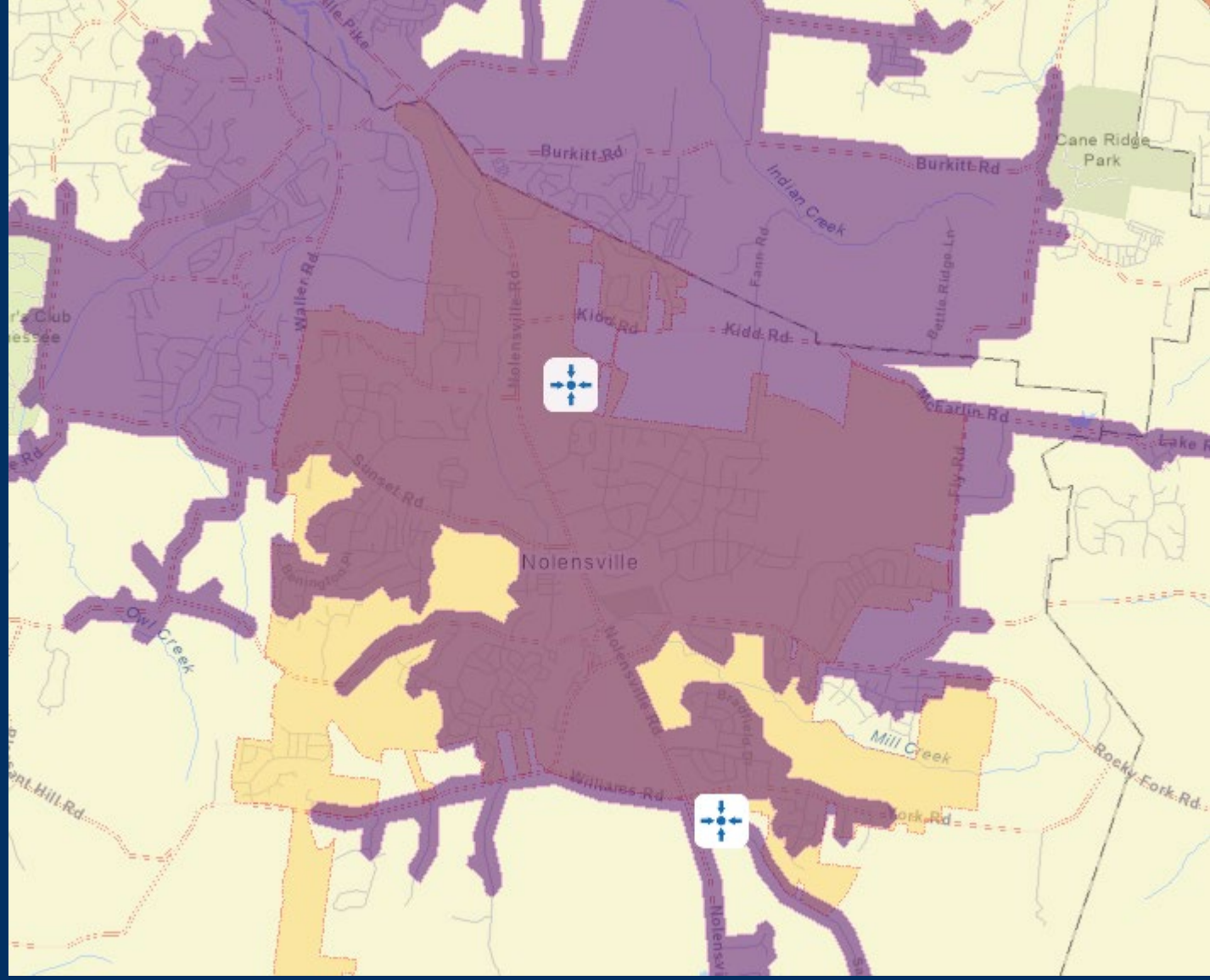


10 Mins after notification if available at the station

10 Mins is the NFPA guideline to have 10 people on a fire scene

Station 1 only fire response the area in purple

Still only guaranteed 1 engine, chief car, and 4 personnel



OVERVIEW

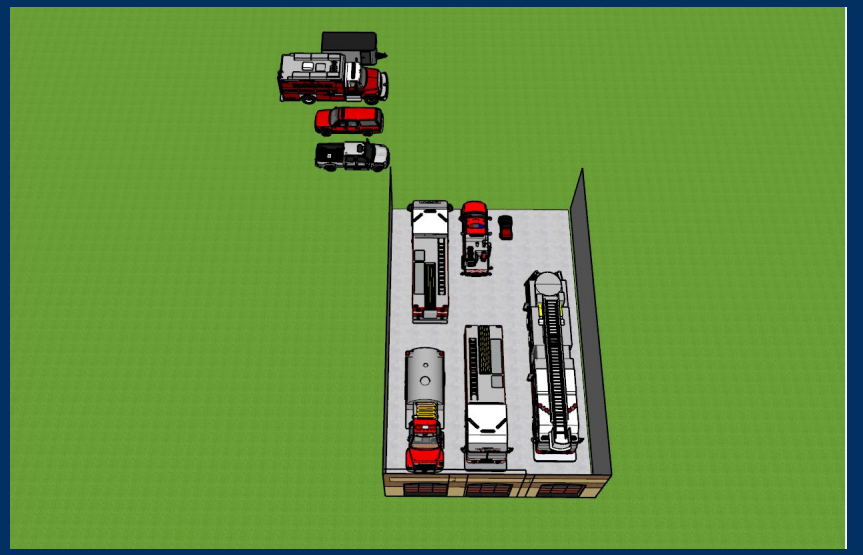
A 4-bay option would allow for the necessary ladder truck to be housed in a pull through bay as well as the front-line engine to mitigate the risk of backing into a bay at the frequency that the fire department is.

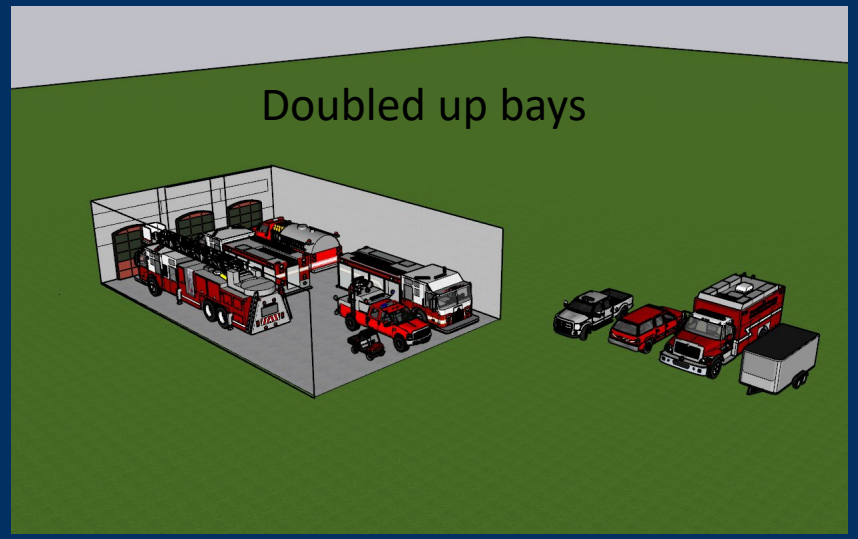
Currently designed with 10 bunk rooms to allow for a captain, 3-4 staffed on an engine, 3 staffed on a ladder truck, and some spare room for volunteers.

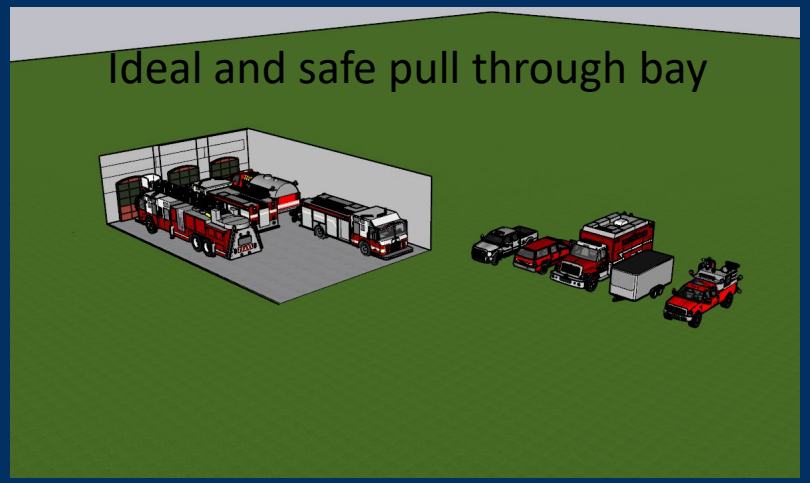
Includes essential rooms we are currently lacking for health and safety concerns but does not include administrative officers for staff though there is room to add an administrative building in the rear of the lot.

OPTION B
STATION #1

MINIMIZED DESIGNED 3 BAY




Doubled up bays

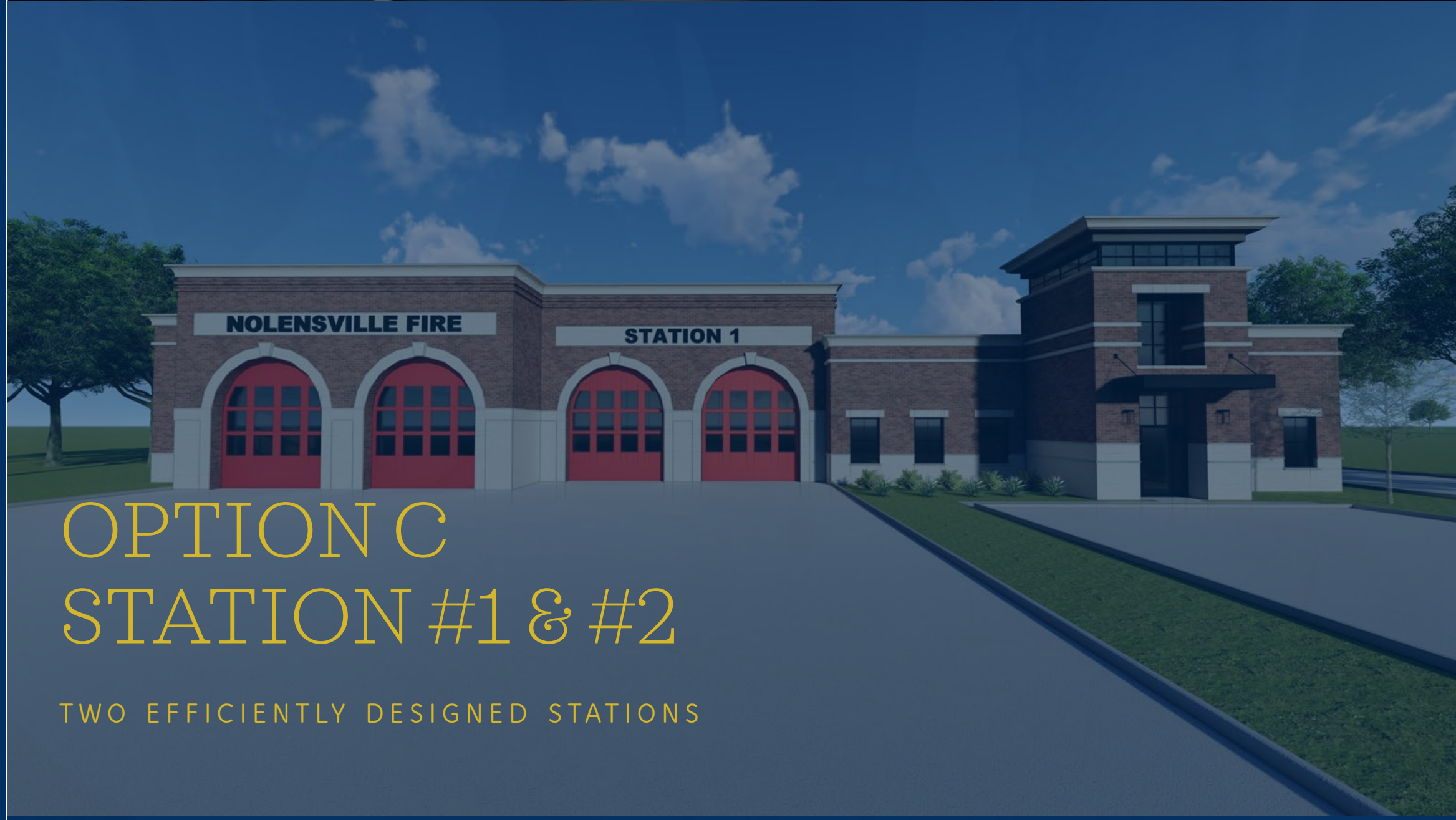

Ideal and safe pull through bay

OVERVIEW

Same response model as Option A

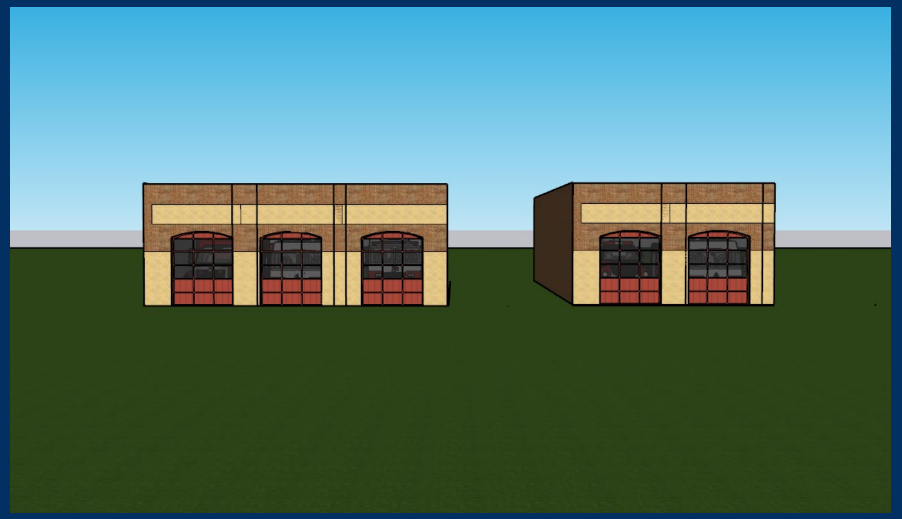
A 3-bay option with no second station or addition planned soon, this option would severely hamper our apparatus layout with the added ladder truck. This would require apparatus to be parked outside or have multiple apparatus doubled up in bays that would require those apparatus to be backed in after any trip.

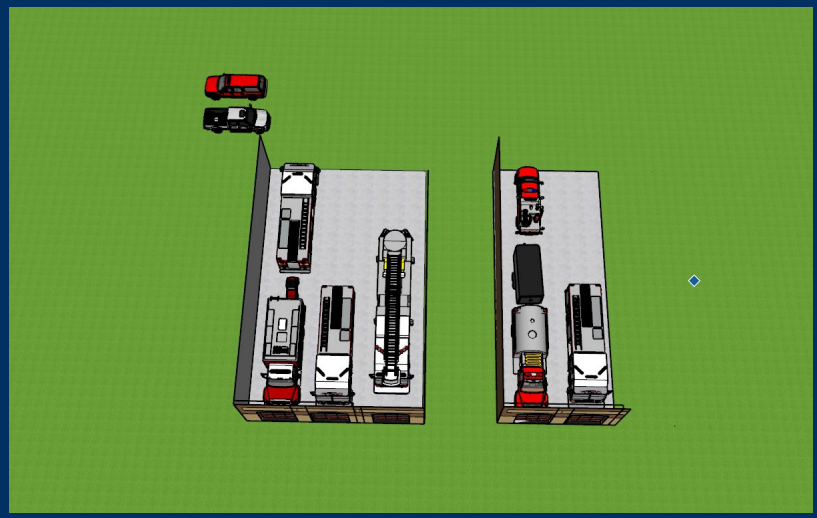
Staffing needs would need to be able to accommodate a captain, a staffed engine, a staffed ladder truck, as well as volunteers.

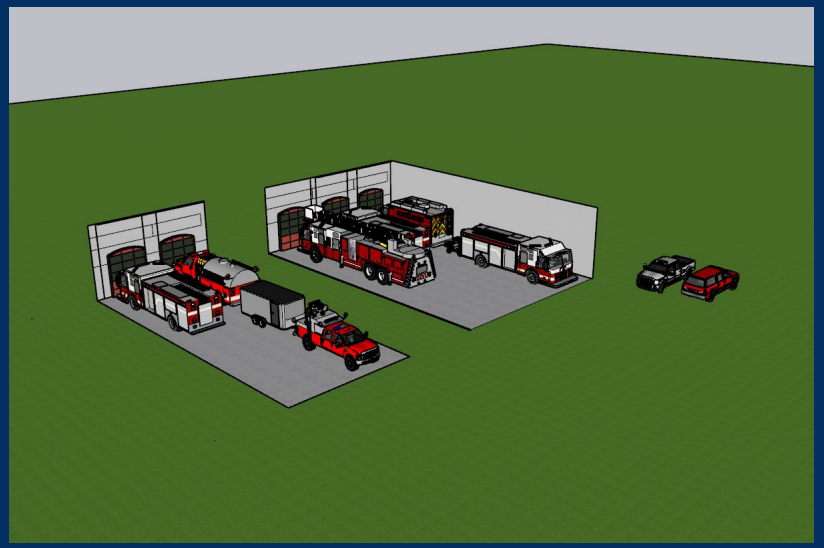


OPTION C
STATION #1 & #2

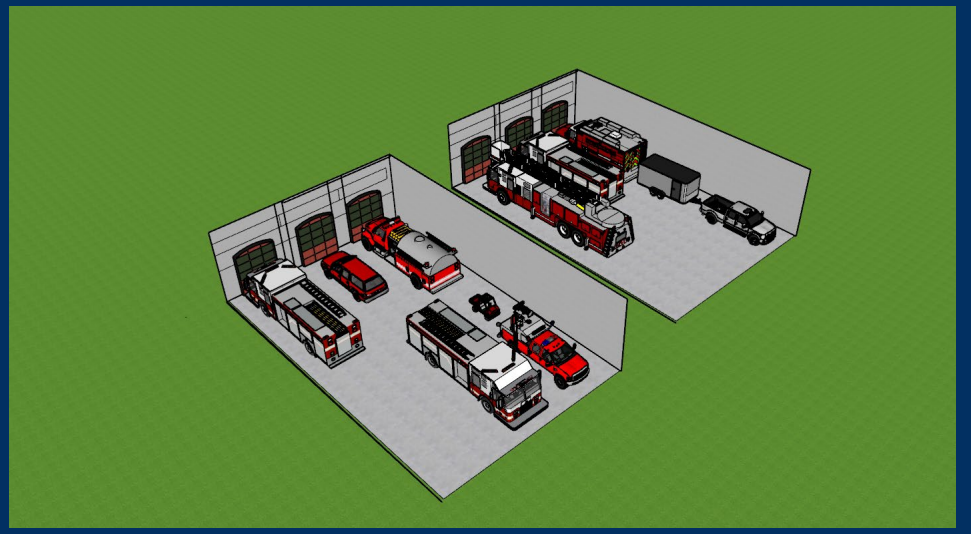
TWO EFFICIENTLY DESIGNED STATIONS

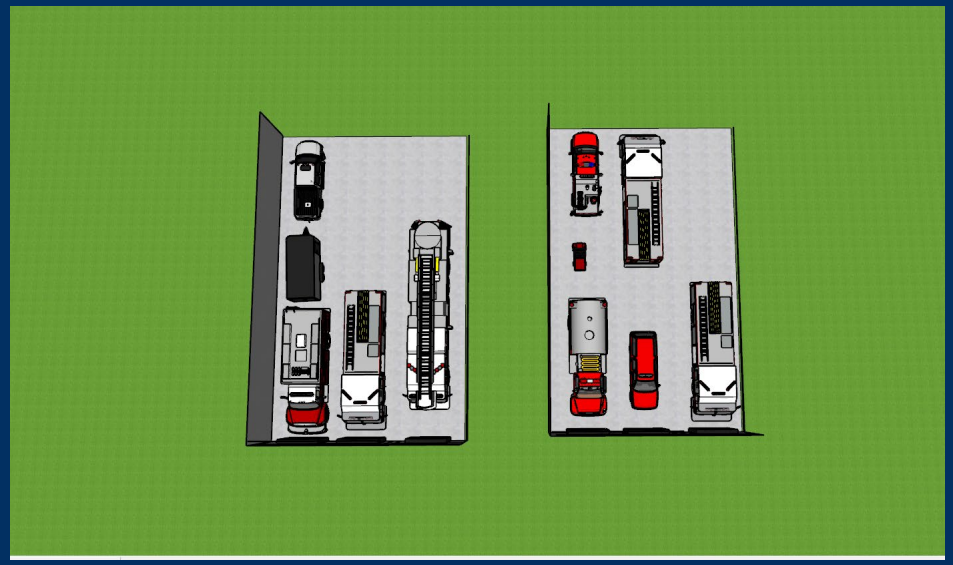






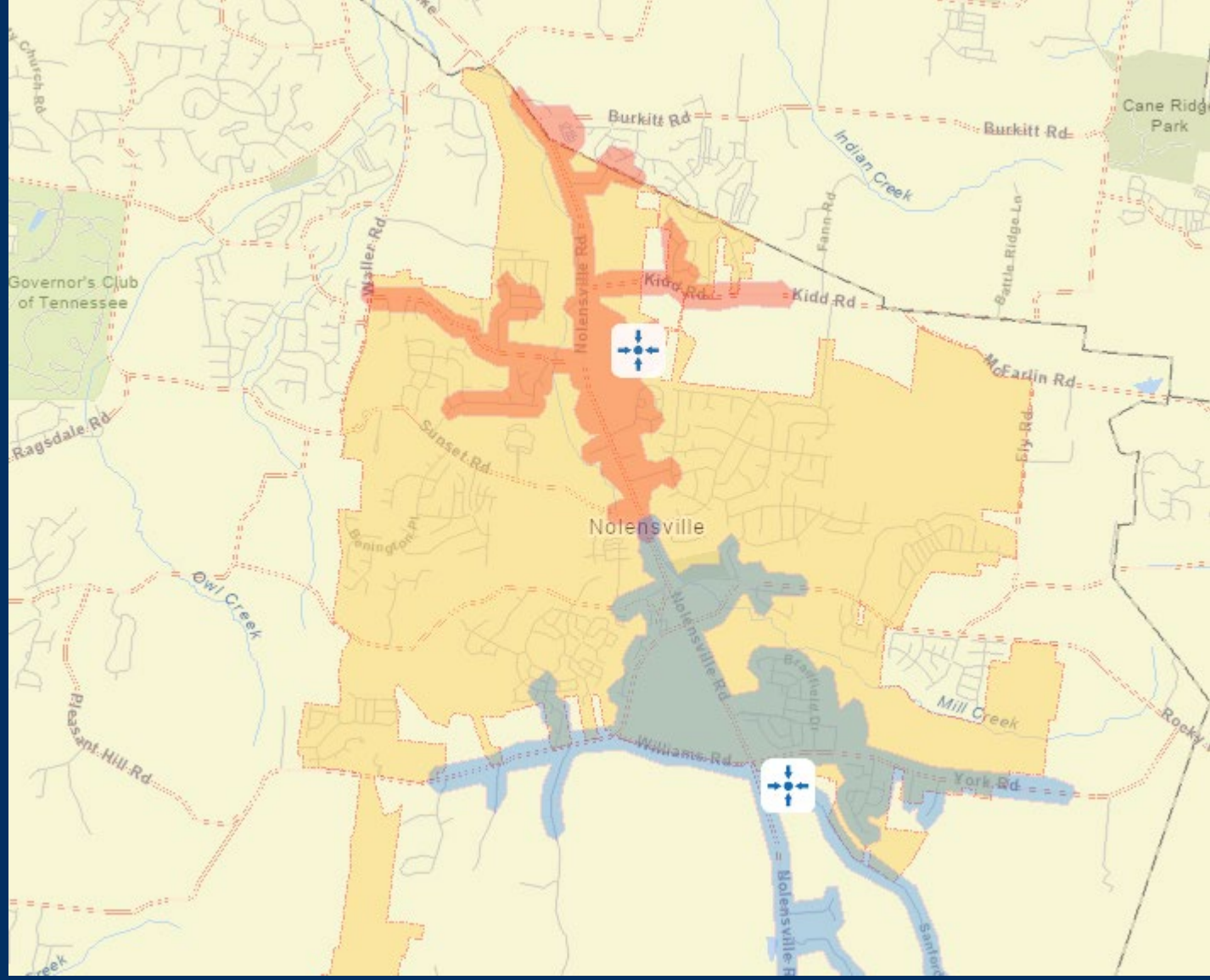
Ideal 2 Stations with 3 Bays each





4 ½ Mins after notification if available at the station

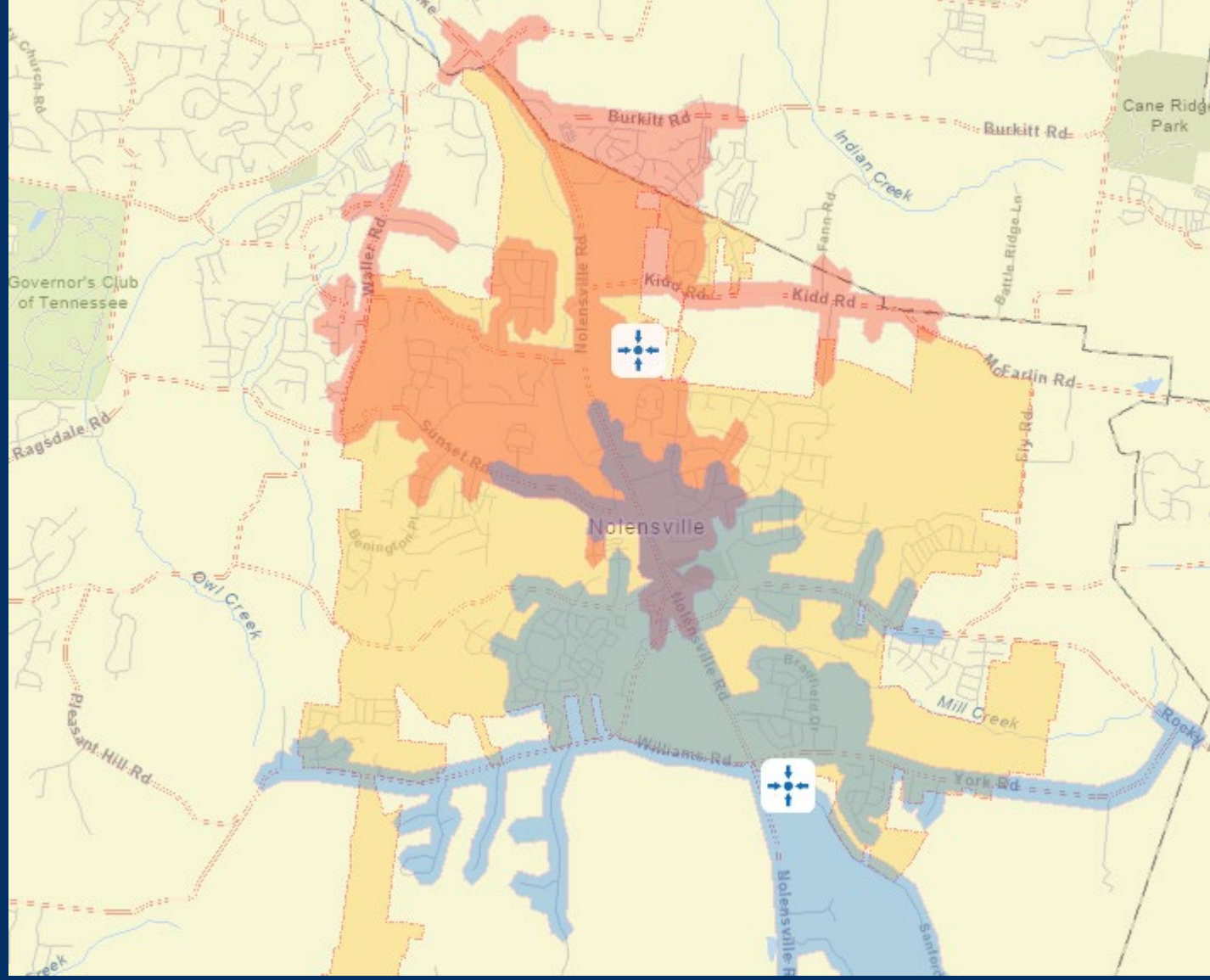
Station 1 in purple and 2 in green medical response



6 ½ Mins after notification if available at the station

Station 1 in purple and 2 in green fire response

Guaranteed 2 Engines, chief car, and 7 personnel (potentially 10 with future projected staffing with ladder truck)



8 Mins after notification if available at the station

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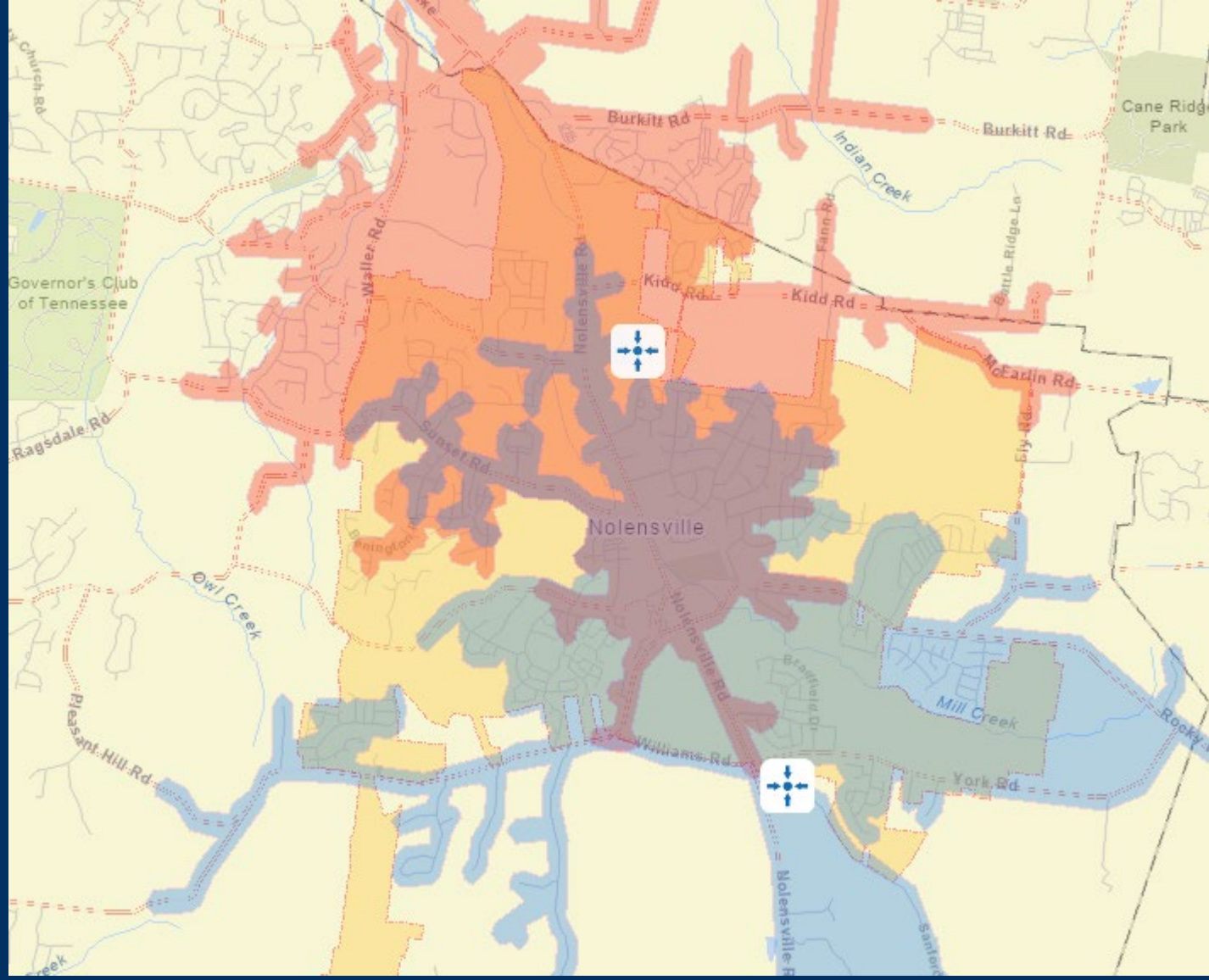

10 Mins after notification if available at the station

10 Mins is the NFPA guideline to have 10 personnel on scene at a fire

Station 1 in purple and 2 in green fire response

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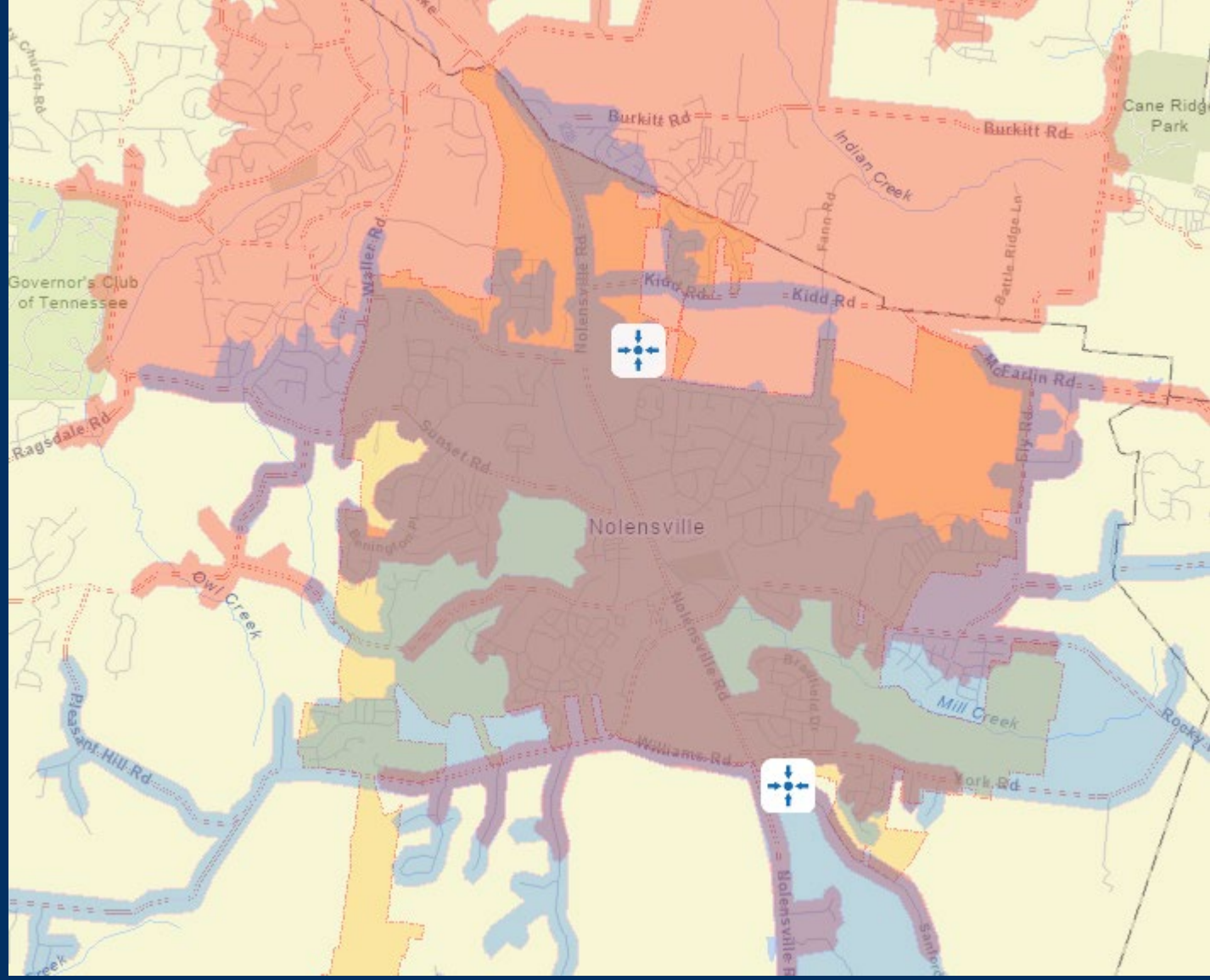

OVERVIEW

Building 2 stations near the same time would allow more flexibility in station design. The apparatus could be split up for desirable response criteria and ideal service model delivery. The need for a 4-bay station 1 would not be as great and the total bays and staffing could be split.

Both stations will need an engine, but there is only need for 1 of each other apparatus type for the town.

The split stations would allow some options in staffing. Both stations would need 3-4 personnel on a staffed engine, but only 1 station needs to have a captain and only 1 needs to have a ladder truck staffed with 3 personnel.

Volunteers are still an essential part of our department to meet personnel requirements and as such should be considered in station design, we need to be cautious in cutting bunk rooms. There will be more than the career staff working in our stations.

FUTURE FINANCIAL FORECAST

It is impossible to predict the inflation or the costs in the future but based on historic trends here is some data to consider.

- In 2015 the cost per square foot was $300
- Current cost estimate per square foot is $600-$625
- Current cost for designed station is $10.9 million
- Current trend is around 1% increase per month
- Anticipated cost by January could be $650/sq. ft.
- Conservatively with 1% inflation per year from now, the cost in 10 years could be $700/sq. ft. which may cost $13.2 million
- On the higher end, the cost in 10 years could be around $850/sq. ft. or more which may cost $16 million
- 1 new now and 1 station in 10 years may cost around $20 million
- Two smaller stations now may cost around $16.2 million

CONCLUSION

NEW STATION DESIGN

Based on the needs and space required for the apparatus and personnel in our growth plan

NOW VS FUTURE

Current costs are around $625 /sq. ft. which can rise to around $850/sq. ft. in 10 years

NUMBER OF STATIONS AND TIMELINE

The timeline for station 2 would determine the size demands of both stations to fit the current and projected needs

SERVICE DELIVERY MODEL

The location of both stations together are intended to provide the best service delivery model today

MISSION

Our mission is to provide efficient services to the community in a safe and timely manner

STATION DECISION MAKING

The BOC decisions will determine the stations sizes, number of bays, and response model based on the timeline and costs

NOLENSVILLE FIRE & RESCUE

Created by Matthew Lupo 7/22/22
Maps based on drive time
Data from TM Partners