

## **SUMMARY OF CAUCUS DISCUSSION AND MINUTES OF THE STRONGSVILLE CITY COUNCIL REGULAR MEETING HELD ON JUNE 6, 2016.**

The Council of the City of Strongsville met in the Caucus Room at the Mike Kalinich Sr. City Council Chamber, 18688 Royalton Road, on **Monday, June 6, 2016 at 7:30 p.m.**

Present: Council Members: Michael J. Daymut, Joseph C. DeMio, Matthew A. Schonhut, Duke Southworth, Gordon C. Short, Kenneth M. Dooner and James E. Carbone. Also Present: Assistant Clerk of Council Tiffany Mekeel. Administration: Mayor Thomas P. Perciak, Law Director Neal M. Jamison, Finance Director Joseph K. Dubovec, Recreation and Senior Services Director Bryan Bogre, Assistant Building Commissioner Keith Foulkes, Service Director Joe Walker, City Engineer Ken Mikula, Public Safety Director Charles Goss, Police Chief James Kobak and Fire Chief Jack Draves.

Council President Southworth called the caucus to order at 7:30 p.m.

The following Council Committees met to review legislation on the agenda:

Planning, Zoning and Engineering Committee: Mr. Daymut advised Ordinance No. 2016-072 is a rezoning ordinance for property located at 19132 Temple Drive. A public hearing is scheduled for this evening. If there are no objections, the recommendation is to adopt. If there is an objection, the recommendation is to place this ordinance on third reading. Ordinance No. 2016-114 is approving and authorizing the filing of an application with the Federal Emergency Management Agency (FEMA). This is for acquisition and demolition of certain homes on Rock Creek Circle. The recommendation is to suspend and adopt. Resolution No. 2016-115 is advertising for bids for the Westwood Drive widening project. Mr. Daymut recommended suspension and adoption for this resolution. Suspension and adoption was recommended for Resolution No. 2016-116. A resolution authorizing the Mayor to advertise for bids for the sanitary sewer rehabilitation program for 2016. Mr. Schonhut stated he had questions on all the legislation except for Resolution No. 2016-116. Mr. Schonhut stated that he will be objecting to Ordinance No. 2016-072 because he does not think that area, after looking at it should be used for office space. Mr. Schonhut explained that the current use, public facility, is a Masonic Temple and fits better in the residential area. Mr. Carbone added that a large home is currently being built in the area. Mr. Dooner asked what type of business was going to be conducted in the building. Mayor Perciak stated this information was not made available.

Mr. Schonhut stated in the past, FEMA has denied request in his Ward for flooding relief and is concerned how other residents will perceive the City's expenditure of close to a half-a-million dollars. Mayor Perciak explained the City is doing what it can to assist the residents of Rock Creek Circle and the probability FEMA will award the City the grant is minimal. Based on past history, FEMA most likely will go elsewhere; but, the City owes it to the resident's to apply. Mr. DeMio asked about the status of the mortgages on the homes. Mayor Perciak stated the City does not have that information. Mr. Schonhut asked how many homes were initially looked at. Mr. Mikula stated 21 homes. Mr. Schonhut asked how the City got to the point of the four homes, out of the 21 homes. Mr. Mikula stated that FEMA takes a preliminary look at the 21 homes and based the final decision on three criteria. One, does the homeowner have flood insurance. Two, are the homes contiguous to each other and three, are the homes located in a flood zone. A large portion of the 21 homes did not meet all three requirements and only the four homes qualified. FEMA agreed to accept the application from the City. Mr. Schonhut asked if all four homeowners wanted this. Mr. Carbone stated all homeowners applied. Mr. Mikula stated a letter was sent to the homeowners requesting their agreement for the City to apply. Mr. Schonhut asked if the four homes are on the same side of the street. Mr. Carbone stated they were. Mr. Schonhut asked if house number two decides not to move forward, does this decision jeopardize the entire project. Mayor Perciak stated he could not answer the question. Mr. DeMio added the City does not have the experience with this type of project. Mr. DeMio asked if the homeowners lived in the homes. Mayor Perciak confirmed they did.

Planning, Zoning and Engineering Committee (cont'd): Mr. Mikula stated the City of North Royalton and Valley View were both successful under this FEMA program over the last few years. Mr. Schonhut asked whether the remaining 17 homes would be able to reapply for this program. Mr. Walker asked if the City would take possession of the property at the end. Mr. Mikula confirmed the property would become the City's. Mr. Schonhut asked if the City would do something with the property, like a retention area. Mr. Mikula stated it could be a retention area and noted it could not be redeveloped. Mr. Carbone asked who would be responsible to maintain. Mr. Walker stated it would be the City's responsibility. The City could create some type of retention area. Mayor Perciak stated the City is following the protocol. In the meantime, the City cannot determine what the appraisals will be. This is up to the residents. Mr. Schonhut asked if the dollar amount includes buying and demolishing the homes. Mr. DeMio asked what happens if the residents are not in good standing with their mortgages and the bank gets involved. Mayor Perciak stated the bank will worry about their mortgage and what is due to them, if it is close. If the account is delinquency, the bank typically will sign-off on it. Worse-case scenario, the bank will invoke judgement and will pursue the homeowners that way. Mr. DeMio asked if the City would be liable for any note. Mayor Perciak stated to the best of his knowledge, no. Mr. Schonhut asked if Council approves this and FEMA approves our application, will anymore legislation be brought back before Council. Mr. Jamison stated the legislation is approving and authorizing the filing of an application. Mr. Schonhut stated his concern over the large dollar amount and the possible rise in cost. Mr. Jamison stated if it exceeds the \$214,935.00, it will come back before Council. Mr. Schonhut pointed out the amount is only an estimate. Mayor Perciak added an estimate was all that could be given. Mr. Carbone asked if there was a maximum amount given for each home. Mr. Mikula stated the program is 75/25 and based on appraisal and demolition. Mr. Schonhut asked if Council would approve the expenditure. Mr. Jamison stated the way the legislation is worded now, no, based on section two of Ordinance No. 2016-114. Mr. Southworth asked the Finance Director, Mr. Dubovec, if the City had the funds available. Mr. Dubovec stated funds were available in the Drainage Levy. Mayor Perciak added if funds were available because a portion of the funds is already allocated.

Mr. Schonhut asked why the City is advertising for bids to widen Westwood Drive. Mr. Mikula stated this is to widen and resurface Westwood Drive at Pearl Road. This would give motorist an adequate left turn lane coming onto Pearl Road from Westwood Drive. Mr. Schonhut asked if the widening was towards the Mike Kalinich Sr. Council Chambers or towards Prospect Road. Mr. Mikula stated towards Prospect Road. Mr. DeMio asked if the City was acquiring land to construct the lane. Mr. Mikula stated the City is not acquiring any land. Mayor Perciak added the TIF (Tax Incremental Financing) can support this project. Mr. Schonhut asked how we are able to widen the lane without land acquisition. Mr. Mikula stated the City owns land on the one side and it is all within the right-of-way. Mr. Schonhut asked if the sidewalks would be shortened to accommodate the widening. Mr. Mikula stated it would be in the tree lawn area. Mr. Short asked if this is to support the development downtown. Mayor Perciak confirmed and stated this type of project qualifies for a TIF. Mr. Mikula brought the engineering map of the project and explained to all members present the project area.

Recreation and Community Services Committee: Mr. Short advised Ordinance No. 2016-117 is authorizing the Mayor to enter into a contract for the professional architectural and engineering design and consulting services in connection with the renovation of four locker rooms at the Ehrnfelt Recreation Center with TC Architects, Incorporated. The total contract amount is \$60,000.00. Mayor Perciak added it is a flat fee. The recommendation is to suspend and adopt.

Mr. Southworth asked the Recreation and Senior Center Director, Mr. Bogre, about the construction currently taking place at the recreation center. Mayor Perciak stated all the construction is electrical. Mr. Bogre added the electrical is for the new cardio equipment on the second floor. The equipment will be delivered on Wednesday and the department will begin to assemble and install the new equipment. Everything should be in by the end of the week. The recreation center is open, but the second floor is closed during the renovation.

Economic Development Committee: Mr. Daymut stated the May meeting was cancelled. The next Economic Development Committee meeting will be on Monday, June 27<sup>th</sup> at 7:00 p.m. at the Senior Center.

Committee of the Whole: Mr. Southworth advised Ordinance No. 2016-101 is amending Section 618.12 (Hunting or Trapping Prohibited) of Chapter 618 Animals of the Codified Ordinances to authorize a nuisance abatement initiative for both short term and long term control and reduction of the white-tailed deer population, in coordination with the Ohio Department of Natural Resources and contiguous, adjoining, political subdivisions that opt to adopt a similar plan for nuisance abatement. This pertains to deer culling in the City of Strongsville. The recommendation is to adopt this evening.

Mr. Daymut stated he spoke with the Assistant Building Commissioner, Mr. Foulkes, about the complaints he has received concerning the high grass located at the Brew Kettle. The grass is about four feet high. All members of Council agreed that it needs to be taken care of. Mr. Daymut thanked the Service Department for assisting him in getting the Whitney Road Bridge cleaned up. Mr. Walker stated the Service Department did contact ODOT (Ohio Department of Transportation) about the condition of the bridge. ODOT has inspected the bridge and determined it is structural sound. Mr. Walker requested ODOT replace the fencing along the bridge. After ODOT completes the fence replacement, the Service Department will clean and paint the bridge. Mr. Daymut asked if the concrete that is chipping would be repaired. Mr. Walker confirmed the Service Department will do repairs and patching.

Mr. DeMio requested during the widening of the route 82 exit project; could the area be cleaned up. Currently, the fencing is falling down. Mr. Walker confirmed the area will be cleaned up. Mayor Perciak added the project is delayed due to the early spring rains. Mr. DeMio stated he thinks it is because all the contractors are in Public Square getting the roads ready for the RNC in July.

Mayor Perciak stated on Thursday, June 2, 2016, the City had its rate calling with Moody's for the City's bonds. Mr. Dubovec and Mayor Perciak have been watching the market closely. Mayor Perciak stated the City has about \$16.8 million in bonds and the City can save about \$1.4 million. The City hopes to be out in the market shortly to refund the bonds. Mayor Perciak added the conference call went well and Moody did not request a face to face meeting in Chicago. The numbers are pristine. Moody carefully charted all the City's revenue from income tax. The City was able to justify the expenditures. Mr. Dubovec added the City should receive the official Aaa bond rating by Monday, June 13, 2016. Mayor Perciak stated the procedure will be handled differently because some of the bonds are not callable. Escrow accounts will need to be setup.

***President Southworth noted the necessity for an executive session for the purpose to discuss legal matters with the Law Director. Also present was Mayor Perciak. It was so moved by Mr. DeMio and seconded by Mr. Dooner to adjourn from open session into executive session [Article XI, Section 9, City Charter]. All members present voted aye and the motion carried. Council adjourned into executive session at 7:54 p.m. The executive session concluded at 7:59 p.m. and reconvened into open session.***

**MINUTES OF THE STRONGSVILLE CITY COUNCIL REGULAR MEETING HELD ON JUNE 6, 2016  
IN THE MIKE KALINICH SR. CITY COUNCIL CHAMBERS.**

**CALL TO ORDER:**

Council President Southworth called the meeting to order at 8:00 p.m. All joined in the Pledge of Allegiance to the Flag.

**CERTIFICATION OF POSTING:**

The Assistant Clerk of Council certified that the meeting had been posted in accordance with Ordinance No. 2004-273.

**ROLL CALL:**

**Present: Council Members:** Matthew A. Schonhut, Joseph C. DeMio, Michael J. Daymut, Duke Southworth, Kenneth M. Dooner, Gordon C. Short, and James E. Carbone. Also Present: Assistant Clerk of Council Tiffany Mekeel. **Administration:** Mayor Thomas P. Perciak, Law Director Neal M. Jamison, Finance Director Joseph Dubovec, Assistant Building Commissioner Keith Foulkes, City Engineer Ken Mikula, Service Director Joe Walker, Public Safety Director Charles Goss, Police Chief James Kobak, and Fire Chief Jack Draves.

**COMMENTS ON MINUTES:**

The Minutes of the Regular Council Meeting held on May 16, 2016 were approved as submitted.

**APPOINTMENTS, CONFIRMATIONS, AWARDS AND RECOGNITION:**

Presentation by the Strongsville St. Francis of Assisi Council of the Knights of Columbus:

At this time, the Strongsville St. Francis of Assisi Council of the Knights of Columbus presented the following awards:

- 2016 Strongsville Firefighter of the Year: Randy J. French
- 2016 Strongsville Police Officer of the Year: Mike Guminey
- 2016 Dispatcher of the Year: Sheryl Buschman

Presentation of the 2015 Strongsville Police Department recognition awards:

Police Chief Jim Kobak and Deputy Chief Mark Fender presented the following Police Department Awards, the recipients of which were chosen by a committee of their peers.

- Sgt. Greg Cravatas – Blue Collar
- Ptl. Ryan Young – Blue Collar
- Ptl. Zaki Hazou – Professionalism
- Ptl. Shamus Kelley – Professionalism
- Ptl. Brook Miller – Quality Service
- Ptl. Jason Glover – Quality Service
- Correction Officer Matt Cook – Compassion
- Correction Officer Angela Farrow – Compassion
- Stacia Bellini – Citizen
- Richard Stewart – Citizen



Presentation of the 2015 Strongsville Police Department recognition awards (cont'd):

- Robert Pfaller – Citizen
- Ronald Pfaller – Citizen
- Kevin Hardony – Citizen
- Ronaldo Sanchez - Citizen

**PUBLIC HEARING:**

**Ordinance No. 2016-072** by Mr. Daymut. AN ORDINANCE AMENDING THE ZONING MAP OF THE CITY OF STRONGSVILLE ADOPTED BY SECTION 1250.03 OF TITLE SIX, PART TWELVE OF THE CODIFIED ORDINANCES OF STRONGSVILLE TO CHANGE THE ZONING CLASSIFICATION OF CERTAIN PROPERTY LOCATED AT 19132 TEMPLE DRIVE (PPNs 393-19-016 and 393-19-017) IN THE CITY OF STRONGSVILLE, FROM PF (PUBLIC FACILITIES) CLASSIFICATION TO OB (OFFICE BUILDING) CLASSIFICATION. *First reading and referred to Planning Commission 04-04-16. Favorable recommendation by Planning Commission 04-14-16. Second reading 04-18-16.*

*Council President Southworth opened the Public Hearing on this matter and invited anyone wishing to speak **IN FAVOR** of the Ordinance to approach the podium and address Council at this time.*

Marty DiMichele, 6601 Smith Road, Brook Park, OH: My name is Marty DiMichele. I'm the owner of Rise Properties, current owner of that building.

Mr. Southworth – Did you state your address?

Mr. DiMichele – My home address?

Mr. Southworth – Yes, your home address, please.

Mr. DiMichele – Or the business address?

Mr. Southworth – Which ever.

Mr. DiMichele – The business address is 6601 Smith Road, Brook Park.

Mr. Southworth – Okay, great. Go on.

Mr. DiMichele – As a Mason, I purchased this building; because I was a Mason, I was asked to help the owners of the building. It was also, a charge of mine, to find a suitable use for something that was considered a very old building. It was built as a Masonic Temple but also use it in a very respectable manner that would not impact the neighborhood but also not be detrimental to the use of that building. The current buyer for the building, Amy Bednar, I believe fits that description quite well. I think there is a very minimal impact to the privacy of the neighborhood. When it was a Masonic Temple, there would be evening gatherings there. There could be different gatherings during the day. In this instances, it would be a 9-5. There are no clients that come there. This is strictly office. Keeps it nice and quiet and this is a business that thrives on anonymity. So I believe that it's a good use for the building. I've spoken to many people within the City; your Development Director and worked with him directly to try to find a suitable use for this building. I've been maintaining it out of my holding company that, you know I am in the auto repair and towing business, and I own a number of different properties, but I've been maintaining that at my cost to make sure that it doesn't look bad or impact the neighborhood in any negative way. It is my wish that we find a, again, a suitable use that everybody's happy with. I would respectfully ask for some consideration tonight, if possible.

**PUBLIC HEARING (cont'd):**

Mr. DiMichele (cont'd) – I understand how it works, but, my buyer does need to vacate her current premises and needs to stay in business. We would appreciate that consideration tonight. Thank you.

Mr. Southworth – Thank you. Is there anyone else who wishes to address Council in favor of this?

Amy Bednar, 908 Kendal, Broadview Heights, OH: Good evening. My name is Amy Bednar and I live in Broadview Heights. If you need that information, its 908 Kendal and I am the potential buyer of the property that was just spoke about. I've owned my business, Relentless Recovery for 16 years and we currently are trying to run a corporate office as a same location as a storage facility for vehicles and that is not working. It's not conducive to our business model. I need a quiet, professional environment for roughly 10-15 employees to come to work from 9-5 every day and provide customer service to the banks, who are our clients. There would be virtually no impact to the neighborhood. Anonymity is needed because of the vehicle repossessions that are performed by the tow trucks. This is all happening from our corporate office, which is currently at 1898 Scranton Road, in Cleveland. I am here to answer any questions you might have about that or about the nature of what we do.

Mr. DeMio – You mentioned towing companies, so of course that peaks our interest...

Mrs. Bednar – Right.

Mr. DeMio – No towing trucks there?

Mrs. Bednar – No, no, towing company. I need to have an environment where my customer service reps can come to work every day and not be intermingled with the transportation and towing end of our business. Where they can just go into an office environment with no tow trucks, no vehicles being stored and just handle customer service for our clients which are large banks and lenders, without any distraction.

Mr. DeMio – May I ask where the tow trucks are, if they're not going to be here.

Mrs. Bednar – We have 11 locations throughout the State of Ohio and we need a corporate office without vehicle storage and without tow trucks. So our storage facility for this area would remain at the 1898 Scranton. Where we've been for about 10 years.

Mr. DeMio – If I may now ask the Law Director a question. So, if this was approved, they could not bring trucks into that designated area, since it would be an office or is that incorrect?

Mr. Jamison – You're correct.

Mr. DeMio – They could not.

Mr. Jamison – Correct.

Mr. Short – How many employees do you anticipate being at the corporate headquarters...

Mrs. Bednar – 10 to 15.

Mr. Short – Do you expect future growth in that or is that a pretty stagnate...

Mrs. Bednar – There's not really room for future growth. It's not our company motto, nor would they fit in the building. So no, not really.

**PUBLIC HEARING (cont'd):**

Mr. Short – Thank you.

Mr. DeMio – To follow-up our Ward Councilman in that area, what's the general salary, if you could.

Mrs. Bednar – Probably around \$40,000.00.

Mr. DeMio – Per employee?

Mrs. Bednar – Yes.

Mr. DeMio – Thank you.

Mrs. Bednar – You're welcome.

Mr. DeMio - No more from me.

Mrs. Bednar – Okay.

Mr. Southworth – Any other questions?

(None)

Mr. Southworth – Thank you. Is there anyone else who wishes to address Council in favor of this ordinance?

(None)

*Mr. Southworth then invited anyone wishing to speak **IN OPPOSITION** of the Ordinance to approach the podium and address Council.*

(No one spoke in opposition)

Hearing no further comments in regard to this matter, Council President Southworth closed the Public Hearing on said Ordinance.

**REPORTS OF COUNCIL COMMITTEES:**

**SCHOOL BOARD – Mr. Carbone:** Yes, Mr. Southworth, at the last school board meeting, the Board Facilities Development Committee did a presentation to the school board. They evaluated the property on Albion, which is Drake School. The property no longer...they took into account the property no longer fits into their 30 year plan. They gave the recommendation to the board to put the property and building to auction. Establish a minimum bid. Use a real estate attorney for the auction. The expectation is that the board and I, because it is in my Ward, will have a public meeting on June 15, 2016 at 6:30 to hear the concerns or hear some input from some residents. If there is no sale, if the facilities committee and the school board do not believe that this, even if somebody makes an offer on the property, but doesn't believe it's a good fit for that area, they will not go along with the sale. If that's the case, demolition of the building will go as planned. They also introduced Rob Pietruszka with Progressive Poured Walls. Rob was a 1993 graduate of Strongsville High School. We actually played football together. Ran track together...made a \$100,000.00 donation to the Excellence in Athletics Campaign and he will have naming rights for the next 10 years with Progressive Poured Walls on the track.

**REPORTS OF COUNCIL COMMITTEES (cont'd):**

**SCHOOL BOARD – Mr. Carbone (cont'd):** Project Lead the Way...this is modifications to computer labs, office buildings, or offices and equipment for our middle school. There was more change orders...just for our other buildings, such as sidewalks, parking lots and heating and cooling and roofing. Lastly and right now probably more importantly, the teachers and the school board negotiated a three year contract. The first year in the contract is 1.5%, the second year is 1.5% and the third year is 1%. With the three year agreement, the district believes, over the three years, they'll save just under a half a million dollars. All great things coming from the district. That ends my report.

Mr. Southworth – Thank you...

Mr. DeMio – Duke, I gotta ask the obvious question.

Mr. Southworth – Did he tackle him?

Mr. DeMio – How did you even make the track team?

Mr. Southworth – I knew it had something to do with Jimmy's high school career.

Mr. DeMio – Let's be honest, you were always watching from behind, right?

Mr. Carbone – I had a bad hamstring.

Mr. Southworth – Are there any questions about Mr. Carbone or his other high school activity? I don't think we want to open up that door.

Mr. Carbone – I'm bringing my highlight film.

Mr. Southworth – That's got to be the best 5 seconds on tape.

Mr. Daymut – Is that an 8mm Jim?

Mr. Southworth – That's right. That was back before the walkies.

Mr. Carbone – I wonder why I don't have any hair.

**SOUTHWEST GENERAL HEALTH SYSTEM – Mr. Southworth:** I did go to the last board meeting. This was the first board meeting that I've been able to go to in a month or so. Great time sitting down with the new CEO and seeing what his vision is. He is concentrating on employee retention and improving the conditions. The theory being the better quality employees, the better care. So much of the care and patience experience is tied into reimbursements now. This should work out. There are other things that I have to say, having said that, I don't know if it's public. I will wait until the next Council meeting to say what was discussed. If there are any questions, I'd be more than happy to answer.

(None)

**REPORTS OF COUNCIL COMMITTEES (cont'd):**

**BUILDING AND UTILITIES – Mr. Schonhut:** Thank you Mr. Southworth, Building and Utilities as well as Communications and Technology; I have nothing to report tonight but I will happily take any questions for either committee.

**COMMUNICATIONS AND TECHNOLOGY – Mr. Schonhut:**

\* See Building and Utilities above \*

Mr. Southworth – Are any other questions for Mr. Schonhut?

(None)

**ECONOMIC DEVELOPMENT – Mr. Daymut:** Thank you Mr. Southworth. We have no ordinances or resolutions on this evening's agenda. Our next meeting will be Monday, June 27<sup>th</sup> at 7:00 p.m. at the senior center. That's all I have this evening, thank you very much.

Mr. Southworth – Thank you Mr. Daymut, are there any questions for Mr. Daymut?

(None)

**FINANCE – Mr. Dooner:** Thank you Mr. Southworth. We also have no ordinance or resolutions before Council this evening.

Mr. Southworth – Thank you Mr. Dooner, are there any questions for Mr. Dooner?

(None)

**PLANNING, ZONING AND ENGINEERING – Mr. Daymut:** Thank you Mr. Southworth. Planning, Zoning, and Engineering met this evening and gave favorable recommendation to Ordinance No. 2016-072. This was what we had the public hearing on. This is to change the zoning at 19132 Temple Drive from Public Facility to Office Building. Ordinance No. 2016-114 received a favorable recommendation. This is the filing an application with FEMA grant program for acquisition and demolition of certain homes on Rock Creek Circle. Resolution No. 2016-115 received a favorable recommendation. This is to advertise for bids for the Westwood Drive widening project. Resolution No. 2016-116 received favorable to advertise for bid for the sanitary sewer rehabilitation program for 2016. That is all I have this evening Mr. Southworth, thank you very much.

Mr. Southworth – Thank you Mr. Daymut, are there any questions for Mr. Daymut?

(None)

**PUBLIC SAFETY AND HEALTH – Mr. DeMio:** We have a very large agenda tonight, so with that said, does anybody have any question for Police, Fire? No, I just want to say, what an awesome group of men and women we had here tonight. I think that speaks volumes of our Police and Fire and the civilians were awesome too. Let's not forget that. I want to thank you, because again, when you allow us to deal with our directors directly, it's easier to the residents...Mr. Kobak, Chief Kobak, helped a resident regarding traffic issues on Pearl during the construction phase. What I like to call the revitalization of Pearl Road. He was very annoyed, I think Chief that was fair to say, but I think some good things came out of it and I've seen some tweaks over there. I want to thank you for the time. Mayor, thank you for allowing us to talk directly to the directors because there was a time when we couldn't do those things. So, I want to point that out.

**REPORTS OF COUNCIL COMMITTEES (cont'd):**

**PUBLIC SAFETY AND HEALTH – Mr. DeMio (cont'd):** Without saying it, our Police, Fire and EMS really the whole group from head to tail. We may not agree with every little nick and crony but I've got to tell you something, they do a very nice job. I witness it downtown at the end of disposition. All those files. Even if it's a wrongful death case, were your EMS folks come in...or your criminal case, which come to me as well. I just want to put that on the record. They do a great job. Does anybody have anything for the Police, Fire?

Mr. Southworth – No.

Mr. DeMio – Close it please.

Mr. Southworth – Okay.

**PUBLIC SERVICE AND CONSERVATION – Mr. Carbone:** Yes, I have no resolutions or ordinances this evening but I did want to just state a thank you to all the business owners on Pearl Road for their continued patience with the resurfacing. We know it's kind of an inconvenience for their patrons to enter their businesses. I've talked with a couple that reached out and I really do appreciate their patience with that. When that project is done, I mean, it's going to be really nice. I think they know the end result there, but again, we appreciate your patience. That's it.

Mr. Southworth – Thank you Mr. Carbone, are there any questions for Mr. Carbone?

(None)

**RECREATION AND COMMUNITY SERVICES – Mr. Short:** Thank you Mr. Southworth, we have one ordinance before Council tonight, 2016-117. This is to allow the Mayor to enter into a contract with the architectural firm for the renovation of four locker rooms at the rec center. This is the only ordinance we have before Council tonight. One announcement, the new equipment is being installed and is on schedule. The rec center cardio room should be back open this Monday, June 13<sup>th</sup> with the latest and greatest in cardio fitness equipment. We're excited about this. We encourage members to come check it out. If you're not a member of the rec center, come visit as well. We think you will be very pleased with what the City has done to upgrade and bring the rec center up to speed in terms of cardio equipment. That is all I have Mr. Southworth.

Mr. Southworth – Thank you Mr. Short, are there any questions for Mr. Short?

(None)

**COMMITTEE OF THE WHOLE – Mr. Southworth:** We do have one ordinance on this evening's agenda. This is Ordinance No. 2016-101. We've already had three readings on this. We will be voting to adopt this evening. This is for the deer calling which was passed in five communities...six communities, so we're all passing it on third readings. Couple other items. I want to thank Aimee Pientka and the Mayor for helping host the ethics seminar last Wednesday, which was incredibly informative. Usually when you go to a CLE, it's...you've got to get the coffee and try to stay awake. This one was very entertaining. I think Matt certainly appreciated everything.

Mr. Schonhut – I took more heat there then I do up here. I really don't know how that worked out.

Mr. Southworth – I don't know how that happen but it certainly did. It turned into a Matt Schonhut Roast. It was incredibly informative and well attended. We were able to invite many of our neighboring communities. I think we even had other mayors...

**REPORTS OF COUNCIL COMMITTEES (cont'd):**

**COMMITTEE OF THE WHOLE – Mr. Southworth (cont'd):**

Mayor Perciak – Yes we did.

Mr. Southworth – And other Council members, other Law Directors and other Clerks. These types of functions are always good. Sometimes, people don't intend to do anything unethical but sometimes little things come up. It's good to get the refresher course. It's good to sit down and talk with other people in other communities. See how they do things and how we do things and what works and doesn't work. I want to thank the Mayor again for being kind and providing excellent pastries, the venue, his attendance and helping make that happen. To Aimee, who really did quite a bit and Tiffany, for being there and helping in the process. The third item I want to discuss, on Friday night at 6:30 at the Strongsville United Methodist Church, there is a drug and alcohol awareness community forum for all those willing to attend. You don't have to be a church member. When you read the papers...I was just reading the headline about the heroin epidemic. There is heroin everywhere. Strongsville included. No community is safe and having a church put on such a forum and draw awareness to this issues. I believe we just had a Police Officer who received an award because he was able to work with someone who was suffering from addiction. It really does effect everybody, no matter where they live. It will be...I am thankful for the Methodist Church for putting that on. That is all I have for this evening. If there are any questions, I'd be more than happy to answer.

(None)

**REPORTS AND COMMUNICATIONS FROM THE MAYOR, DIRECTORS OF DEPARTMENTS AND OTHER OFFICERS:**

**MAYOR PERCIAK:** Thank you Mr. President. Just one reminder, the City Club will be again presenting their Annual Rib Burn Off here on The Commons beginning Thursday, June 16<sup>th</sup> and will conclude on Saturday, June 18<sup>th</sup>. Less than two weeks. Anyone who needs tickets or anything, feel free to contact Charlie Goss and he'll arrange it for you. We will be happy to accommodate you there on our Commons which is the first of many, many activities this year as the City continues to celebrate their 200<sup>th</sup> anniversary. The City Club will be joining with us and there will be some special treats there for the 200<sup>th</sup> anniversary. Charlie, do you want to talk about it at all?

Mr. Goss – I'll just add that everyone that visits the Rib Burn Off this year that goes through the gate will receive a free commemorative 200<sup>th</sup> anniversary mug. A glass mug. Try to make it out to the Rib Burn Off and take home a souvenir.

Mayor Perciak – Thank you Charlie and that ends my report, Mr. President.

Mr. Southworth – Thank you Mr. Mayor.

**FINANCE DEPARTMENT – Mr. Dubovec:** Thank you Mr. President, funds will be made available for all ordinances and resolutions on this evening's agenda requiring certification of funding. That's ends my report, thank you.

Mr. Southworth – Thank you Mr. Dubovec.

**LAW DEPARTMENT – Mr. Jamison:** Thanks Mr. President. All the ordinances and resolutions on tonight's agenda are in proper legal form; that concludes my report.

Mr. Southworth – Thank you Mr. Jamison.

**AUDIENCE PARTICIPATION:**

Mr. Southworth – We've reached the portion of our meeting for audience participation. Comments are limited to five minutes. We do have a sign-in sheet. Is there a Deborah Cottrell? If you could please come to the podium and state your name and address for the record.

Deborah Cottrell, 17149 Misty Lake Drive, Strongsville, OH 44136: My name is Debbie Cottrell. My address is 17149 Misty Lake Drive. I asked Mrs. Mekeel to hand these out to everybody (*\*\*A copy of the handout is attached to the back of the minutes.\*\**). I would have given everybody colored copies, but, there \$0.59 a page. The reason I am here is...I just want to talk a little bit about that new slip ramp that they're talking about. The first section of this thing is, basically, I went through what ODOT has given you and I pulled out some interesting facts. The one fact says that Strongsville wants a long-term solution. Whereas if you look down in number two, Background; the State wasn't going to give us a long-term. They were interested in a short or medium-term and I don't know what you would do with a ramp, if it's only temporary. All the items listed as recently implemented, is a short-term improvements. We're not made for the target of I-71 S/ 82 W/Howe Road South as listed on the report. If you go through the different parts in there. It's really kind of confusing, because one page says one thing and the other page contradicts it. The formal study was completed in 2012. Now 2012 is four years, you know, in the past. This isn't going to take place for another couple years, I'd imagine. We have to make sure that whatever they give us is really up to date. My big point of confusion is something that I am concerned about. During the conclusions and recommendations, they talked about how many cars go through the intersection of 82 and Howe. They said it's between 45,000 and 60,000 a day. With this new slip ramp, they had predicted, I forgot to put that number in, they're predicting 7,000. With the numbers they gave with that, they were nearly 400 vehicles in the morning and over 800 in the evening. Which to me adds up to 1,200. I'm wondering, will that really make a major difference on Howe Road and 82. If we're only talking 1,200; yet there are 45,000 to 60,000. I don't know that it would make an important dent in that. Let alone to take away safety from the families that live right on Howe Road or on Shurmer. It's going to be tough for those children. If they can't go across the street to see their friends. This report is dated November 2015; however, there are a lot of different records in the reports that dated from 2010 up to 2015. It's not really accurate. Brunswick, dating back to 2001 has repeatedly refused to take on such a project; however, a slip ramp connected to I-71 and 303 is the next project ODOT is looking at. I think that lets us know how ODOT feels about Boston Road. The next part are my suggestions. If there is a no build, we really do need to improve the signage to help people get in the right lanes. I think a lot of the reasons for these accidents, people don't know which way to go. If we would have several signs on I-71 so they at least know what lane to get into on the ramp. I think that could help. The other suggestion is perhaps we could use the turnpike exit...

Mr. Southworth – One minute.

Ms. Cottrell – I'm done?

Mr. Southworth – No, you have one more minute...I'm giving you...one more minute.

Ms. Cottrell – Okay, one more minute?

Mr. Southworth – Yes, you have one more minute.

Ms. Cottrell – I put pictures of the turnpike exit in the back of this. Right now, we cannot take the turnpike exit off of 71 and get onto Pearl; however, with a small amount of work, it could easily be done. Number 3, since we have to pay for the ramp, I say we build it at Boston Road. Our property...isn't Strongsville...that's Strongsville's property. Unless a mistake, a little line in the middle of street going north is ours. Brunswick won't have anything to say about it. We'd be happy.



**AUDIENCE PARTICIPATION (cont'd):**

Ms. Cottrell (cont'd) – If it is built, the big thing, the big concern, no trucks or buses would be allowed and to create safe areas. The last date used for the study of the intersection I-71/Royalton/Howe was in 2012. ODOT is expected to begin that other slip ramp project after Strongsville. I guess Brunswick has the money to do that. Thank you very much.

Mr. Southworth – Thank you. Is there anyone else that would like to address Council at this time?

(No Comments)

**ORDINANCES AND RESOLUTIONS:**

**Ordinance No. 2016-072** by Mr. Daymut. AN ORDINANCE AMENDING THE ZONING MAP OF THE CITY OF STRONGSVILLE ADOPTED BY SECTION 1250.03 OF TITLE SIX, PART TWELVE OF THE CODIFIED ORDINANCES OF STRONGSVILLE TO CHANGE THE ZONING CLASSIFICATION OF CERTAIN PROPERTY LOCATED AT 19132 TEMPLE DRIVE (PPNs 393-19-016 and 393-19-017) IN THE CITY OF STRONGSVILLE, FROM PF (PUBLIC FACILITIES) CLASSIFICATION TO OB (OFFICE BUILDING) CLASSIFICATION. *First reading and referred to Planning Commission 04-04-16. Favorable recommendation by Planning Commission 04-14-16. Second reading 04-18-16.*

**Motion to adopt by Mr. Dooner, second by Mr. DeMio.**

**Roll Call: Ayes, Mr. Southworth, Mr. Dooner, Mr. Short, Mr. Daymut.  
Nays, Mr. DeMio, Mr. Carbone, Mr. Schonhut.**

**Motion carries.**

**Ordinance No. 2016-072 ADOPTED.**

**Ordinance No. 2016-101** by Mayor Perciak and All Members of Council. AN ORDINANCE AMENDING SECTION 618.12 (HUNTING OR TRAPPING PROHIBITED) OF CHAPTER 618 ANIMALS OF PART SIX-GENERAL OFFENSES CODE OF THE CODIFIED ORDINANCES OF THE CITY TO AUTHORIZE A NUISANCE ABATEMENT INITIATIVE FOR BOTH SHORT TERM AND LONG TERM CONTROL AND REDUCTION OF THE WHITE-TAILED DEER POPULATION, IN COORDINATION WITH THE OHIO DEPARTMENT OF NATURAL RESOURCES AND CONTIGUOUS, ADJOINING, POLITICAL SUBDIVISIONS THAT OPT TO ADOPT A SIMILAR PLAN FOR NUISANCE ABATEMENT, AND DECLARING AN EMERGENCY. *First reading 05-02-16. Second reading 05-16-16.*

**Motion to adopt by Mr. Dooner, second by Mr. DeMio.**

**Roll Call: All ayes. Motion carries.**

**Ordinance No. 2016-101 ADOPTED.**

**ORDINANCES AND RESOLUTIONS (cont'd):**

**Ordinance No. 2016-114** by Mayor Perciak and All Members of Council. AN ORDINANCE APPROVING AND AUTHORIZING THE FILING OF AN APPLICATION WITH THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), UNDER THE HAZARD MITIGATION ASSISTANCE GRANT PROGRAM, FOR ACQUISITION AND DEMOLITION OF CERTAIN HOMES ON ROCK CREEK CIRCLE, AND DECLARING AN EMERGENCY.

Motion by Mr. Dooner to suspend the rules requiring every ordinance or resolution to be read on three different days, second by Mr. DeMio. All members present voted aye and the motion carried.

**Motion to adopt by Mr. Dooner, second by Mr. DeMio.**

**Roll Call: All ayes. Motion carries. Ordinance No. 2016-114 ADOPTED.**

**Resolution No. 2016-115** by Mayor Perciak and Mr. Daymut. A RESOLUTION AUTHORIZING THE MAYOR TO ADVERTISE FOR BIDS FOR THE WESTWOOD DRIVE WIDENING PROJECT IN THE CITY OF STRONGSVILLE, AND DECLARING AN EMERGENCY.

Motion by Mr. Dooner to suspend the rules requiring every ordinance or resolution to be read on three different days, second by Mr. DeMio. Ayes, Mr. Short, Mr. Carbone, Mr. DeMio, Mr. Daymut, Mr. Southworth, Mr. Dooner. Nays, Mr. Schonhut. The motion carried.

**Motion to adopt by Mr. Dooner, second by Mr. DeMio.**

**Roll Call: Ayes, Mr. Carbone, Mr. DeMio, Mr. Daymut, Mr. Southworth, Mr. Dooner, Mr. Short.  
Nays, Mr. Schonhut.**

**Motion carries. Resolution No. 2016-115 ADOPTED.**

**Resolution No. 2016-116** by Mayor Perciak and Mr. Daymut. A RESOLUTION AUTHORIZING THE MAYOR TO ADVERTISE FOR BIDS FOR THE SANITARY SEWER REHABILITATION PROGRAM FOR 2016, AND DECLARING AN EMERGENCY.

Motion by Mr. Dooner to suspend the rules requiring every ordinance or resolution to be read on three different days, second by Mr. DeMio. All members present voted aye and the motion carried.

**Motion to adopt by Mr. Dooner, second by Mr. DeMio.**

**Roll Call: All ayes. Motion carries. Resolution No. 2016-116 ADOPTED.**

**ORDINANCES AND RESOLUTIONS (cont'd):**

**Ordinance No. 2016-117** by Mayor Perciak and Mr. Short. AN ORDINANCE AUTHORIZING THE MAYOR TO ENTER INTO A CONTRACT FOR PROFESSIONAL ARCHITECTURAL AND ENGINEERING DESIGN AND CONSULTING SERVICES IN CONNECTION WITH THE RENOVATION OF FOUR LOCKER ROOMS AT THE CITY'S EHRNFELT RECREATION CENTER, AND DECLARING AN EMERGENCY.

Motion by Mr. Dooner to suspend the rules requiring every ordinance or resolution to be read on three different days, second by Mr. DeMio. Ayes, Mr. Daymut, Mr. Southworth, Mr. Dooner, Mr. Short, Mr. Carbone, Mr. DeMio. Nays, Mr. Schonhut. The motion carried.

**Motion to adopt by Mr. Dooner, second by Mr. DeMio.**

**Roll Call: Ayes, Mr. Southworth, Mr. Dooner, Mr. Short, Mr. Carbone, Mr. DeMio, Mr. Daymut.  
Nays, Mr. Schonhut.**

**Motion carries.**

**Ordinance No. 2016-117 ADOPTED.**

**COMMUNICATIONS, PETITIONS AND CLAIMS:**

(None)

**MISCELLANEOUS BUSINESS:**

Mr. Southworth – Is there any miscellaneous business?

Mr. DeMio – Yes, if you don't mind. Will you enter this into the record. Duke, the GIS Analysis, I'd like every Councilmen, the Law Director, the Mayor, Safety Director, Chief of Fire...might as well give it to Chief of Police as well. Get them a copy of this.

Mrs. Mekeel – Okay.

Mr. DeMio – This will be a part of maybe, we may discuss this at the June 20<sup>th</sup> meeting.

Mrs. Mekeel – Okay.

Mr. DeMio – Okay. I just need the original back. I told the...them I'd do that.

Mr. Southworth – Okay, thank you Joe. Is there any other miscellaneous business?

(No Comments)

**ADJOURNMENT:**

There being no further business to come before this Council, President Southworth adjourned the meeting at 8:59 p.m.

Signature on File  
Tiffany Mekeel, CMC  
Assistant Clerk of Council

June 20, 2016  
Date of Approval

**GEOGRAPHIC INFORMATION SYSTEM  
EMERGENCY SERVICES RESPONSE CAPABILITIES  
ANALYSIS**



*International Association of Fire Fighters  
1750 New York Avenue, N.W.  
Washington, DC 20006*

**STRONGSVILLE FIRE DEPARTMENT**  
STRONGSVILLE, OHIO

2015



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*Dedication*

*This Report is Dedicated to the Citizens of Strongsville, Ohio, who Deserve  
the most Efficient and Effective Fire, Rescue, and Emergency Medical  
Services Available.*



### **Points of Discussion**

- **The National Fire Protection (NFPA)<sup>®</sup>, a standard writing organization that follows a process approved by the American National Standards Institute, created NFPA 1710: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*. This document states the number of personnel required to respond to a typical 2,000 square foot residential structure fire is 15 firefighters. Strongsville Fire Department currently staffs below this minimum requirement with 13 firefighters daily.**
- **Browning out engines and firefighters responding to structure fires will increase property and business owners' financial losses and increase the likelihood of fire related injuries and deaths.**
- **EMS transport provided by the Strongsville Fire Department is dedicated to the City and only responds to emergency requests.**
- **Response to EMS incidents should not come at the expense of fire protection. The Strongsville Fire Department should eliminate the practice of reducing fire protection to staff ambulances by increasing daily staffing.**
- **The Strongsville Fire Department has grown with the city to meet the ever-changing needs of the citizens. EMS currently places the highest demand on the fire department. However, the provision of EMS leads to the cross-staffing of fire suppression apparatus so that the City is incapable of adequately meeting the demands on the public health and safety system.**

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# Executive Summary

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The International Association of Fire Fighters (IAFF) Headquarters was engaged by the Strongsville Firefighters Association to provide information and resources to decision makers in Strongsville regarding a practice that reduces fire protection as a means of staffing ambulances and fire suppression units to meet demand. Currently, the Strongsville Fire Department, herein to be referred to as the Department, staffs four ambulances to meet demand. However, the Department requires personnel in each fire station to cross-staff all the apparatus in the stations. This practice places available fire apparatus out of service and reduces the Department's ability to reduce the impacts of fire on the community. It should also be noted that the Department staffs fire suppression apparatus below effective and safe staffing levels required by industry standards and the Occupational Safety and Health Administration (OSHA) rules and regulations. Because of this, the Department must provide fire-based EMS to meet these staffing requirements. This document will discuss the importance of maintaining fire-based EMS patient transport in the City and provide personnel to staff fire suppression apparatus at all times.

Providing fire-based EMS patient transport and advanced life support (ALS) first response is a benefit to the citizens and government of Strongsville. For the citizens, it provides a value-added service to public safety readiness and the fire protection that they pay for through property taxes. For the government, it provides direct control over a service that impacts the lives and safety of the citizens, investments in property, and preparedness for emergencies, both small and large. However, improperly staffed apparatus reduces the capacity of the Department to respond to emergencies while increasing the likelihood of fatigue and injury of responders.

Fatigue among responders could result in an increase in adverse events in patient care. Additionally, the current practice of cross-staffing fire apparatus to meet EMS demand dramatically impacts the Department's ability to address multiple requests for emergency service and could delay response to other requests for assistance. These delays in response will be the result of a lack of available fire apparatus due to daily reductions in service.

The Strongsville Fire Department is a municipal fire department in Cuyahoga County, Ohio. The Department provides fire suppression, technical rescue, and EMS transport and first response at the Advanced Life Support (ALS) level to a total area of 24 square miles with an estimated 2014 population of 44,645.<sup>1</sup> The Department maintains four fire stations which are staffed daily with a minimum of 13 career employees. This includes a Captain that oversees operations on a daily basis. In addition to all-hazard emergency responses, the Department

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<sup>1</sup> City of Strongsville website: [http://factfinder.census.gov/faces/nav/jsf/pages/community\\_facts.xhtml](http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml)

performs other services for the City such as fire prevention and safety programs, which include fire-safety inspections.

A brief risk analysis was performed on the City to assess the need for emergency services. A further assessment of the 2013 U.S. Census revealed that 21.9% of the population was in a vulnerable category. This category consists of persons under the age of 5 (4.9%) and persons 65 years of age and older (17%), but does not include the special needs population. Additionally, 5% of the population is living at or below the poverty level. There are 18,135 housing units with the majority being single family residences (83.2%) and the remainder being multifamily (16.6%), and mobile homes (0.2%). Of these structures, 21.9% are of pre-1970 construction, and 2.7% of these were built in 1939 or earlier. Typically, when there are high numbers of vulnerable citizens and older buildings constructed before many current fire codes were developed, there is an increased demand on emergency services.

In addition to these demographics, which show a notable risk, the City is also impacted by a number of high-hazard occupancies. Among structures in the City, there are five apartment or condo structures anywhere from three to six stories in height. There are three major industrial areas in the city, and seven assisted living centers. One of the assisted living centers is over seven stories. Finally, there are two older apartment complexes that are six stories that do not have sprinkler systems or standpipes. These types of occupancies increase the City's risk for fire related injuries and deaths, as well as increased demand on EMS. However, if the Department continues the practice of closing fire apparatus to meet EMS demand it may be unable to respond and contain fires in these high-risk environments in a timely manner.

The provision of fire protection is an essential service that governments must provide. EMS, although not typically considered an essential service, is one that the citizens have come to expect and appreciate from the government. However, in order for this service to be effective and efficient, it must be staffed and positioned appropriately to address emergencies in an equitable manner, as they occur. The current staffing design of the Department is inconsistent with national performance standards for response to fire and EMS incidents. Using the same personnel to cross-staff fire suppression apparatus as well as the medic units negatively impacts responses and emergency incident mitigation.



The IAFF used facts, evidence-based research and industry standards in the assessment of the Strongsville Fire Department. The National Fire Protection Association (NFPA) produced NFPA 1710 *Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*. NFPA 1710 is the consensus industry standard for career firefighter deployment, including requirements for fire department arrival time, staffing levels, and fireground responsibilities.<sup>2</sup>

### Key Findings

- The Strongsville Fire Department distribution of service falls below national standards. Currently, engines are only able to cover 49.6% of the roads in Strongsville within 4-minutes of travel time if all units are available upon dispatch. The Department has gaps in initial 4-minute response coverage in large parts of the city. Areas of the city without coverage are significantly composed of assisted living facilities and buildings without sprinklers. Removing fire apparatus from service to cross-staff ambulances to meet EMS demand increases gaps in service by reducing the likelihood an effective firefighting force can assemble in 8 minutes or less.
- Current staffing procedures cross-staff first response fire suppression apparatus at all stations, thus leaving the city at dangerous staffing and deployment levels if a structure fire may occur. There have been times all EMS units from every fire station have been out at the same time, therefore leaving the entire city without any fire protection.
- Strongsville's fire suppression companies are staffed with three personnel. Apparatus not staffed with a minimum of four firefighters are not in compliance with the company staffing objectives outlined in NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, and NFPA 1710.

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<sup>2</sup> NFPA 1710, 2010



## Conclusion

In conclusion, the Department must adjust current staffing procedures and stop the practice of cross-staffing engine and medic units. Additional fire fighters must be hired, trained, and added to the shifts so engine companies and medic units are staffed full time, 24 hours a day.

Due to current fire station locations, an additional fire stations need to be built in the future, deploying additional adequately staffed apparatus to achieve a 4-minute initial unit arrival and 8-minute full alarm assembly coverage. Current fire station locations negatively impact the Department's ability to safely, effectively, and efficiently respond to fires, rescue situations, and requests for EMS service. As of now, the Department has a lack of response coverage in the central part of the city where the old fire station used to be located.

# Introduction

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The International Association of Fire Fighters (IAFF) Headquarters was engaged by the Strongsville Firefighters Association, Local 2882 to create an information document for decision makers in Strongsville to assist with informed decisions regarding the use of cross-staffing fire apparatus and medic units.

The provision of fire protection is an essential service that governments must provide. In many states, EMS is not considered an essential service, but it has become an expectation that it be provided by the City as well. However, in order for this service to be effective and efficient, it must be staffed and managed appropriately to address emergencies in an equitable manner. Cross-staffing EMS transport units with engine company personnel decreases the level of fire protection that the Department provides to the citizens and negatively affects everyone in the City. Similarly, it can also lead to delays in response of medic units to time critical emergency medical and trauma incidents.

The information provided in this document is designed to help decision makers understand the depth of fire department operations and how a reduction in fire protection negatively impacts responders and the City alike.

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# Fire Suppression Operations

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The business of providing emergency services has always been labor intensive, and remains so today. Although new technology has improved firefighting equipment and protective gear and has led to advances in modern medicine, it is the firefighters who still perform the time-critical tasks necessary to contain and extinguish fires, rescue trapped occupants from a burning structure, and provide emergency medical and rescue services.

In less than 30 seconds a small flame can burn out of control and become a major fire. During fire growth, the temperature of a fire rises to between 1,000° and 1,200° F. It is generally accepted in the fire service that for a medium growth rate fire,<sup>3</sup> flashover--the very rapid spreading of the fire due to super heating of room contents and other combustibles—can occur. Assuming an immediate discovery of a fire, followed by an un-delayed call to 9-1-1, and dispatch of emergency responders, flashover is likely to occur within 8 minutes of fire ignition. It is also worth noting that flashover may occur more quickly depending on newer building construction materials and room contents that act as fuel.

At the point of flashover, the odds of survival for unprotected individuals inside the affected area are virtually non-existent. The rapid response of an appropriate number of firefighters is therefore essential to initiating effective fire suppression and rescue operations that seek to minimize fire spread and maximize the odds of preserving both life and property. The SFD staffs below the appropriate number of 15 personnel required for response to what is considered a low-hazard structure fire. A low-hazard structure fire is a fire in a typical, 2,000 square foot, single-family residential home with no basement or exposures.<sup>4</sup> Cross-staffing fire apparatus to meet EMS demand reduces the Departments ability to respond to structure fires and increases the risk to the community. This personnel reduction will impede fireground tactics and increase property loss as result of fire and smoke damage. Additionally, reducing personnel increases the likelihood of fire related injuries and deaths for responders and citizens alike.

This section will explain fire growth and the importance of fire department response.

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<sup>3</sup> As defined in the *Handbook of the Society of Fire Protection Engineers*, a fast fire grows exponentially to 1.0 MW in 150 seconds. A medium fire grows exponentially to 1 MW in 300 seconds. A slow fire grows exponentially to 1 MW in 600 seconds. A 1 MW fire can be thought-of as a typical upholstered chair burning at its peak. A large sofa might be 2 to 3 MWs.

<sup>4</sup>NFPA 1710, 2016 ed. Pg. 1710-16 A.4.1.2.5.1



## **Fire Growth**

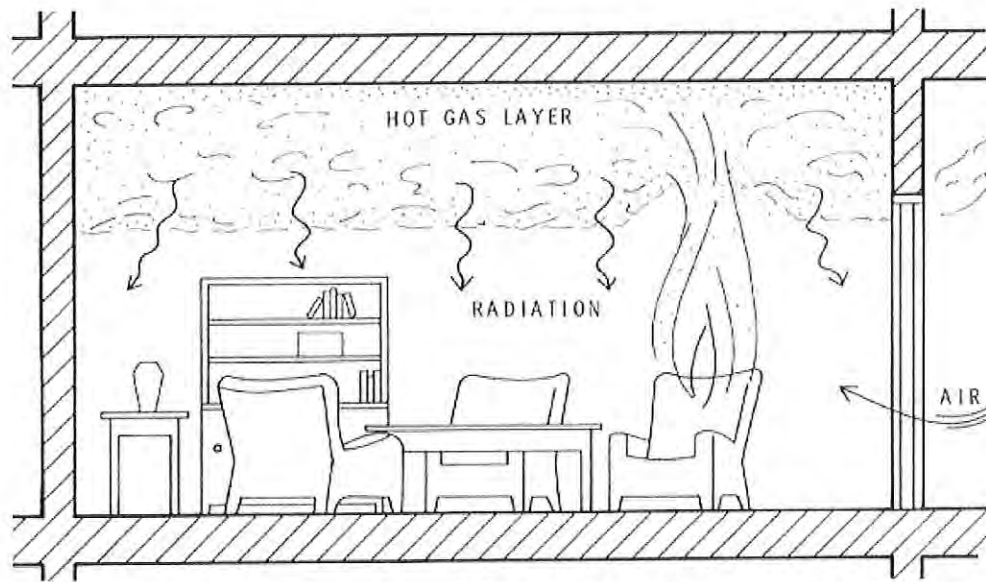
### **The Incipient Phase**

The first stage of any fire is the incipient stage. When heat is applied to a combustible material, the heat oxidizes the material's surface into combustible gases. The oxidation process is exothermic, meaning that the oxidation process itself produces heat. The heat from oxidation raises the temperature of surrounding materials, which increases the rate of oxidation and begins a chemical chain reaction of heat release and burning. A fire can progress from the incipient phase immediately or slowly, depending upon the fuel, nearby combustibles, and the availability of oxygen in the surrounding air.

### **The Free Burning Phase**

The second stage of fire growth is the "free" or "open burning" stage. When the temperature of a fire gets high enough, visible flames can be seen. The visible burning at this stage is still limited to the immediate area of origin. The combustible process continues to release more heat, which heats nearby objects to their ignition temperature, and they begin burning. These gaseous products of combustion, most of which are flammable and lighter than air, rise and are contained in the upper levels of the room of origin. When this occurs, the structure fire is at a critical point: either the fire has insufficient oxygen available to burn and it progresses back to the incipient stage, or it has sufficient oxygen available to move on to the next stage.

When an object in a room starts to burn, (such as the armchair in Figure 1, following page), it burns in much the same way as it would in an open area. After a short period of time, however, confinement begins to influence fire development. The smoke produced by the burning object rises to form a hot gas layer below the ceiling; this layer heats the ceiling and upper walls of the room. Thermal radiation from the hot layer, ceiling, and upper walls begin to heat all objects in the lower part of the room and may augment both the rate of burning of the original object and the rate of flame spread over its surface.



**Figure 1: Fire Growth in a Compartment.**<sup>5</sup> The above figure depicts the growth of fire in a compartment, which is an enclosed space or room in a building. In a compartment the walls, ceiling, floors, and objects absorb radiant heat produced by the fire. Unabsorbed heat is reflected back to the initial fuel source, which is depicted by the armchair above. This reflected heat continues to increase the temperature of the fuel source and therefore the rate of combustion. Hot smoke, combustible gases, and super-heated air will then rise to the ceiling and spread at first laterally across the ceiling, but later downward towards other fuel sources and the floor of the compartment. As this toxic, super-heated cloud touches cooler materials, the heat is conducted to them, thus increasing their temperature and eventually leading to pyrolysis, which is the process where a fuel source begins to release flammable vapor. This release of flammable vapor leads to further fire growth and eventually flashover. Flashover is the point at which all exposed fuel sources in a compartment ignite.

At this point, the fire may go out, for example, if the first object completely burns before another begins, or if sufficient oxygen cannot get into the room to keep the object burning. Sometimes, however, the heating of the other combustibles in the room continues to the point where they reach their ignition temperatures more or less simultaneously. If this occurs, flames suddenly sweep across the entire room, involving all combustibles. This transition from the burning of one or two objects to full room involvement is referred to as “flashover.”<sup>6</sup>

### **Flashover**

Flashover, when it occurs, is the most significant event during a structure fire. As combustible gases are produced by the two previous stages they are not entirely consumed and are therefore “available fuels.” These “available fuels” rise and form a superheated gas layer at the ceiling that continues to increase, until it begins to bank down to the floor, heating all combustible objects regardless of their proximity to the burning object. In a typical structure fire, the gas

<sup>5</sup> Image courtesy of University of California at Davis Fire Department

<sup>6</sup> J.R. Mehaffey, Ph.D., Flammability of Building Materials and Fire Growth, Institute for Research in Construction (1987)

layer at the ceiling can quickly reach temperatures of 1,500 degrees Fahrenheit. With enough existing oxygen at the floor level, flashover occurs, burning everything in the room at once. The instantaneous eruption into flame generates a tremendous amount of heat, smoke, and pressure. The pressure has enough force to push beyond the room of origin and through doors and windows. Usually at the time of flashover, windows in the room will break, allowing for the entry of fresh air. The introduction of fresh air serves to further fuel the growth of the fire by increasing the fire's temperature and spreading the fire beyond the room of origin.

Based on the dynamics of fire behavior in an unprotected structure fire, any decrease in emergency unit response capabilities will correlate directly with an increase in expected life, property, and economic loss.

### The Importance of Adequate Staffing: Concentration

Staffing deficiencies on primary fire suppression apparatus also negatively affect the ability of the fire department to safely and effectively mitigate emergencies and therefore correlate directly with higher risks and increased losses. Continued fire growth beyond the time of firefighter on scene arrival is directly linked to the time it takes to initiate fire suppression operations. As indicated in Table 1, responding companies staffed with four firefighters are capable of initiating critical fire ground operational tasks more efficiently than those with crew sizes below industry standards.

Engine Company Duties					Ladder Company Duties			
Fireground Tasks	Advance Attack Line	% Change	Water on Fire	% Change	Primary Search	% Change	Venting Time	% Change
4 Firefighters	0:03:27		0:08:41		0:08:47		0:04:42	
3 Firefighters	0:03:56	12% Less Efficient	0:09:15	6% Less Efficient	0:09:10	4% Less Efficient	0:07:01	32% Less Efficient
2 Firefighters	0:04:53	29% Less Efficient	0:10:16	15% Less Efficient	0:12:16	28% Less Efficient	0:07:36	38% Less Efficient

**Table 1: Impact of Crew Size on a Low-Hazard Residential Fire.**<sup>7</sup> The above table compares and contrasts the efficiencies of suppression companies in the completion of critical tasks for fire control and extinguishment. The smaller the crew size, the more tasks an individual must complete as a team member, which contributes to the delay in initiating fire attack and contributes to diminished efficiency in stopping fire loss. The Department staffs three firefighters on each suppression apparatus and supplements staffing on fire scenes with crews from ambulance companies. Eliminating fire apparatus to meet EMS demand will result in a less efficient response force.

<sup>7</sup> Derived from NIST "Report on Residential Field Experiments", Jason D. Averill, et. al., 2010.



First-arriving companies staffed with four firefighters are more efficient in all aspects of initial fire suppression and search and rescue operations compared to two- or three-person companies. There is a significant increase in time for all the tasks if a company arrives on scene staffed with only three firefighters compared to four firefighters. According to the NIST Report on Residential Fireground Field Experiments, four-person crews are able to complete time critical fireground tasks 5.1 minutes (nearly 25%) faster than three-person crews. The increase in time to task completion corresponds with an increase in risk to both firefighters and trapped occupants.

With four-person crews, the effectiveness of first-arriving engine company interior attack operations *increases* by 12% to 29% efficiency compared to three- and two-person crews respectively. The efficacy of search and rescue operations also *increases* by 4% to 28% with four-person crews compared to three- and two-person crews. Moreover, with a four-person company, because the first-in unit is staffed with a sufficient number of personnel to accomplish its assigned duties, the second-in company does not need to support first-in company operations and is therefore capable of performing critical second-in company duties.

Insufficient numbers of emergency response units or inadequate staffing levels on those units exposes civilians and firefighters to increased risk, further drains already limited fire department resources, and stresses the emergency response system by requiring additional apparatus to respond from further distances. Failing to assemble sufficient resources on the scene of a fire in time to stop the spread and extinguish the fire, conduct a search, and rescue any trapped occupants puts responding firefighters and occupants in a dangerous environment with exponential risk escalation such that it is difficult to catch up and mitigate the event to a positive outcome.

A prime objective of fire service agencies is to maintain enough strategically located personnel and equipment so that the minimum acceptable response force can reach a fire scene before flashover is likely.<sup>8</sup> Two of the most important elements in limiting fire spread are the quick arrival of sufficient numbers of personnel and equipment to attack and extinguish the fire as close to the point of origin as possible, as well as rescue any trapped occupants and care for the injured. Rapid and aggressive interior attack of structure fires, as close as possible to the point of origin, can reduce human and property losses. Sub-optimal staffing of arriving units may delay such an attack, thus allowing the fire to progress to more dangerous conditions for firefighters and civilians. "If the arriving units have adequate resources to handle the situation, then they will fight the fire aggressively and offensively. They will attack the problem head-on and, following department standards, will accomplish their objectives efficiently, effectively, and safely. If they do not have adequate resources to aggressively handle the situation, then they will

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<sup>8</sup> University of California at Davis Fire Department website; site visited June 7, 2004.  
< <http://fire.ucdavis.edu/ucdfire/UCDFDoperations.htm> >

have to fight the fire in a defensive mode of attack. This mode will continue until enough resources can be massed to then change to an aggressive, offensive attack.”<sup>9</sup>

NFPA 1500 and 1710 both recommend that a minimum acceptable fire company staffing level should be four members responding on, or arriving, with each engine and each ladder company responding to any type of fire. Recall that at the scene of an emergency, the driver/operator of the pumper must remain with the apparatus to operate the pump. Likewise, the driver/operator of the ladder truck must remain with the apparatus to safely operate the aerial device. Due to the demands of fireground activities, a fire attack initiated by three firefighters is not capable of affecting a safe and effective fire suppression and/or rescue operation until sufficient personnel arrive. Industry studies have confirmed that four firefighters are capable of performing the rescue of potential victims 80% faster than a crew of three firefighters.<sup>10</sup>

Typically, the first company arriving on scene is responsible for many critical tasks. These include removing the hose line(s), stretching the hose line from the apparatus to the point of entrance for interior attack (with a second hose line stretched to protect the exterior), connecting the hose lines to either the engine pump or water source, and primary search and rescue activities. The first arriving company is also responsible for assessing the situation and determining the extent of the emergency to establish the type and number of additional resources necessary to mitigate the event. Three or fewer firefighters cannot accomplish any of these tasks as efficiently as four firefighters, perhaps for the exception of initial assessment. By the time other firefighters arrive on scene, the fire may be beyond control and property and lives lost.

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<sup>9</sup> National Institute for Occupational Safety and Health, High-Rise Apartment Fire Claims the Life of One Career Fire Fighter (Captain) and Injures Another Career Fire Fighter (Captain) – Illinois, 13 October 2001

<sup>10</sup> McManis Associates and John T. O’Hagan & Associates, Dallas Fire Department Staffing Level Study, (June 1984); pp. 1-2 and II-1 through II-7; Richard C. Morrison, Manning Levels for Engine and Ladder Companies in Small Fire Departments, (1990)

## The Importance of Crew Size to Overall Scene Time

Studies have shown that the more personnel that arrive on engine and ladder truck companies to the scene of a fire, the less time it takes to do all aspects of fire suppression and search and rescue. As units arriving with more firefighters increases, the overall time on the scene of the emergency decreases. In other words, the more firefighters available to respond and arrive early to a structure fire, the less time it takes to extinguish the fire and perform search and rescue activities, thus reducing the risk of injury and death to both firefighters and trapped occupants and reducing the economic loss to the property

Overall Scene Time Breakdown by Crew Size		
Scenario	Total Time	Efficiency
2-Person Close Stagger	0:22:16	29% Less Efficient
3-Person Close Stagger	0:20:30	25% Less Efficient
4-Person Close Stagger	0:15:14	N/A
2-Person Far Stagger	0:22:52	31% Less Efficient
3-Person Far Stagger	0:21:17	26% Less Efficient
4-Person Far Stagger	0:15:48	N/A

**Table 2: The Relationship between Crew Size and Scene Time.**<sup>11</sup> The above table displays how companies staffed with larger crew sizes will be on the scene of an emergency for a shorter time than smaller sized companies. This lag on scene could be translated to mean that emergency resources will be unavailable longer to address other emergencies that may arise. In Strongsville, fire apparatus that have been closed to provide personnel for EMS response will be unavailable to respond and will result in larger stagger times between arriving fire apparatus.

As Table 2 shows, units that arrive with only two firefighters on an engine or ladder truck are on the scene of a fire almost 7 minutes longer than units that arrive with four firefighters on each crew. Responding units arriving with only three firefighters on an apparatus are on the scene of a fire 5 to 6 minutes longer than units that arrive with four firefighters on each apparatus. In addition to crew size, the time between the arriving crews matters to overall effectiveness and total on scene time.

In the NIST study on the low hazard residential fire, close stagger was defined as a 1-minute time difference in the arrival of each responding company. Far stagger was defined as a 2-minute time difference in the arrival of each responding company.<sup>12 13</sup> The results show a

<sup>11</sup> NIST "Report on Residential Fireground Field Experiments", Jason D. Averill, et. al., 2010

<sup>12</sup> NIST "Report on Residential Fireground Field Experiments", Jason D. Averill, et. al., 2010, pg. 24



consistent pattern of units arriving with four firefighters in a close stagger or far stagger will decrease the overall time at the scene of the emergency compared to units that arrive with two or three firefighters, and are more efficient in fire suppression tasks as well.

The same NIST study also examined the relationship between crew size and physiological strain. Two important conclusions were drawn from this part of the experiments.

- Average heart rates were higher for members of small crews.
- These higher heart rates were maintained for longer durations.<sup>14</sup>

Fire modeling was also used by researchers to mark the degree of the toxicity of the environment for a range of growth fires (slow, medium, and fast). Occupant exposures were calculated both when firefighters arrive earlier to the scene, and when arriving later. The modeling provided that the longer it takes for firefighters to rescue trapped occupants, the greater the risk posed to both the firefighters and occupants by increasing atmospheric toxicity in the structure.

### The Importance of a Rapid Response

Uncontained fire in a structure grows exponentially, nearly doubling in size with every passing minute. Any delay in the initiation of fire suppression and rescue operations, such as the 5 to 7 minute delay that results from smaller sized crews of firefighters, translates directly into a proportional *increase* in expected property, life, and economic losses as is shown in Table 3 on the next page. It warrants emphasizing that if a structure has no automatic suppression or detection system, a more advanced fire may exist by the time the fire department is notified of the emergency and is able to respond. Fires of an extended duration weaken structural support members, compromising the structural integrity of a building and forcing operations to shift from an offensive to defensive mode.<sup>15</sup> As with inadequate staffing, this type of operation will continue until enough resources can be amassed to then change to an aggressive, offensive attack.

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<sup>13</sup> One minute and two minute arrival stagger times were determined from analysis of deployment data from more than 300 U.S. fire departments responding to a survey on fire department operations conducted by the International Association of Fire Chiefs and the International Association of Firefighters.

<sup>14</sup> NIST "Report on Residential Fireground Experiments", Jason D. Averill, et. al., 2010, pg. 50.

<sup>15</sup> According to the NFPA, "it's important to realize that every 250 GPM stream applied to the building can add up to one ton per minute to the load the weakened structure is carrying."

Rate Per 1,000 Fires			
Fire Extension in Residential Structures:	Civilian Deaths	Civilian Injuries	Average Property Damage
Confined fires (identified by incident type)	0.00	10.29	\$212.00
Confined to room of origin	0.65	13.53	\$1,565.00
Confined to room of origin, including confined fires by incident type <sup>16</sup>	1.91	23.32	\$2,993.00
Beyond the room, but confined to floor of origin	22.73	64.13	\$7,445.00
Beyond floor of origin	24.63	60.41	\$58,431.00

**Table 3: The Relationship between Fire Extension and Fire Loss.**<sup>17</sup> The above table displays the rates of civilian injuries and deaths per 1,000 fires, as well as the average property damage. Following the far left column from top to bottom, each row represents a more advanced level of fire involvement in a residence. Typically, the more advanced the fire, the larger the delay in suppression. Assuming an early discovery of a fire, sized companies help to minimize deaths, injuries, and property loss. This highlights why a 5- to 7- minute delay in suppression activities by smaller sized crews of responders results in higher economic losses to a residence.

### Typical Initial Attack Response Capabilities

The following list of response capabilities represents the minimally required apparatus and personnel to three levels of hazards: high, medium and low. These response capabilities are organized under the assumption that the Department will perform an aggressive interior attack, search for victims, perform ventilation, and other essential fireground tasks under an established unified chain of command. It is likely that if the Department were to encounter a fire where an interior attack was prohibitive due to a number of factors, more resources would be required.

<sup>16</sup> NFIRS 5.0 has six categories of confined structure fires, including cooking fires confined to the cooking vessel, confined chimney or flue fire, confined incinerator fire, confined fuel burner or boiler fire or delayed ignition, confined commercial compactor fire, and trash or rubbish fire in a structure with no flame damage to the structure or its contents. Although causal information is not required for these incidents, it is provided in some cases. In this analysis (NFPA Fire Extension in Residential Structures 2002-2005), all confirmed fires were assumed to be confined to the room of origin.

<sup>17</sup> National Fire Protection Association, NFPA 1710 (2016), Table A.5.2.2.2.1(b) Fire Extension in Residential Structures, 2006-20010.



## **High-Hazard Environments**

### Type of Occupancy

- Schools
- Hospitals
- Nursing Homes
- Explosive Plants
- Refineries
- High-Rise Buildings
- Mercantile and Industrial
- Other High-Life-Hazards or Large Fire Potential Occupancies

## **Medium-Hazard Environments**

### Type of Occupancy

- Apartments, Four or More Family Dwellings
- Offices

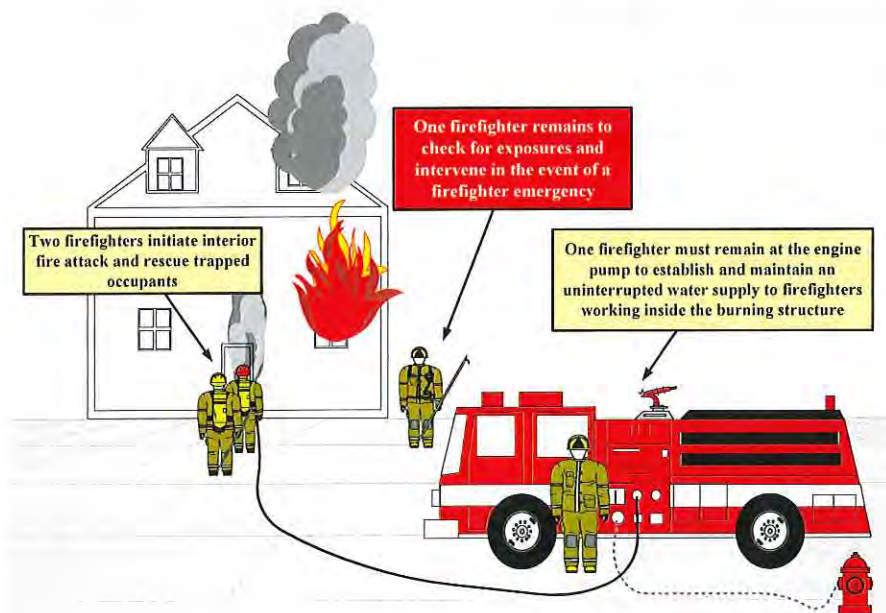
## **Low-Hazard Environment**

### Type of Occupancy

- One-, Two-, or Three-Family Dwellings
- Scattered Small Business
- Scattered Light Industrial Occupancies

## The Importance of the 4-Minute Engine Company Response

One of the first priorities during a fire is to get water on the fire to extinguish it. When initiating fire attack, a single engine company would not be capable of affecting a safe and effective fire attack or rescue operation in compliance with “2 In/2 Out” requirements unless staffed with *at least* four firefighters. Engine crews with less than four personnel must wait until a second fire suppression company arrives with sufficient personnel to support the fire attack and/or rescue operation and to assist the first crew in the event of an unexpected emergency during interior attack.



**Figure 3: Engine Company Fireground Operations.** The above figure depicts the first arriving fire apparatus on the scene of a structure fire with a crew of four personnel. As noted, the driver/operator of the apparatus must be appropriately equipped to participate in rescue should the need arise, as well as operate the fire apparatus pump. In Strongsville, the first arriving fire apparatus is only staffed with three firefighters and relies on the ambulance to meet the requirements of the “2 In/ 2 Out.” Frequently in Strongsville, fire apparatus must be placed out of service so personnel can transfer to the ambulance to respond to EMS emergencies. These situations reduce the size of the firefighting force and equipment needed to respond to structure fires.

## Initial Full Alarm Assignment

Initial Full Alarm Assignment Capability, as outlined in NFPA Standard 1710, recommends that the “fire department shall have the capability to deploy an initial full alarm assignment within 480-second travel time to 90 percent of the incidents... [and that the] initial full alarm shall provide for the following:

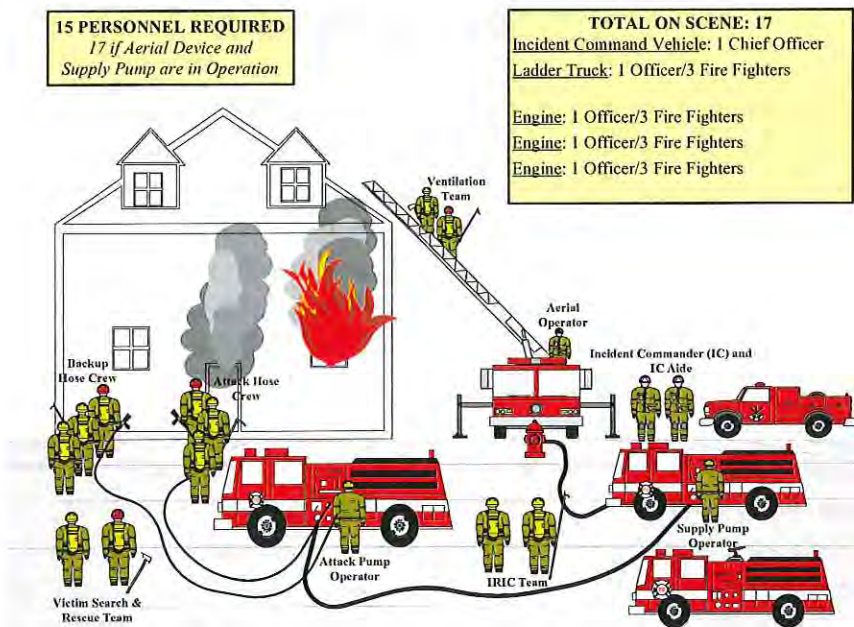
<u>Assignment</u>	<u>Required Personnel</u>
<b>Incident Command</b>	1 Officer
<b>Uninterrupted Water Supply</b>	1 Pump Operator
<b>Water Flow from Two Handlines</b>	4 Firefighters (2 for each line)
<b>Support for Handlines</b>	2 Firefighters (1 for each line)
<b>Victim Search and Rescue Team</b>	2 Firefighters
<b>Ventilation Team</b>	2 Firefighters
<b>Aerial Operator</b>	1 Firefighters
<b>Initial Rapid Intervention Crew (IRIC)</b>	2 Firefighters
<b>Required Minimum Personnel for Full Alarm</b>	<b>14 Firefighters &amp; 1 Scene Commander</b>

**Table 4: NFPA 1710, §5.2.4.1.1.** This breakdown of the expected capabilities of a full alarm assignment, in compliance with NFPA 1710, requires a minimum contingent of 15 fire suppression personnel. NFPA 1710 also requires that supervisory chief officers shall be assisted by a staff aide<sup>18</sup> which will increase on-scene staffing to 16 personnel required to arrive at the scene of a structure fire within 8 minutes of travel.

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<sup>18</sup> NFPA 1710, § 5.2.2.2.5





**Figure 4: Initial Full Alarm Assignment Deployed Within 8 Minutes.** The above figure depicts the full alarm assignment discussed in NFPA 1710, with an additional firefighter to act as an incident commander aide, and another additional firefighter to act as a pump operator for a supply apparatus. When personnel from fire apparatus must transition to ambulances to respond to EMS emergencies available fire suppression resources are minimized.

In addition, NFPA 1710, §5.2.4.5.2 states, “The Fire Department shall have the capability for additional alarm assignments that can provide for additional command staff, members, and additional services, including the application of water to the fire; engagement in search and rescue, forcible entry, ventilation, and preservation of property; safety and accountability for personnel; and provision of support activities...” Currently, the Department lacks sufficient personnel to respond with staffed apparatus to a single low-hazard residential structure fire or to simultaneous requests for service.

The ability of adequate fire suppression forces to greatly influence the outcome of a structural fire is undeniable and predictable. Data generated by the NFPA provides empirical proof that a rapid and aggressive interior attack can substantially reduce loss of life and the loss of property associated with structural fires. Each stage of fire extension beyond the room of origin directly increases the rate of civilian deaths, injuries, and property damage.

Fire growth is exponential, growing in a non-linear manner over time. Extending the time for crew assembly by waiting for additional crews to arrive causes on-scene risk to escalate. The higher the risks at the time firefighters engage in fire suppression, the greater the chance of poor outcomes including civilian injury or death, firefighter injury or death, and increased property loss.

## OSHA's "2 In/2 Out" Regulation

The "2 In/2 Out" regulation is part of paragraph (g)(4) of the United States Occupational Safety and Health Administration's (OSHA) revised respiratory protection standard, 29 CFR 1910.134. The focus of this important section is the safety of firefighters engaged in interior structural firefighting. OSHA's requirements for the number of firefighters required to be present when conducting operations in atmospheres that are immediately dangerous to life and health (IDLH) also covers the number of persons who must be on the scene before firefighting personnel may initiate an interior attack on a structural fire. An interior structural fire (*an advanced fire that has spread inside of the building where high temperatures, heat and dense smoke are normally occurring*) would present an IDLH atmosphere and, therefore, require the use of respirators. In those cases, at least two standby persons, in addition to the minimum of two persons inside needed to fight the fire, must be present before firefighters may enter the building.<sup>19,20</sup> This requirement is mirrored in NFPA 1500, which states that "a rapid intervention team shall consist of at least two members and shall be available for rescue of a member or a team if the need arises. Once a second team is assigned or operating in the hazardous area, the incident shall no longer be considered in the 'initial stage,' and at least one rapid intervention crew shall be required."

Two of the most important elements in limiting fire spread are the quick arrival of sufficient numbers of personnel and equipment to attack and extinguish the fire as close to the point of origin as possible, as well as rescue any trapped occupants and care for the injured. Several existing National Fire Protection Association standards address this time-critical issue. NFPA Standard 1710 recommends that "fire companies whose primary functions are to pump and deliver water and perform basic firefighting at fires, including search and rescue... shall be staffed with a **minimum of four on-duty personnel**,"<sup>21</sup> while "fire companies whose primary functions are to perform the variety of services associated with truck work, such as forcible entry, ventilation, search and rescue, aerial operations for water delivery and rescue, utility control, illumination, overhaul and salvage work... shall [also] be staffed with a **minimum of four on-duty personnel**."<sup>22</sup>

For either fire suppression company, NFPA 1710 states that "In jurisdictions with a high number of incidents or geographical restrictions, as identified by the AHJ,<sup>23</sup> these companies shall be staffed with a minimum of five on-duty members" and "In jurisdictions with tactical hazards,

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<sup>19</sup> According to NFPA standards relating to fire fighter safety and health, the incident commander may make exceptions to these rules if necessary to save lives. The Standard does not prohibit fire fighters from entering a burning structure to perform rescue operations when there is a "reasonable" belief that victims may be inside.

<sup>20</sup> Paula O. White, letter to Thomas N. Cooper, 1 November 1995 (OSHA)

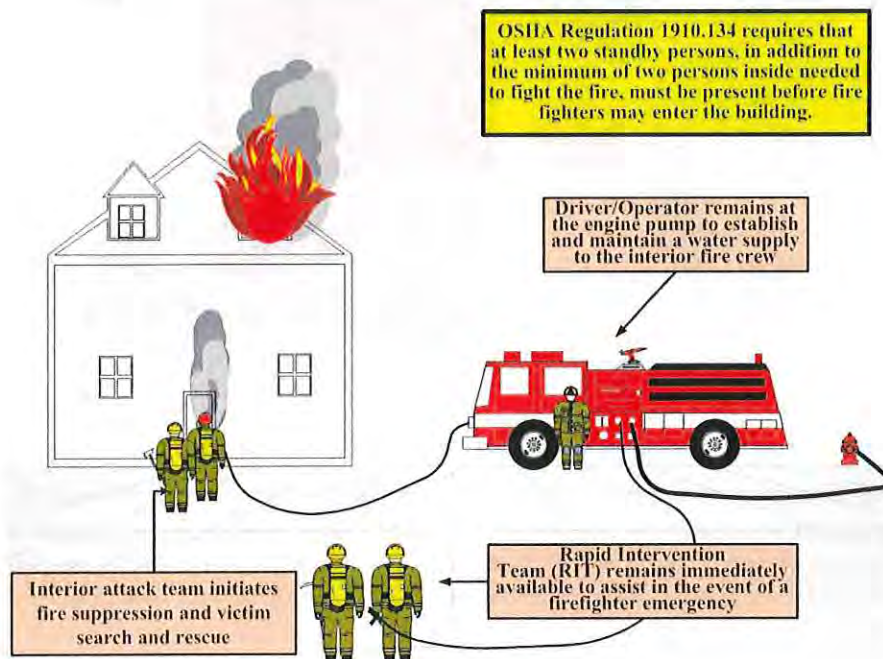
<sup>21</sup> NFPA 1710, § 5.2.3.1 and § 5.2.3.1.1.

<sup>22</sup> NFPA 1710, § 5.2.3.2 and § 5.2.3.2.1.

<sup>23</sup> Authority Having Jurisdiction.



high-hazard occupancies, or dense urban areas, as identified by the AHJ, these companies shall be staffed with a minimum of six on-duty members.”<sup>24</sup>



**Figure 5: The OSHA “2 IN/2 Out” Regulation.** The above figure depicts the number of firefighters required to meet OSHA regulation 1910.134, which demands one firefighter outside for every firefighter inside. In this sense the firefighters outside can support a secondary attack line and facilitate the rescue of trapped or disabled firefighters should the need arise. In this scenario the driver/operator of the apparatus is not counted towards the total number of firefighters.

A number of incidents exists in which the failure to follow “2 In/2 Out” regulation have contributed to firefighter casualties. For example, in Bridgeport, Connecticut in July 2010, two firefighters died following a fire where NIOSH later found that although a “Mayday” was called by the firefighters, it wasn’t responded to promptly as there was no Incident Safety Officer or Rapid Intervention Team (RIT) readily available on scene. In a second case, two firefighters were killed in a fire in San Francisco, California in June 2011. The initial RIT was re-assigned to firefighting duties, and the back-up RIT did not arrive on scene until after the victims were removed.

<sup>24</sup> NGPA 1710, §5.2.3.1.2, § 5.2.3.1.2.1, § 5.2.3.2.2, and § 5.2.3.2.2.1.



**Figure 6: Emergency “2 In/2 Out” Operations.** In the emergency model depicted above the arriving fire apparatus is staffed with a crew of 4 personnel and operates under emergency conditions. In this case the driver/operator of the fire apparatus is also counted as a firefighter, which means they must be dressed in personal protective equipment (PPE) to be ready to participate in rescue if the need should arise.

When confronted with occupants trapped in a burning structure and a single fire company is on scene, only a company staffed with four firefighters is able to initiate emergency search and rescue operations in compliance with “2 In/2 Out” regulations. As indicated in the previous graphic, this requires the complete engagement of every firefighter from the first-in fire company, staffed with four, to participate in the effort, and means that the driver-operator of the apparatus must tend to the pump to ensure the delivery of water to the firefighters performing the initial attack and search and rescue operations and be prepared to make entry with the remaining firefighter should the crew operating inside become trapped

Regardless, when there exists an immediate threat to life, only a company of four firefighters can initiate fire suppression and rescue operations in compliance with “2 In/2 Out” regulations, and in a manner that minimizes the threat of personal injury. In crews with fewer than 4 firefighters, the first-in company must wait until the arrival of the second-in unit to initiate safe and effective fire suppression and rescue operations. This condition underlines the importance and desirability of fire companies to be staffed with four firefighters, and stresses the benefit of four-person companies and their ability to save lives without having to wait for the second-in company to arrive.



## The Importance of Adequate Resources: Distribution

Distribution involves locating geographically distributed, ideal first-due resources for all-risk initial intervention. Distribution describes first due arrival. Station locations are needed to assure rapid deployment for optimal response to routine emergencies within the response jurisdiction. Distribution can be evaluated by the percentage of the jurisdiction covered by the first-due units within adopted public policy service level objectives.<sup>25</sup> In this case, distribution is measured by the percentage of roads that are covered from each fire station within 4- and 8-minute travel times to adhere to NFPA 1710 standards.

Distribution study requires geographical analysis of first due resources. Distribution measures may include:<sup>26</sup>

- Population per first due company
- Area served per first-due company (square miles)
- Number of total road miles per first-due company (miles)
- Dwelling unit square footage per first due company
- Maximum travel time in each first-due company's protection area
- Catchment areas (4-minute road response from all fire stations) to determine gap areas and overlaps of first-due resources
- Areas outside of actual performance
  1. Population not served
  2. Area not served (square miles)
  3. Road miles not served (miles)
  4. Dwelling unit square footage not served
- First-due unit arrival times (Engine, Truck, ALS unit, etc.)

A major item to be considered in the distribution of resources is travel time. It should be a matter of public policy that the distribution of fire stations in the community is based on the element of travel time and the response goal. Travel time should be periodically sampled and analyzed to determine whether or not the fire department is achieving a reasonable response performance to handle emergencies.<sup>27</sup>

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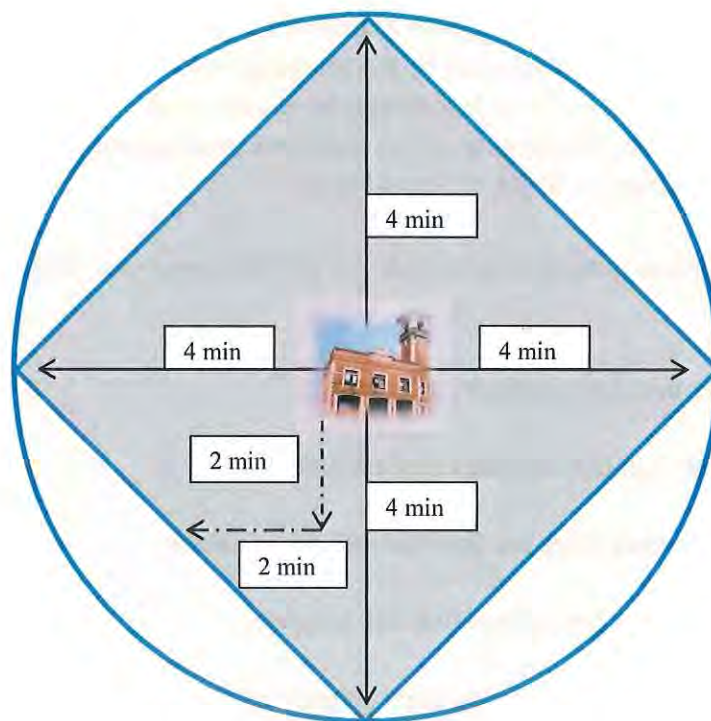
<sup>25</sup> Commission on Fire Accreditation International, 5<sup>th</sup> Edition. 2008. Page 52.

<sup>26</sup> Commission on Fire Accreditation International, 5<sup>th</sup> Edition. 2008. Page 52.

<sup>27</sup> Commission on Fire Accreditation International, 5<sup>th</sup> Edition. 2008. Page 53



Evaluating a small number of incidents for response time performance also does not reflect the true performance of the Department. Analyzing tens of thousands of incidents measured over 3-5 years will provide a more accurate assessment of the delivery system performance. Completing the same analysis over a period of time will allow for trend analysis as well.<sup>28</sup>



**Figure 7: Normal distribution model for an initial 4-minute response area.**<sup>29</sup> As depicted in the above figure, fire stations and emergency resources should be distributed throughout a community so that citizens receive equitable coverage and protection. However, there are additional points of concern when modeling a response district such as road network, traffic patterns, and building occupancies.

Distribution strives for an equitable level of outcome: Everyone in the community is within the same distance from a fire station. Distribution is based on probabilities that all areas experience equal service demands, but not necessarily the same risk or consequences as those demands for service in other areas. For example suburban communities in the City have the same service demand as an industrial factory area, but the level of risk is very different. This can have an impact on fire station locations as placement would probably put the stations near high risk areas with shorter travel times. Additionally, EMS response times based on medical emergencies will drive equal distribution in the community and negate distribution based on risk, as the risk is equal.

First unit arrival times are the best measure of distribution. It should be noted that if an area experiences fire unit arrival times outside the adopted performance measure, in this case 4-

<sup>28</sup> Commission on Fire Accreditation International, 5<sup>th</sup> Edition. 2008. Page 53

<sup>29</sup> Derived from Commission on Fire Accreditation International, 5<sup>th</sup> Edition. 2008. Page 53

minute travel time per NFPA 1710, it does not necessarily mean it has a distribution issue.<sup>30</sup> Other issues occur such as reliability, call processing times and turnout times, and traffic which can affect the overall performance of response times.

An effective response force for a fire department is impacted not only by the spacing of fire stations but also by the type and amount of apparatus and personnel staffing the stations. To assemble the necessary apparatus, personnel, and equipment within the prescribed timeframe, all must be close enough to travel to the incident, if available upon dispatch. The placement and spacing of specialty equipment is always challenging.<sup>31</sup> Specialty units tend to be trucks, rescue units, hazmat, or Battalion personnel. Most often there are less of these types of equipment and personnel compared to the first-line response of engines and medic units. Selecting where to put specialty units requires extensive examination of current and future operations within the fire department and a set goal of response time objectives for all-hazards emergencies within the City.

### Distribution vs. Concentration

Major fires have a significant impact on the resource allocation of any fire department. The dilemma for any fire department is staffing for routine emergencies and also being prepared for the fire or emergency of maximum effort. This balancing of distribution and concentration staffing needs is one that almost all fire agencies face on an ongoing basis.

The art in concentration spacing is to strike a balance with respect as to how much overlap there should be between station areas. Some overlap is necessary to maintain good response times and to provide back-up for distribution when the first-due unit is unavailable for service or deployed on a prior emergency.

Concentration pushes and pulls distribution. Each agency, *after risk assessment and critical task analysis*, must be able to quantify and articulate why its resource allocation methodology meets the governing body's adopted policies for initial effective intervention on both a first-due and multiple-unit basis.<sup>32</sup>

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<sup>30</sup> Commission on Fire Accreditation International, 5<sup>th</sup> Edition. 2008. Page 55

<sup>31</sup> Commission on Fire Accreditation International, 5<sup>th</sup> Edition. 2008. Page 62

<sup>32</sup> Commission on Fire Accreditation International, 5<sup>th</sup> Edition. 2008. Pages 62-63



## Staffing and Deployment Analysis

In creating this proposal it was important to ascertain where stations were located and if they were located to provide fair and equitable coverage to the citizens. In order to make this assessment, the IAFF created maps of the City and plotted the fire stations. Computer modeling was then used to determine the distance apparatus could travel in 4 and 8 minutes. The following table specifies the current staffing and deployment of the seven stations and the addresses used in the computer generated maps.

Station	Address	Apparatus	Minimum Staffing
1	11297 Webster	Medic 1	3 FF/EMT-P
		Tower 1	Cross-staffed
		USAR 1	Cross-staffed
2	15939 Drake	Medic 2	3 FF/EMT-P
		Engine 2	Cross-staffed
3	22000 Albion	Medic 3	3 FF/EMT-P
		Engine 3	Cross-staffed
4	17000 Prospect	Medic 4	4 FF/EMT-P
		Ladder 4	Cross-staffed
		Engine 4	Cross-staffed
		Hazmat 1	Cross-staffed
		Car 1	Chief
		Car 2	Assistant Chief
		Car 3	Assistant Chief
		Car4	Captain
		Car 6	FPO
		Car7	FPO
Car 10	Cross-staffed		

**Table 4: Current Fire Station Locations, Staffing and Deployment.** The above table displays where apparatus are housed and the number of personnel assigned on a daily basis. As can be seen in the table, and as will be discussed later, the existing staffing in all stations is below national standards and will impact safety and efficiency.

These travel times were modeled using ESRI ArcGIS version 10.3. Fire stations were identified on Geographic Information System (GIS) maps as starting points with vehicles traveling at posted road speeds. Travel was modeled using the average of traffic data for Wednesday afternoons at 5:00 PM CST. This specific day and time was selected as it typically corresponds to the heaviest travel time of the week.

When generating the maps a number of assumptions needed to be addressed prior to drawing conclusions from the analysis. These assumptions are as follows:

- Modeled travel speeds are based on reasonable and prudent road speeds. Actual response speeds may be slower, and the associated travel times greater, with any unpredictable impedances including, but not limited to:
  - Traffic Incidents: Collisions and vehicle breakdowns causing lane blockages and driver distractions.
  - Work Zones: Construction and maintenance activity that can cause address travel time in locations and times where congestion is not normally present.
  - Weather: Reduced visibility--road surface problems and uncertain waiting conditions result in extra travel time and altered trip patterns.
  - Special Events: Demand may change due to identifiable and predictable causes.
  - Traffic Control Devices: Poorly timed or inoperable traffic signals, railroad grade crossings, speed control systems, and traveler information signs contribute to irregularities in travel time.
  - Inadequate Road or Transit Capacity: The interaction of capacity problems with the aforementioned sources causes travel time to expand much faster than demand.<sup>33</sup>

In addition, it is reasonable to suggest that because larger emergency vehicles are generally more cumbersome and require greater skill to maneuver, their response may be more negatively affected by their weight, size, and in some cases, inability to travel narrow surface streets.

As discussed, computer modeling only considers travel time of apparatus. Decision makers should understand that once apparatus and personnel arrive on the incident scene there are other essential tasks that must be completed which require additional time before access, rescue, and suppression can take place. Tasks such as establishing a water supply, forcible entry (access), and deployment of an attack line are not considered in the computer modeling. Other additional factors also include:

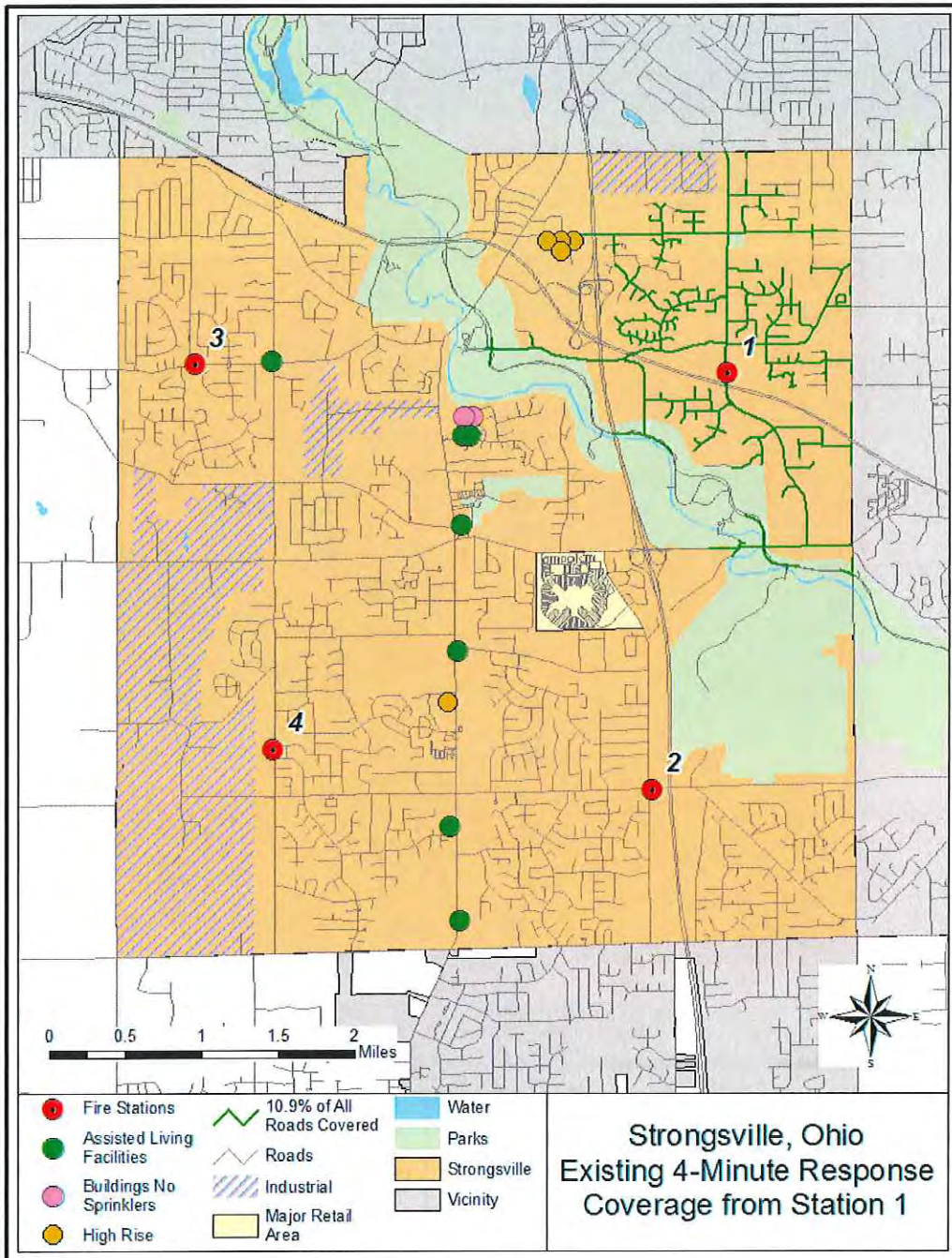
- The time from arrival of the apparatus to the onset of interior fire operations (access interval) must be considered when analyzing response system capabilities.
  - The access interval is dependent upon factors such as distance from the apparatus to the task location and the elevation of the incident and locked doors or security bars which must be breached.
  - Impediments like these may add to the delay between discovery of a fire and the initiation of an actual fire attack.
- The reliability of a community's hydrant system to supply water to fire apparatus.
- Weather conditions

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<sup>33</sup> David Shrank and Tim Lomax, The 2003 Urban Mobility Report, (Illinois Transportation Institute, Illinois A&M University: September 2003).

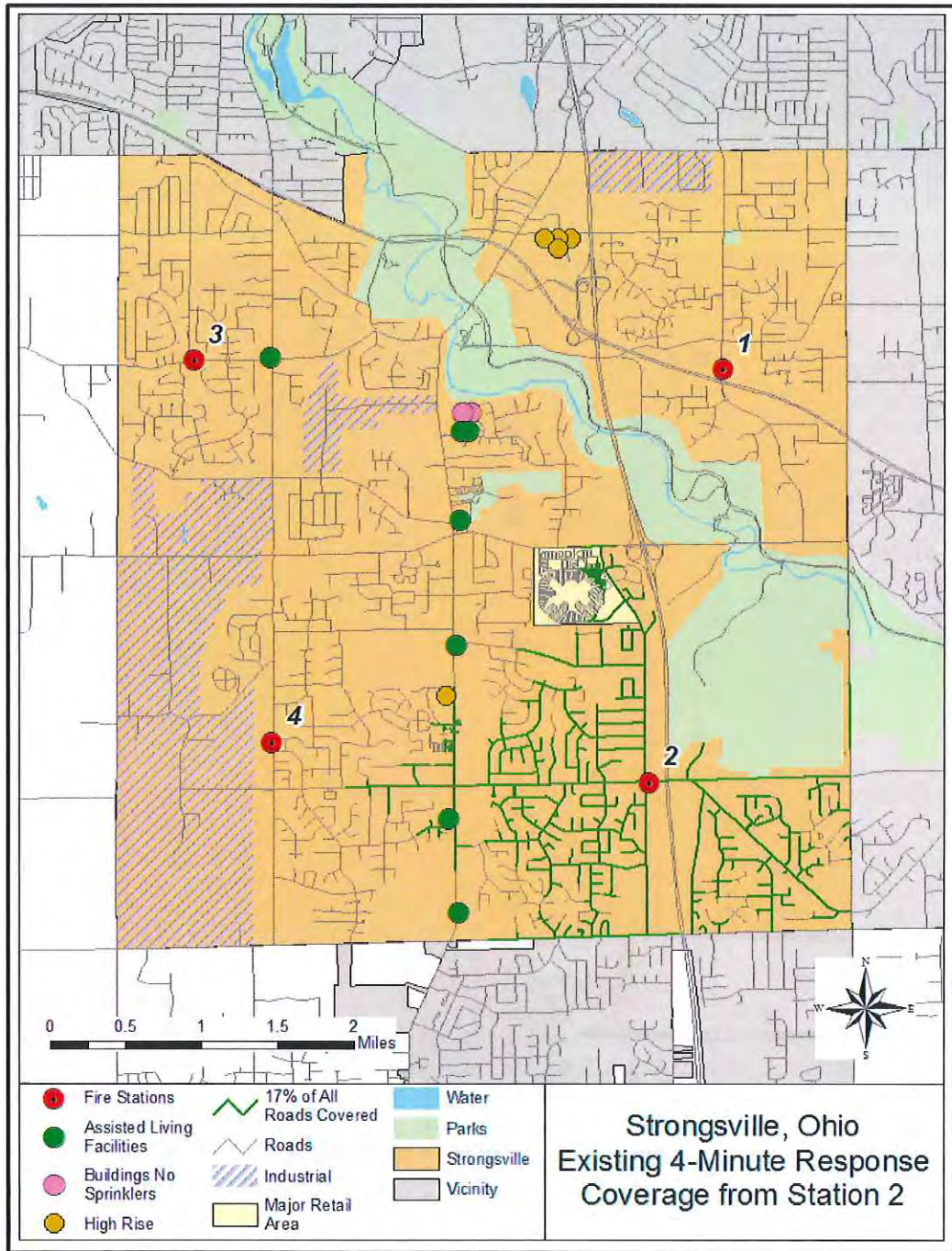
- The computer model is unable to accurately portray the response of recall personnel responding to assigned stations and then to the scene for a multiple alarm fire. As these firefighters are not available on a regular basis to respond immediately upon dispatch, their actual response times are not quantifiable. Therefore, responses by these individuals have been omitted from this analysis.





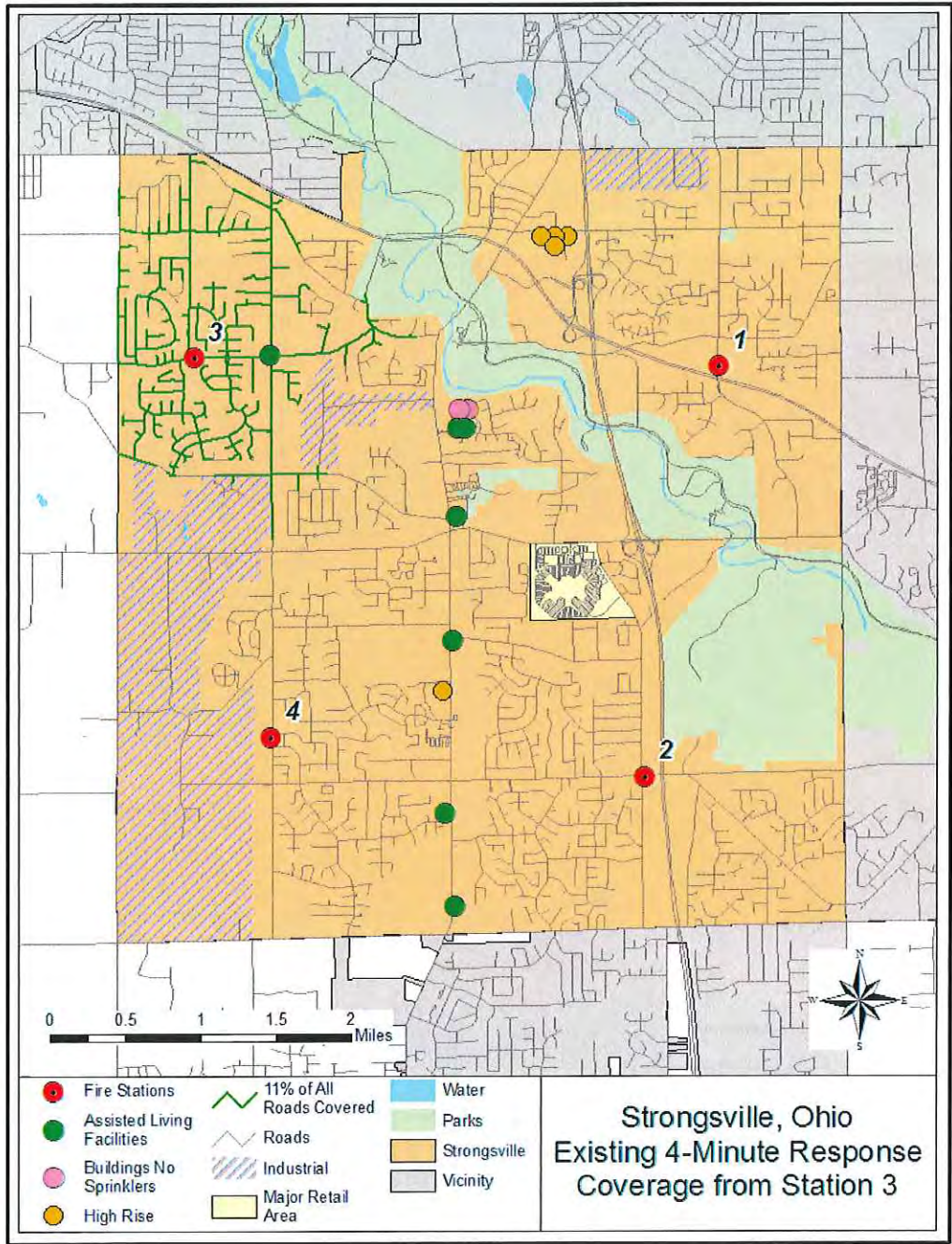
**Map 1: Four-Minute Response from Station 1.** This map identifies the roads where response can occur within 4 minutes of travel when deploying from Station 1. Currently, apparatus and personnel that deploy from this fire station is capable of responding to **10.9% of all roads located in the City in 4 minutes or less**, assuming units are available to respond immediately upon dispatch. Ideally, a first arriving fire company will be able to immediately initiate fireground tasks with a crew of four or more firefighters.





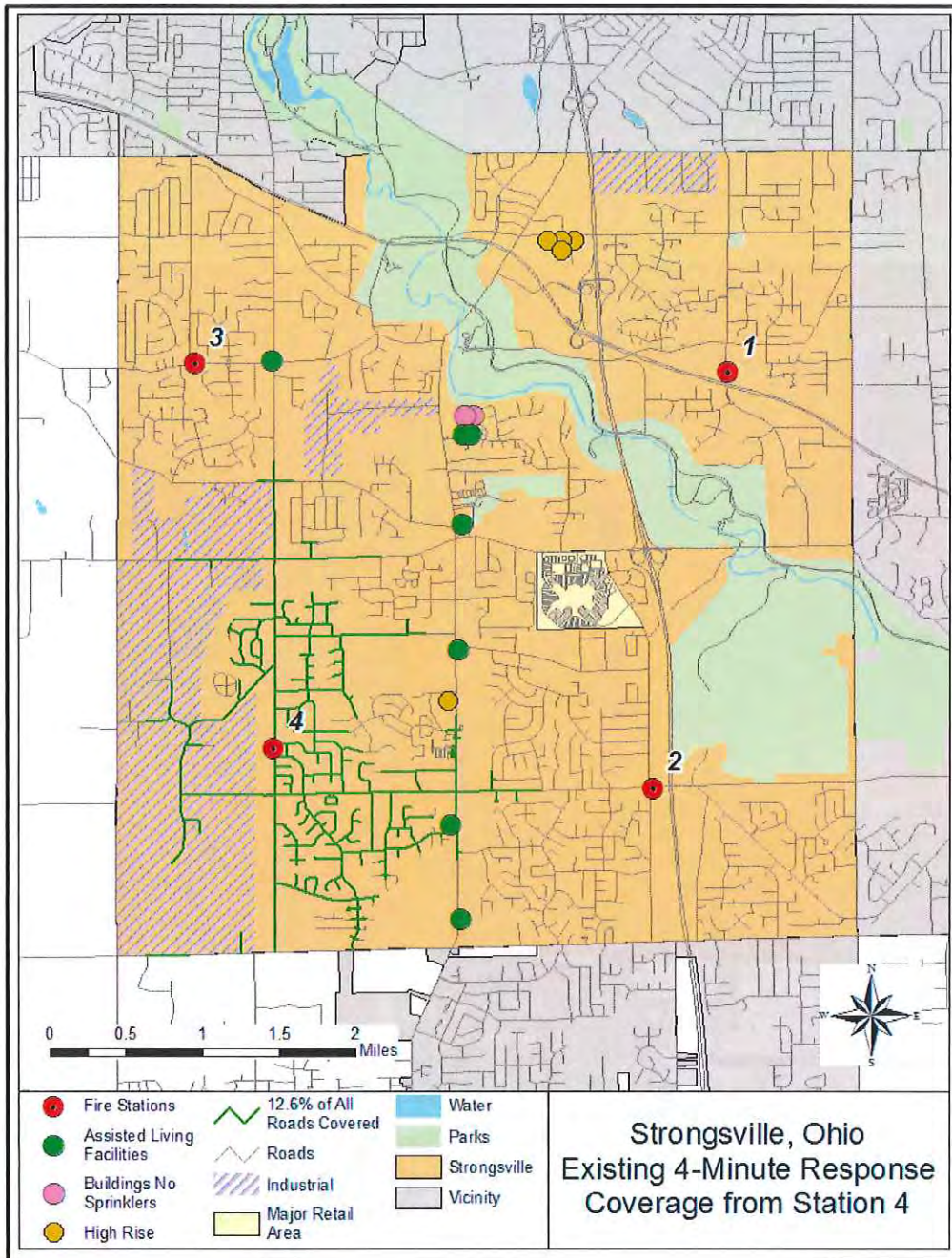
**Map 2: Four-Minute Response from Station 2.** This map identifies the roads where response can occur within 4 minutes of travel when deploying from Station 2. Currently, apparatus and personnel that deploy from this fire station is capable of responding to **17% of all roads located in the City in 4 minutes or less**, assuming units are available to respond immediately upon dispatch. Ideally, a first arriving fire company will be able to immediately initiate fireground tasks with a crew of four or more firefighters.





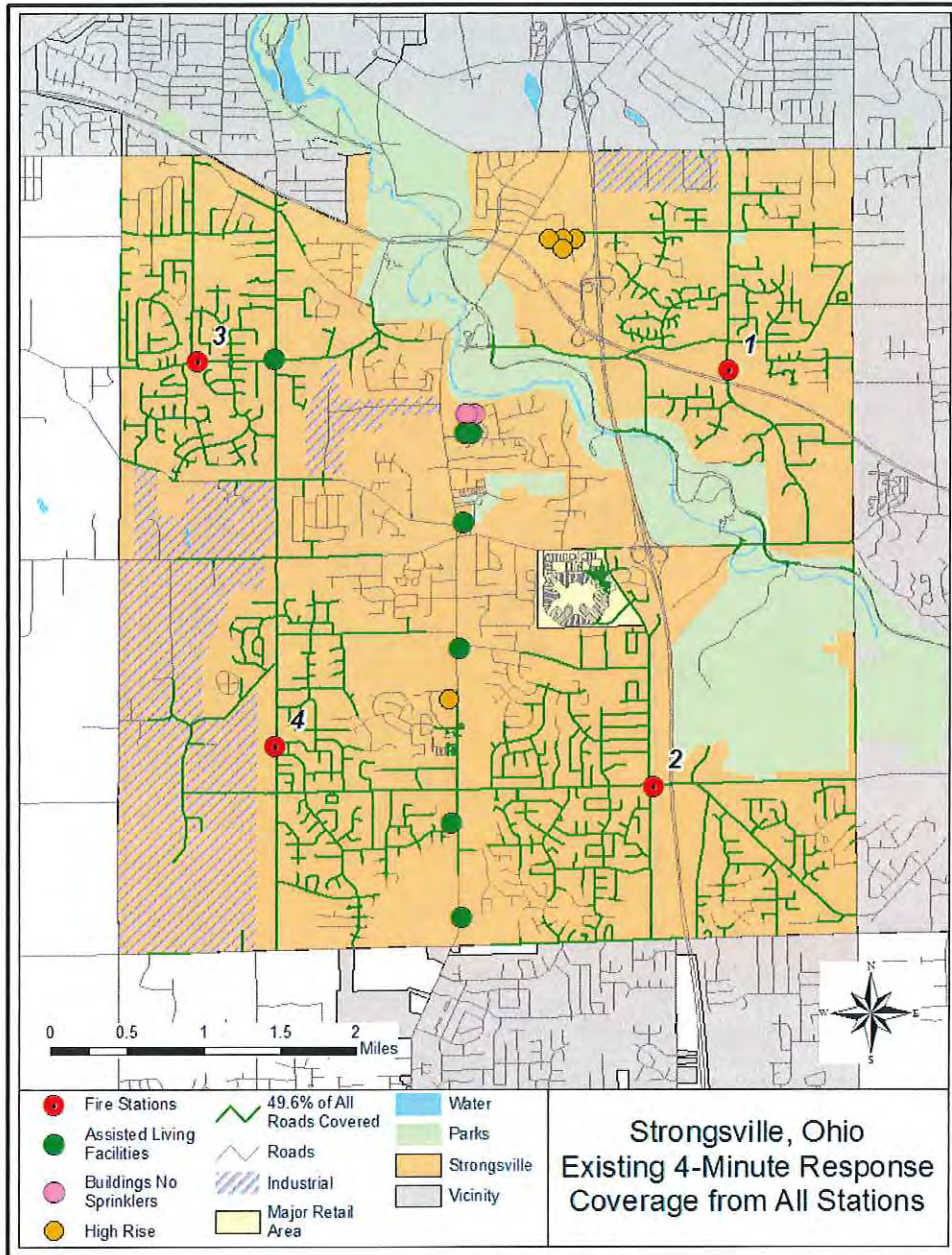
**Map 3: Four-Minute Response from Station 3.** This map identifies the roads where response can occur within 4 minutes of travel when deploying from Station 3. Currently, apparatus and personnel that deploy from this fire station is capable of responding to **11% of all roads located in the City in 4 minutes or less**, assuming units are available to respond immediately upon dispatch. Ideally, a first arriving fire company will be able to immediately initiate fireground tasks with a crew of four or more firefighters.





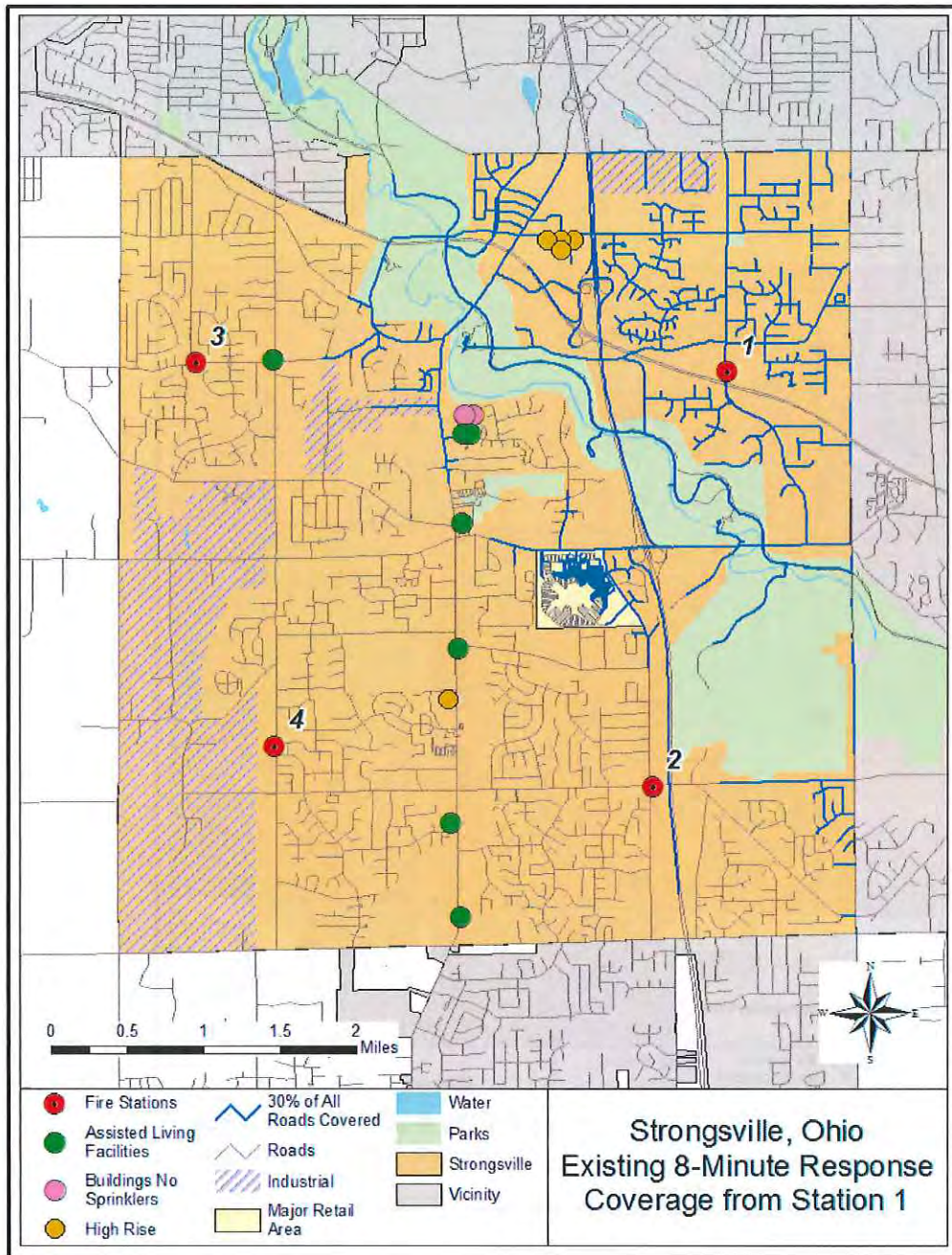
**Map 4: Four-Minute Response from Station 4.** This map identifies the roads where response can occur within 4 minutes of travel when deploying from Station 4. Currently, apparatus and personnel that deploy from this fire station is capable of responding to **12.6% of all roads located in the City in 4 minutes or less**, assuming units are available to respond immediately upon dispatch. Ideally, a first arriving fire company will be able to immediately initiate fireground tasks with a crew of four or more firefighters.





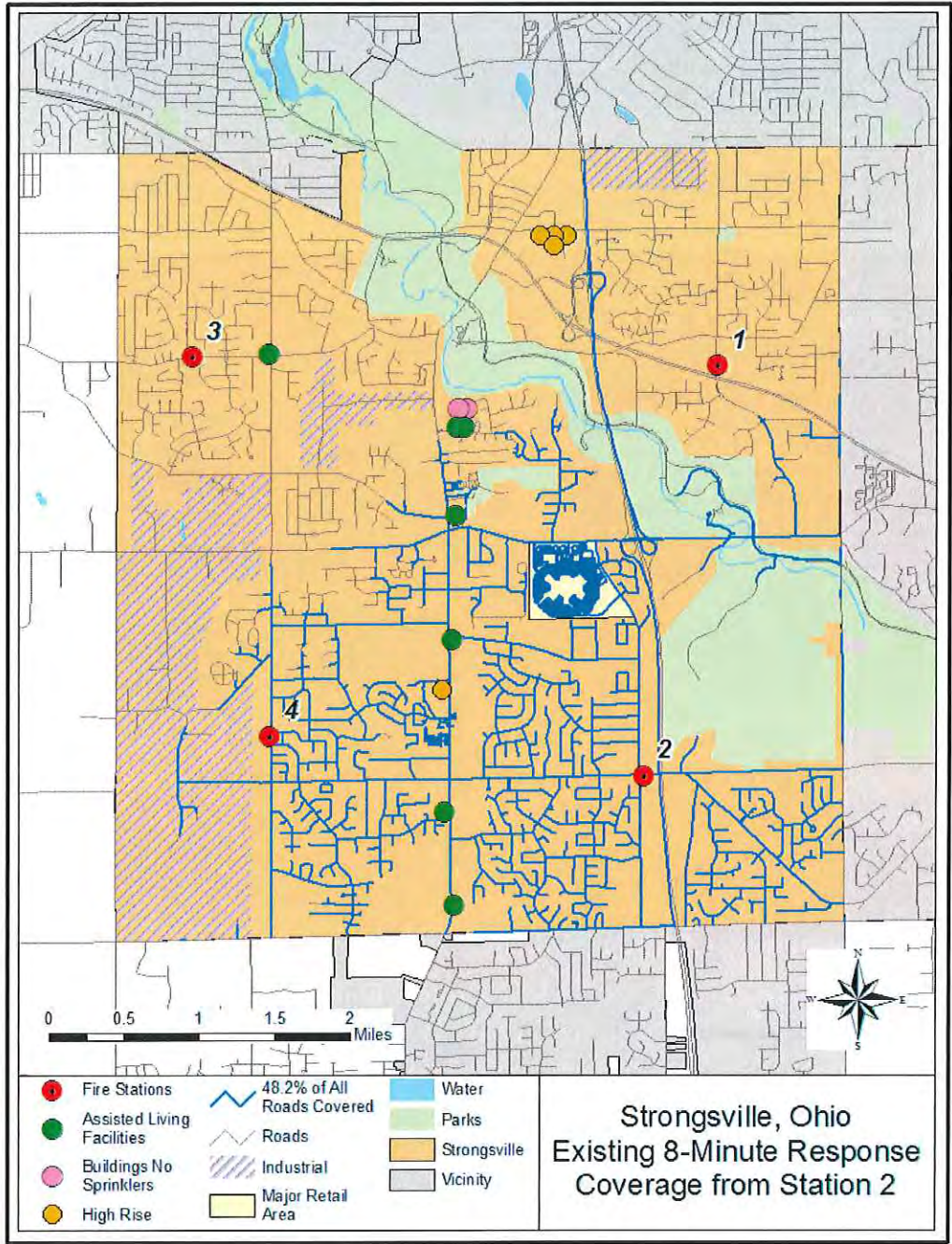
**Map 5: Four-Minute Response from all stations.** This map identifies the roads where response can occur within 4 minutes of travel when deploying from all fire stations. Currently, apparatus and personnel that deploy from all the fire station is capable of responding to **49.6% of all roads located in the City in 4 minutes or less, assuming units are available to respond immediately upon dispatch.** Ideally, a first arriving fire company will be able to immediately initiate fireground tasks with a crew of four or more firefighters. As the maps shows, the fire department cannot reach high hazard buildings within 4-minutes of initial response. Facilities that are not reached include assisted living facilities and an apartment complex without a sprinkler system.





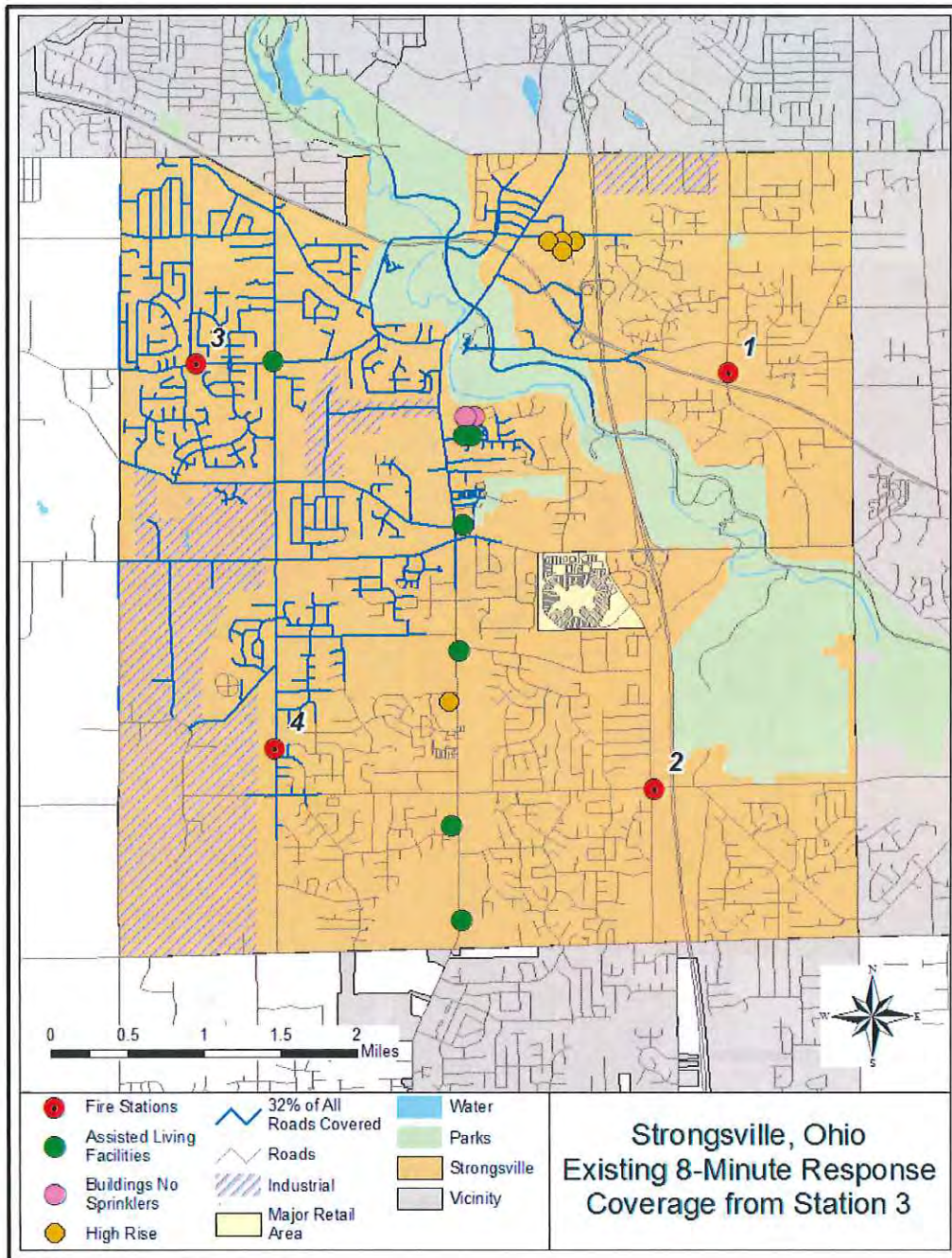
**Map 6: Eight-Minute Response from Station 1.** This map identifies the roads where response can occur within 8 minutes of travel when deploying from Station 1. Currently, apparatus and personnel that deploy from this fire station is capable of responding to **30% of all roads located in the City in 8 minutes or less**, assuming units are available to respond immediately upon dispatch. Ideally, a first arriving fire company will be able to immediately initiate fireground tasks with a crew of four or more firefighters.





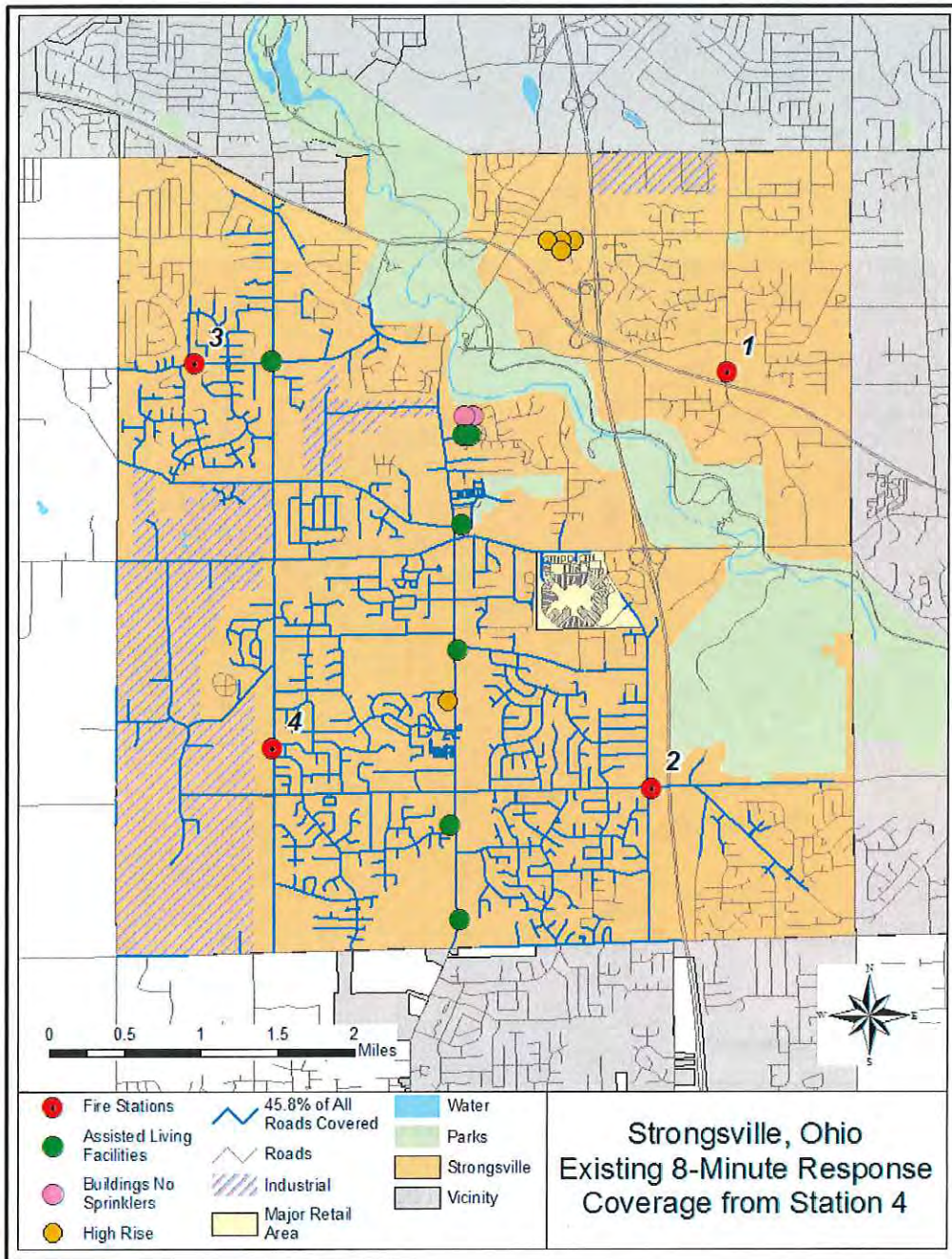
**Map 7: Eight-Minute Response from Station 2.** This map identifies the roads where response can occur within 8 minutes of travel when deploying from Station 2. Currently, apparatus and personnel that deploy from this fire station is capable of responding to **48.2% of all roads located in the City in 8 minutes or less**, *assuming units are available to respond immediately upon dispatch*. Ideally, a first arriving fire company will be able to immediately initiate fireground tasks with a crew of four or more firefighters.





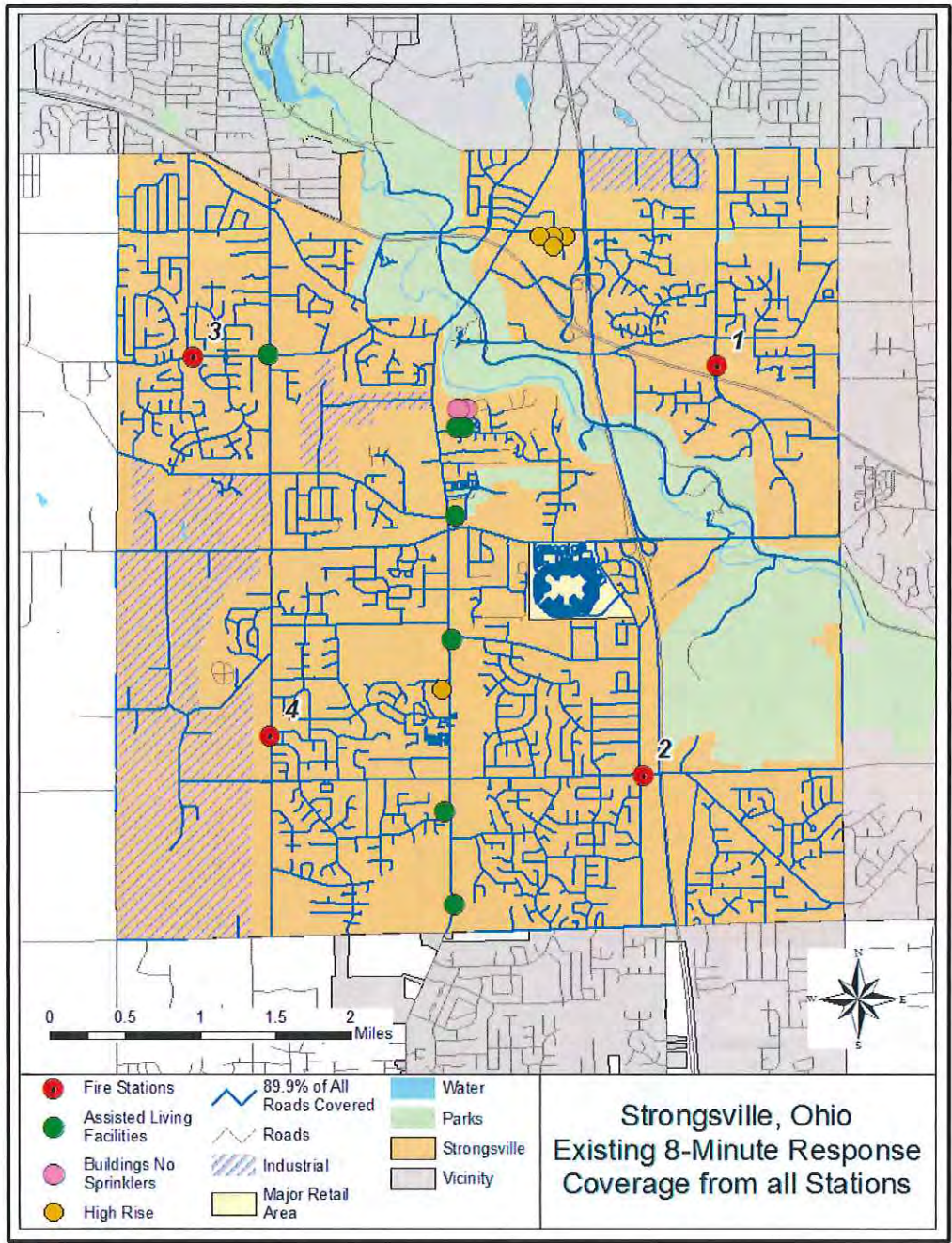
**Map 8: Eight-Minute Response from Station 3.** This map identifies the roads where response can occur within 8 minutes of travel when deploying from Station 3. Currently, apparatus and personnel that deploy from this fire station is capable of responding to **32% of all roads located in the City in 8 minutes or less**, assuming units are available to respond immediately upon dispatch. Ideally, a first arriving fire company will be able to immediately initiate fireground tasks with a crew of four or more firefighters.





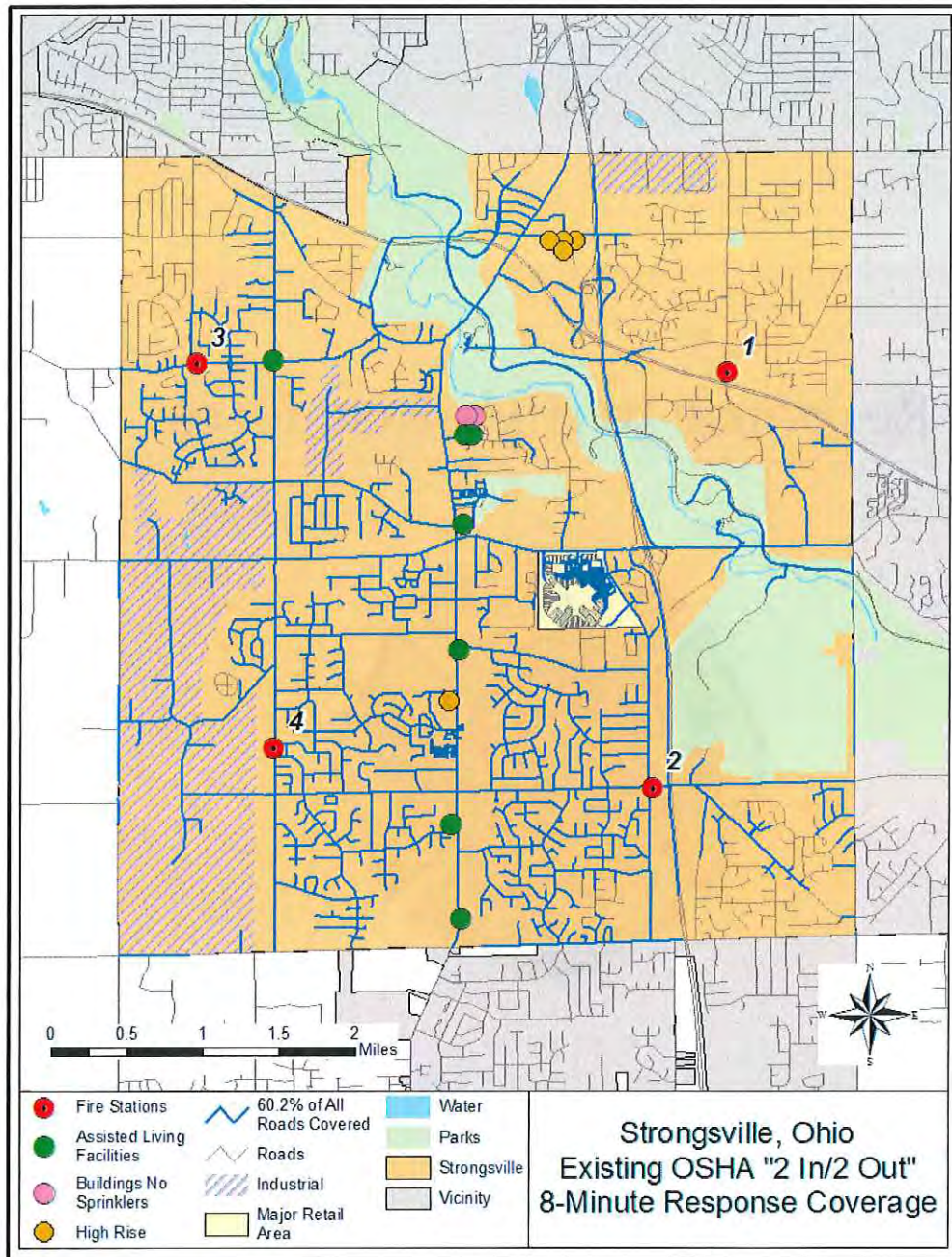
**Map 9: Eight-Minute Response from Station 4.** This map identifies the roads where response can occur within 8 minutes of travel when deploying from Station 4. Currently, apparatus and personnel that deploy from this fire station is capable of responding to **45.8% of all roads located in the City in 8 minutes or less**, assuming units are available to respond immediately upon dispatch. Ideally, a first arriving fire company will be able to immediately initiate fireground tasks with a crew of four or more firefighters.





**Map 10: Eight-Minute Response from all stations.** This map identifies the roads where response can occur within 8 minutes of travel when deploying from all fire stations. Currently, apparatus and personnel that deploy from all the fire station is capable of responding to **89.9% of all roads located in the City in 8 minutes or less**, assuming units are available to respond immediately upon dispatch. Ideally, a first arriving fire company will be able to immediately initiate fireground tasks with a crew of four or more firefighters.





**Map 11: Eight Minute OSHA “2 In/2 Out” Response.** Map 11 identifies roads where a minimum of 4 firefighters can assemble on scene within 8 minutes in accordance to OSHA’s “2 In/2 Out” guideline. Currently, 4 firefighters can assemble on **60.2% of all roads located in the City in 8 minutes or less, assuming units are available to respond immediately upon dispatch.** Ideally, a first arriving fire company will be able to immediately initiate fireground tasks with a crew of four or more firefighters. The Department does not meet NFPA 1710 guidelines that states a fire department must arrive with 15 firefighters within 8-minutes. Currently, the Strongsville Fire Department does not staff 15 firefighters on a shift, therefore it cannot be in compliance with NFPA 1710.



## Response to High-Rise Fires

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*Although this section specifically addresses fire response to high-rise buildings, it is important to note that the discussion can be extrapolated to large area buildings such as manufacturing centers, warehouses, grocery stores, schools, and other structures with a high fire load and populations.*

High-rise buildings were once found exclusively in urban cities. However, today they are commonly found in small and mid-sized suburban communities as well. In many cases, high-rise buildings in suburban areas are newer, shorter, and protected by automatic sprinkler systems; however, this is not always a guarantee. Additionally, although the frequency of fires in high-rise structures is low, they pose a high consequence of loss with regards to injury, loss of life, and property damage.

Even if a department does not respond to high-rise buildings at present, it may in the future as urban sprawl continues. The risk to firefighters and occupants increases in proportion to the height of the building and the height of the fire above grade level (Klaene, 2007). Once firefighters are operating above the reach of aerial devices, the only viable means of egress is the interior stairs; extra protection afforded by laddering the building is not possible. Therefore, a sound fire department deployment strategy, effective operational tactics, and engineered fire protection systems cannot be separated from firefighter safety. In attacking a fire in a high-rise building, as in any structure fire, engine company and truck company operations must be coordinated.

High-rise fires represent an extraordinary challenge to fire departments and are some of the most challenging incidents a fire department encounters. High-rise buildings may hold thousands of people above the reach of fire department aerial devices, and the chance of rescuing victims from the exterior is greatly reduced once a fire has reached flashover.

The NFPA 101®, Life Safety Code, 2012 edition<sup>12</sup> and the International Code Council-published International Building Code both define a high-rise structure as a building more than 75 ft (23 m) in height, measured from the lowest level of fire department vehicle access to the bottom of the highest occupied floor. For the fire service, a high-rise structure may be defined as a building with sufficient height to exceed the fire department's exterior laddering capability (NFPA, 2012).

High-rise buildings present a unique threat to the fire service. Multi-floor fires such as the Interstate Building Fire, One Meridian Plaza Fire, World Trade Center collapse, Cook County Administration Building Fire, and Deutsche Bank Building Fire each represented serious challenges to operational capabilities of a modern fire department. According to NFPA (Hall 2011), an annual average of 15,700 structure fires were reported in high-rise buildings between 2005 and 2009. The annual loss associated with these fires included 53 civilian deaths, 546 civilian injuries, and more than \$235 million in direct property damage. Office buildings, hotels, apartment buildings, and health care facilities accounted for nearly half of these high-rise fires. During the same span of time, most high-rise building fires began no higher than the 6th floor, while approximately one-third of them began on the 7th floor or higher.

The NFPA classifies high-rise buildings as high hazard occupancies in §A.3.3.28 of NFPA 1710. In §5.2.3.1.2 of NFPA 1710, the standard further specifies a minimum staffing of “five or six on-duty personnel” per apparatus for high hazard responses. However, the standard does not specify a minimum deployment configuration (either apparatus or total number of personnel) for high-rise building fires. Rather, the standard includes a performance statement in §5.2.4.2.3: “Fire departments that respond to fires in high-, medium-, or low-hazard occupancies that present hazards greater than those found in the low-hazard occupancy described [above] shall deploy additional resources on the initial alarm.”

A critical variable in high-rise fire operations is the availability of reliable elevators. If firefighters can safely use the elevators to move people and equipment, fire-ground logistics may be significantly improved. When the fire is located several floors above ground level, there is a strong inclination to use the elevators. However, fire service access elevators<sup>34</sup> may not be available in all buildings. Therefore, adequate stairways are necessary for firefighters to transport equipment and reach the fire floor for suppression. Moving supplies and staff up 10, 20, 30, or more stories is an arduous task. If it is not properly managed, firefighters may be exhausted and unable to fight the fire or rescue trapped occupants. Additionally, joint use of stairways by firefighters moving upward and occupants attempting to evacuate may increase the overall evacuation time of the occupants, as well as delay the firefighters’ efforts to begin critical tasks such as fire suppression or search and rescue operations.

## Overview of High-Rise Firefighting Tactics

In a high-rise fire, the risk to firefighters and occupants increases in proportion to the height of the building and the height of the fire above ground level. As the level of the fire floor gets higher, reliance on the standpipe system also increases. A standpipe system is a piping system with discharge outlets at various locations usually located in stairwells on each floor in high-rise buildings that is connected to a water source with pressure supplemented by a fire pump<sup>35</sup> and/or a fire apparatus with pumping capabilities.

A structure fire in a high-rise building can threaten occupants and responding firefighters. Because of the amount of time it takes firefighters encumbered with equipment to access the involved floors, fire may have expanded well past the area of origin. This means that firefighters can encounter a large volume of fire and darkened conditions when they arrive on the involved floors. This can be further complicated if the building is not equipped with a sprinkler system. Additionally, open-layout floor plans such as office buildings with cubicle farms can challenge both the standpipe’s flow capacity and fire department resources in regards to search, rescue, and hoseline deployment. The most effective way to extinguish a high-rise fire is by mounting an offensive attack as early as possible, because in the vast majority of historic high-rise fires the best life safety tactic is extinguishing the fire. Good high-rise firefighting tactics and firefighter/occupant safety cannot be separated. As with a residential structure fire, the first

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<sup>34</sup> A fire service elevator is engineered to operate in a building during a fire emergency and complying with prescriptive building code requirements and the American Society of Mechanical Engineers (ASME) A 17.1 safety standard for elevators.

<sup>35</sup> Structural Firefighting Strategy and Tactics 2<sup>nd</sup> edition. Klaene B., Sanders R. NFPA 2008



arriving suppression apparatus should be on the scene within four minutes of travel time. However, when responding to any high-hazard buildings or structures, which include high-rises, first responding fire apparatus should be staffed with five to six firefighters, per NFPA 1710.

Tactics are a series of operational tasks that in combination accomplish an overall fireground strategy. Individual tactics are measurable and attainable intermediate outcomes that lead to the completion of incident objectives like extinguishing the fire. Similar to residential structure fires, there are three tactical priorities in a high-rise fire; life safety, fire extinguishment, and property conservation (Klaene, 2007). However, as opposed to residential firefighting in a 2,000 square foot residence, firefighters have to travel upwards of more than three stories and carry additional equipment beyond the normal requirements. Furthermore, since firefighters will encounter a large volume of fire and will have an extended fire attack it will be necessary to establish an equipment supply chain to transport equipment and resources up and down the building.

During firefighting, life safety tactics fall under the label of Search and Rescue. Search is a fireground tactic that is a systematic approach to locating possible victims, and Rescue is the act of removing victims from known danger. Searches are normally conducted by an entire crew, supplemented by an attack or ventilation crew. The minimum number of firefighters for a search is two personnel (IFSTA, 2010). High-rise structures pose challenges regarding search and rescue that are not typically encountered in residential housing. For commercial buildings, large open areas and cubicle farms require additional search and rescue teams so that thorough searches can occur. Conscious victims may retreat to areas in an attempt to find shelter from the heat and smoke. These areas may differ from places where they are typically seen by coworkers, making locating them difficult if they are unaccounted for. In residential high-rises, apartments typically lack two exits and usually share a common hallway for egress. Doors left open by victims fleeing fire can allow fire and smoke to spread into the hallway and impact escape attempts. Firefighters will be slowed in their search since they will be required to force their way into numerous apartments to search for victims. For this reason, regardless of commercial or residential, it is essential for there to be more than one search and rescue team operating per involved floor to quickly locate victims in large surface areas. It is also necessary for additional search and rescue teams to search the floors above the fire and the highest floor of the building, due to how fire and smoke spread to the rest of the building. Search and Rescue teams should also be supplemented with evacuation management teams to assist injured or disabled victims down the stairwells so searching can continue.

Fire extinguishment is a critical factor, since the intensity and size of the fire will determine the extent to which combustion gases are heated and how high they will rise inside the building. Building suppression systems, both active and passive, can impact fire growth, occupant safety, and firefighter safety and effectiveness. Such features include active fire detection and automatic sprinkler systems and are designed to either extinguish the fire or contain it until firefighters arrive.

Once firefighters are on scene, they will complete a series of fire confinement and extinguishment tasks. Firefighters access the structure, locate the fire, locate any avenues of spread, place hoselines, and establish a water supply. Once a water supply is established, water should be placed at the seat of the fire or in the compartment containing the fire to extinguish it.



Unlike residential structure fires where hoselines can be stretched from the fire apparatus into the structure, high-rise structures require the use of standpipes systems to combat fire. This requires firefighters to carry multiple sections of hose to the affected floors and connect into the system to fight fire. Minimally, firefighters must deploy two hoselines to the involved floor and one hoseline to the floor above the fire. The third hoseline supports a number of critical tasks in the suppression effort. Principally, it is used to protect search and rescue teams, but also to stop the spread of fire as a result of conduction and convection through exposed pipes, metal framing, and ventilation systems.

Ventilation is a tactic that affects both life safety and fire extinguishment. Coordinated ventilation may be implemented at any time during the operation, but it should be coordinated with suppression and interior rescue activities. Ventilation is used to channel and remove heated air, smoke, fire gases, and other airborne contaminants. Applying proper ventilation at the right time and place is key to firefighter and occupant safety. Venting at the wrong time or place can draw active fire toward fresh air, which will injure or kill anyone in its path. In instances of high-rise fire suppression, adequate and appropriate ventilation is important to keep stairways free of smoke and noxious gasses so they can be used for victims who are evacuating.

After the fire is extinguished and victims rescued, firefighters should move on to the task of salvage. Salvage is the firefighters' attempt to save property or reduce the damage from water and smoke. Salvage operations are typically performed immediately after a fire by removing unharmed property from the fire area and covering it with canvas tarpaulin or other heavy protective material. Salvage is a major tactical priority that requires significant time and resources in order to minimize loss.

Overhaul is the completion of the extinguishment, which can result in what may appear to be additional damage to any property. The additional damage, however, is warranted to prevent more unexpected fire damage. Overhaul is used to ensure the fire is out completely and that the environment is safe for others, such as investigators or the property owner, to enter. Firefighters may use thermal imaging cameras to look at walls and ceilings to find hot spots, or they may tear out sections of walls and pull sections of ceilings to assure there has been no fire spread.

As indicated by the tasks that must be accomplished on a high-rise fireground, understanding the required resources is critical. The number of firefighters needed to safely and effectively combat a high-rise fire may be large. Although an offensive fire attack is the preferred strategy whenever conditions and resources permit, a defensive attack that limits operations to the outside of a building and generally results in more property damage must be considered when risks to firefighter safety are too great and benefits to building occupants are negligible. The offensive vs. defensive decision is based on a number of factors: fireground staffing available to conduct an interior attack, a sustained water supply, the ability to conduct ventilation, and risk vs. benefit analysis regarding firefighter and occupant safety. Table 5 displays the minimum number of firefighters required to arrive in the first full alarm assignment to a high-rise fire.

<i>Assignment</i>	<i>Required Personnel</i>
<b>Incident Command</b>	1 Incident Commander 1 Incident Command Aide
<b>Uninterrupted Water Supply</b>	1 Fire Engine Operator 1 Building Fire Pump Observer <sup>36</sup>
<b>Water Flow from Two Handlines on the Involved Floor</b>	4 Firefighters (2 for each line)
<b>Water Flow from One Handline One Floor Above the Involved Floor</b>	2 Firefighters (2 for each line)
<b>Initial Rapid Intervention Crew (IRIC) Two Floors Below the Involved Floor</b>	4 Firefighters
<b>Victim Search and Rescue Teams</b>	4 Firefighters (2 per team)
<b>Point of Entry Accountability (Fire Floor)</b>	1 Officer 1 Officer's Aide
<b>Accountability (Floor Above)</b>	1 Officer 1 Officer's Aide
<b>Evacuation Management Teams</b>	4 Firefighters ( 2 per team)
<b>Elevator Management</b>	1 Firefighter
<b>Lobby Operations Officer</b>	1 Officer
<b>Trained Incident Safety Officer</b>	1 Officer
<b>Staging Officer Two Floors Below Involved Floor</b>	1 Officer
<b>Equipment Transport to Floor Below Involved Floor</b>	2 Firefighters
<b>Firefighter Rehabilitation</b>	2 Firefighters ( 1 must be ALS)
<b>Vertical Ventilation Crew</b>	1 Officer 3 Firefighters
<b>External Base Operations</b>	1 Officer
<b>2 EMS ALS Transport Units</b>	4 Firefighters
<b>Required Minimum Personnel for Full Alarm</b>	<b>34-35 Firefighters</b> <b>1 Incident Commander</b> <b>7 Officers</b>

**Table 5: Number of Firefighters for an Initial Full Alarm to a High-Rise Fire.** Fighting fire in high-rise structures poses many unique obstacles and challenges other than are found in a residential structure fire. Hose cannot be deployed directly from fire apparatus and needs to be carried, with other equipment, to the location of the fire. Search and rescue is impacted by large areas and accessibility concerns. Additionally, because of delays in access, firefighters are likely to encounter a high volume of fire which will necessitate a supply chain to equip ongoing suppression efforts. A single alarm response to a high-rise building minimally requires 42 responders, consisting of 34-35 firefighters, 1 incident commander, and 7 officers.

<sup>36</sup> If connecting to building's fire pump.

As will be discussed later in the section regarding the Strongsville risk assessment, the City has a number of high-hazard occupancies that range from wide-area manufacturing sites to high-rise structures. Of particular concern, there are six high-rise commercial buildings, three of which are hospitals. Of these structures, one of these three is 14 stories above grade. One commercial areas has multiple buildings and is served by a rail yard. Several of these buildings are inside a four-minute response time from the closest fire station, but are also out of the area of convergence, which means firefighters arriving on the fire floor will be confronted with large volumes of fire.

NFPA 1710 recommends large company sizes of five to six firefighters for the first arriving unit(s) on the scene within four minutes of the initial dispatch for response to high-hazard occupancies. For Strongsville, this objective has not been met. The Department is not able to meet staffing requirements for low-, medium-, and high-hazards for the initial responding company due to its deployment strategy since fire suppression units respond with three firefighters.

# Risk Assessment of Strongsville

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A risk analysis was performed on the City to assess the need for emergency services. An assessment of the 2013 U.S. Census revealed that 21.9% of the population was in a vulnerable category. This category consists of persons under the age of 5 (4.9%) and persons 65 years of age and older (17%), but does not include the special needs population. Also not included in the vulnerable population, but at an increased risk for fire related injuries and deaths are persons between ages 5 to 14, which account for 13.3%<sup>37</sup> of the population. This means that collectively 35.2% of the City's population is more prone to fire-related injuries and deaths.

According to the NFPA - using data compiled from the US Census and the National Fire Incident Reporting System (NFIRS) - between 2007 and 2011, people ages 65 and up accounted for 13% of the population, but accounted for 30% of all fire deaths in homes. Additionally, the older the person, the more likely they are to be impacted by medical conditions and trauma, and also suffer fire-related injuries and death. The most common factor that explains why people over the age of 65 are impacted by these issues and place an increased demand on EMS and fire resources is the complications of aging.<sup>38</sup> As people age they develop visual and auditory impairments as well as mobility issues which slow reaction to falls, fires, and other situations that can result in harm. Coupled with multiple underlying health issues and multiple medications, elderly citizens can suffer from a variety of symptoms and side-effects that may include confusion.<sup>39</sup> For the individual, these factors increase the risk of a medical emergency, but for firefighter/EMS providers, they pose delays in the rescue and removal under any circumstance.

By contrast, children, although generally lacking the impairments brought on by advanced age, are unable to identify risk, determine the need for escape, or physically do so without the assistance of others.<sup>40</sup> Within the general category of birth to 14 years of age, the highest percentage of fatalities and injuries occur in the birth to 5 years of age category, accounting for nearly 50%.<sup>41</sup> In addition to fire-related injuries and deaths, the general age group of birth to 14 years of age, although typically less likely to place a large demand on EMS services volume-wise, do test system preparedness and readiness because their immature anatomy and physiology make them less able to compensate in response to injury and illness than adults do. As a result they are more likely to take dramatic downturns when sick or injured.

In addition to risks as a product of age, 5% of the population is living at or below the poverty level. There are 18,135 housing units with the majority being single family residences (83.2%) and the remainder being multifamily (16.6%), and mobile homes (0.2%). Of these structures, 21.9% are of pre-1970 construction, and 2.7% of these were built in 1939 or earlier. Typically,

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<sup>37</sup> 2010 US Census: <http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>

<sup>38</sup> U.S. Fire Administration, Fire Risks for Older Adults, October 1999. Pgs. 13-16

<sup>39</sup> U.S. Fire Administration, Fire Risks for Older Adults, October 1999. Pg. 15-16

<sup>40</sup> U.S. Fire Administration, The Risk of Fire to Children, December 2004. Pg. 2

<sup>41</sup> U.S. Fire Administration, The Risk of Fire to Children, December 2004. Pg. 1



when there are high numbers of vulnerable citizens and older buildings constructed before many current fire codes were developed, there is an increased demand on emergency services.

There is a relationship between fire, demand on EMS, and poverty that spans all age groups. To begin, nearly 9.5% of adults 65 years of age and older and 19.9% of children under 18 years of age live at or below the poverty level in the United States.<sup>42</sup> In Strongsville, 3.1% of adults 65 years of age and older and 8.0% of children 18 years of age and younger are below the poverty level. Of the latter category, 15% of these children are under 5 years of age.<sup>43</sup> People living at or below the poverty level are impacted more frequently by fires for a number of reasons. First, people living in poverty are likely to reside in substandard housing and have more occupants than the housing unit can comfortably and safely accommodate.<sup>44</sup> Because they have limited income, the impoverished are less likely or unable to maintain safe heating and electrical equipment and are more likely to use unsafe heating and light sources such as space heaters, open fires, and candles.<sup>45</sup> In addition to this, persons living in poverty are less likely to purchase and/or maintain early detection devices such as smoke alarms or other safety equipment, such as fire extinguishers. For children, many reside in not only substandard overcrowded housing, but single parent work schedules and an inability to afford child care result in unsupervised children, which may lead to accidental fires. In the United States the poverty level for a family of four equates to an annual income of \$23,850.00.<sup>46</sup>

Poverty not only increases the risk of fire, it also increases demand on EMS. This is due largely to the fact that persons living in poverty do not have access to primary care because they lack the ability to pay or because local health clinics may be poorly equipped and overcrowded. For example, in impoverished neighborhoods, children are slightly more likely to suffer from asthma, but are four times more likely to use the emergency department for treatment<sup>47</sup> and there is a higher population of people suffering from mental illness.<sup>48</sup> Because of their lack of, or diminished, funding and lack of access, as well as a number of other factors, people living at or below the poverty level have been shown to be three times more likely to use the emergency

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<sup>42</sup> Income and Poverty in the United States: 2013, DeNavas-Walt, Carmen and Proctor, Bernadette D. U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau, Issued September, 2014. Pg. 12

<sup>43</sup> U.S. Census American Fact Finder, Selected Economic characteristics 2009-2013 American Community Survey 5-year Estimates. <http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>

<sup>44</sup> U.S. Fire Administration, The Risk of Fire to Children, December 2004. Pg. 4

<sup>45</sup> U.S. Fire Administration, Fire Risks for Older Adults, October 1999. Pg. 16-17

<sup>46</sup> U.S. Health and Human Services: <http://aspe.hhs.gov/poverty/14poverty.cfm>

<sup>47</sup> Childhood Asthma and Poverty: Differential Impacts and Utilization of Health Services. Halfon, Neal. Newacheck, Paul H. PEDIATRICS Vol. 91, No. 1 January 1, 1993. Pgs. 56-61

<sup>48</sup> Racial/Ethical Disparities in the Use of Mental Health Services in Poverty Areas. Chow, et al. American Journal of Public Health, May 2003. Vol 93, No. 5

department as their primary means of care.<sup>49</sup> For many people below the poverty level the primary means of transport to the emergency department will be via ambulance.

In addition to these demographics which show a notable risk, the City is also impacted by a number of medium and high-hazard structures that increase the City's risk. High-rise and un-sprinkled buildings and structures with heavy fire load, high occupancy counts, and/or large vulnerable populations living or working within them pose significant risk and additional obstacles for responders in regards to fire suppression, rescue, and EMS. Within the City there are at least 14 structures that because of their design, lack of fire suppression systems, occupancy load, and daily use will, and do, place a demand on emergency services.

Local 2882 listed nine high-rise residential buildings, one of which is a senior living apartment building. Of these structures, three do not have sprinkler or stand pipe systems installed. The senior living apartment is seven stories above grade. Of the three unsprinklered buildings, they are apartment buildings that are three to six stories above grade.

For high rises, wide-area buildings, and buildings where manufacturing takes place, access into the building, search for victims, the isolation of fire, and arriving at the patient can be difficult due to security, obstacles associated with production, and extended travel distances on foot while burdened with equipment. Similarly, removing patients and fire casualties that are elderly, have special needs, and/or have disabilities and mobility issues present additional hardships for responders.

The City also has three areas of industrial manufacturing. Buildings used for manufacturing or storage are usually have a very large square footage space. They can also have a high fuel load or possibly store hazardous materials. The City also has a number of large area multi-story commercial manufacturing structures within the industrial areas. These types of facilities increase the City's risk for fire-related injuries and deaths, as well as increased demand on EMS. Given these factors the Department is likely to have a high and steady call volume with regards to its size.

As has been noted earlier, Strongsville supports a minimum of one suppression apparatus out of each station. These pieces of apparatus are staffed daily with three firefighters. Every fire station deploys medic units. Medic and Engine units are staffed with at least 1 EMT-P (Paramedic). Every firefighter in the station will respond on the Medic or Engine unit based on the type of emergency. The NFPA 1710 standard requires that fire suppression companies be minimally staffed with four firefighters for response to low hazard occupancies, such as residential house fires,<sup>50</sup> and ambulances be staffed with two.<sup>51</sup> NFPA also requires that jurisdictions with target or

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<sup>49</sup> Use of the ED as a Regular Source of Care: Associated Factors Beyond the Lack of Health Insurance. O'Brien et al. *Annals of Emergency Medicine*, Sept, 1997, Volume 30, Issue 3, Pgs. 286-291

<sup>50</sup> NFPA 1710, 5.2.3.1.1



high-hazard occupancies should staff suppression companies with a minimum of five or six firefighters. Additionally, NFPA also requires that 14 firefighters and a command officer be assembled on the scene of a fire within 8 minutes of leaving the station. OSHA requires four firefighters for an initial attack on low-hazard fires.

Generally speaking, a company is a group of firefighters that acts under the direct supervision of an officer, is trained and equipped to perform assigned tasks and operates on one piece of apparatus.<sup>52</sup> Due to a variety of reasons it may be practical for companies to respond on two different apparatus as a means of supporting the Department's mission to the City. However, the main objective is that a minimum of four firefighters respond and arrive on the scene simultaneously to begin fire suppression and rescue.<sup>53</sup> In Strongsville's case, the provision of EMS not only generates revenue to offset cost and is a value added service for citizens, it also allows the City to partially meet compliance with national standards and mandates from OSHA.

Ambulances responding and arriving simultaneously with suppression apparatus provide for six firefighters on the scene of an incident, whether it is a response to fire or EMS. For fire response, it means the first arriving fire apparatus meets national standards and OSHA mandates for response to low- and high-hazard occupancies. For EMS response, it means that an optimally sized team can begin immediately providing care for sick and injured patients and safely remove the patient in a manner that reduces the risk of injury to providers and patients alike. However at the cost of this response, there are not any available staffing back in the fire stations to respond to a call that may occur simultaneously. The Strongsville Fire Department does not have depth of coverage. In other words, there are not enough available units to respond to multiple calls that may occur nor is there enough units to respond to a large fire at any time.

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<sup>51</sup> NFPA 1710, 5.3.3.2.2- This standard specifically calls for staffing that is based on minimal levels needed to provide patient care and member safety. Per State law, ambulances must be minimally staffed with two certified providers.

<sup>52</sup> NFPA 1710, 3.3.13

<sup>53</sup> NFPA 1710, 3.3.13 & A.3.3.13

## Conclusion

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In conclusion, the Department must change operational procedures and stop the practice of cross-staffing first responding fire suppression apparatus and medic units. To change cross-staffing procedures, additional staffing must be put in place to staff all medic units and fire apparatus at all times. The provision of emergency medical response to the citizens of the City is a value-added service that clearly meets the needs of the community at large. Regardless of the response, without being supplemented by teams from the ambulances, fire suppression apparatus will not be compliant with national standards or OSHA mandates for safe, efficient, and effective response to fires or rescue situations.

Currently, the fire department is not compliant with national standards in response to structure fires and rescue situations due largely to the fact that it staffs engine and quint apparatus with three firefighters. The Department is only compliant with national standards and OSHA mandates in regards to the 2 In/2 Out regulation as long as two apparatus arrive on the scene of an incident simultaneously.

Finally, the Department is not compliant with national standards in initial response to fires and rescue situations due largely to the fact that it does not have enough fire stations in Strongsville. Strongsville has a problem with distribution of apparatus. An additional fire stations must be built to meet the requirements of national standards for 4-minute initial response within the city. Currently the Department lacks 4-minute coverage in large sections of the central area of town where the old fire station used to be located. This area of the city has assisted living facilities, major retail center, and buildings without sprinklers.

# Appendix

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## National Performance Standards

NFPA 1710 is the consensus standard for career firefighter deployment, including requirements for fire department arrival time, staffing levels, and fireground responsibilities.<sup>54</sup>

*Key Sections included in the 1710 Standard that are applicable to this assessment are:*

- 4.1.2.1
  - The fire department shall establish the following objectives:
    - (1) Alarm handling time to be completed in accordance with 4.1.2.3
    - (2) 80 seconds turnout time for fire and special operations response and 60 seconds turnout time for EMS response
    - (3) 240 seconds or less travel time for the arrival of the first arriving engine company at a fire suppression incident
    - (4) For other than high-rise, 480 seconds or less travel time for the deployment of an initial full alarm assignment at a fire suppression incident
    - (5) For high-rise, 610 seconds or less travel time for the deployment of an initial alarm assignment at a fire suppression incident
    - (6) 240 seconds or less travel time for the arrival of a unit with first responder with automatic external defibrillator (AED) or higher level capability at an emergency medical incident
    - (7) 480 seconds or less travel time for the arrival of an advanced life support (ALS) unit at an emergency medical incident, where this service is provided by the fire department provided a first responder with AED or basic life support (BLS) unit arrived in 240 seconds or less travel time.
  
- 5.2.3
  - **Operating Units.** Fire company staffing requirements shall be based on minimum levels necessary for safe, effective, and efficient emergency operations.

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<sup>54</sup> NFPA 1710, 2016

- 5.2.3.1 & 5.2.3.1.1
  - Fire companies, whose primary functions are to pump and deliver water and perform basic firefighting at fires, including search and rescue... shall be staffed with a minimum of four on-duty members.
  
- 5.2.3.1.2
  - In jurisdictions with a high number of incidents or geographical restrictions, as identified by the AHJ<sup>55</sup>, these companies shall be staffed with a minimum of five on-duty members.
  
- 5.2.3.1.2.1
  - In jurisdictions with tactical hazards, high-hazard occupancies, or dense urban areas, as identified by the AHJ, these fire companies shall be staffed with a minimum of six on-duty members.
  
- 5.2.3.2 & 5.2.3.2.1
  - Fire companies whose primary functions are to perform the variety of services associated with truck work, such as forcible entry, ventilation, search and rescue, aerial operations for water delivery and rescue, utility control, illumination, overhaul and salvage work... shall be staffed with a minimum of four on-duty members.
  
- 5.2.3.2.2
  - In jurisdictions with a high number of incidents or geographical restrictions, as identified by the AHJ, these companies shall be staffed with a minimum of five on-duty members.
  
- 5.2.3.2.2.1
  - In jurisdictions with tactical hazards, high-hazard occupancies, or dense urban areas, as identified by the AHJ, these fire companies shall be staffed with a minimum of six on-duty members.
  
- 5.2.3.4.1
  - A fire company that deploys with quint apparatus designed to operate as either an engine company or a ladder company, shall be staffed as specified in 5.2.3.

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<sup>55</sup> AHJ- Authority Having Jurisdiction

- 5.2.3.4.2
  - If the company is expected to perform multiple roles simultaneously, additional staffing, above the levels specified in 5.2.3, shall be provided to ensure that those operations can be performed as required.
  
- 5.2.4.1.1
  - The initial full alarm assignment to a structure fire in a typical 2000ft<sup>2</sup> (186m<sup>2</sup>), two-story single-family dwelling without basement and no exposures shall provide for the following:

<i>Assignment</i>	<i>Required Personnel</i>
<b>Incident Command</b>	1 Officer
<b>Uninterrupted Water Supply</b>	1 Pump Operator
<b>Water Flow from Two Handlines</b>	4 Firefighters (2 for each line)
<b>Support for Handlines</b>	2 Firefighters (1 for each line)
<b>Victim Search and Rescue Team</b>	2 Firefighters
<b>Ventilation Team</b>	2 Firefighters
<b>Aerial Operator</b>	1 Firefighters
<b>Initial Rapid Intervention Crew (IRIC)</b>	2 Firefighters
<b>Required Minimum Personnel for Full Alarm</b>	<b>14 Firefighters &amp; 1 Scene Commander</b>

- 5.3.3.2.2
  - EMS staffing requirements shall be based on the minimum levels needed to provide patient care and member safety.
  
- 5.3.3.2.2.2 & 5.3.3.2.2.3
  - Units that provide BLS (ALS re: 5.3.3.2.2.3) transport shall be staffed and trained at the level prescribed by the state or provincial agency responsible for providing EMS licensing.



Notes from I-71 at SR 82  
Interchange Modification Study  
November 24, 2015

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## I. Executive Summary

The City of Strongsville is looking for a long-term solution to reduce congestion and decrease crashes in the area. Several short to medium term countermeasures have been implemented or studied with little improvement to congestion or crashes.

HMM evaluated the Build Condition for traffic operations, this included the exit ramp at Howe and the widening of Howe Road.

## II. Background page 3

Justification of modification based on a report completed by HMM on April 15, 2013. ODOT's feedback and comments were added and HMM completed on July 18, 2013.

The formal study was completed by ODOT in July of 2012.  
Focus was on short and medium term countermeasures.

All items, listed as recently implemented short-term improvements, were not made for the target area of I71 South/82 West/Howe Road South as listed on the report given to Strongsville.

## III. Purpose & Need page 3

The purpose of this study is to examine a long-term countermeasure to improve safety by reducing congestion on SR82 and eliminating queues from the I-71 exit ramps onto mainline I-71.

The Formal Safety Study was completed in July of 2012, (pg. 6) which includes all the crash data related to the SR82/Howe Road intersection.

## VII. Alternatives Considered page 9

1. No build
2. Short-Term –
  - a. Pavement making changes
  - b. Widening from Shurmer Rd. north to 82 – 5 lanes
  - c. Signal timing/coordination optimization.
  - d. Intersection improvements
3. Ramp Metering: ramp metering was dismissed as a viable option at this Interchange because the congestion and crash problem is more prevalent on SR82 and on the I-71 SB. (SR 82 is part of ODOT domain – it is a state route.
4. SR 82/Howe Road Intersection Reconstruction – Parsons Brinckerhoff, through ODOT District 12 Evaluated different alternative designs. Ultimately, the major amount of work to be done had costs that prohibited options as being viable at this time.
5. New I-71 interchange – Several studies have been conducted in the past, based on a teleconference on March 2, 2015 between HMM, District 12, and the Office of Roadway Engineering, this alternative has been dismissed due to high costs, ROW needs, and lack of support by local municipalities and ODOT.
6. Collector-Distributor Road – HMM explored adding an entrance ramp to I71 S via adding to the entrance ramp on the other side of 82 – They called it Ramp C. This alternative was dismissed based on several negative obstacles.
7. Howe Road/Shurmer Road Entrance Ramp to I 71 – HMM explored this adding an entrance ramp to I-71 and dismissed this alternative based on negligible operations improvements and the cost of the ramp.
8. The Build Study –
  - Construct exit ramp for Howe Road,
  - Widen Howe Road to 5 lanes,
  - Widen Southern Howe Road/Shurmer Road intersection,
  - Add additional right turn lane to SR 82 EB to access I-71 NB
  - Optimize signal timings and coordination.

## IX. Traffic Analyses

Intersections – page 12

### HCS/Isolated Intersection Build Analysis

All intersections operate at an acceptable LOS D or better in the AM Build condition.125

The SR 82/Howe intersection operates at a LOS E in the PM Build condition.

ALL other intersections operate at an acceptable LOS D or better in the PM Build Condition.

## XII. Conclusions and Recommendations

Delay reduction is based on redirecting vehicles currently utilizing the I-71 SB to SR 82 exit ramp (45,000 to 60,000) as well as the DR 82 corridor and redirecting them to the Howe Road Exit ramp in the Build Conditions with nearly 400 vehicles in the AM peak and over 800 in the PM peak. Removing these vehicles from SR 82/Howe Road intersection allows the existing roadway system to work better.

**Will that really make a major difference for the intersection. Is it great enough to put the safety of residents on Howe Road, Shurmer and other streets in area?**

**This report is dated November 2015. It should be noted that most studies completed were done from 2010 – 2015. That is up to a 6 year different. The City of Strongsville made many changes after those studies were done, thus, rendering them as outdated.**

**Brunswick, dating back to at least 2001, has repeatedly refused to take on such a project. However, a slip ramp connected to I-71 and SR 303 is the next project, according to ODOT.**



Alternative solutions presented by:

Deborah Cottrell  
17149 Misty Lake Dr.  
Strongsville 44136

1. 'No Build'

Improved signage so people get in correct lanes.

2. Turnpike exit - open segment to permit I 71 Southbound to use the exit to directly hook up to Pearl Rd. At present, cannot directly exit to Pearl. Only to enter turnpike OR make a U-turn to get onto Pearl. Make a direct connection to Pearl.

3. Since we have to pay for a ramp, why not build the exit ramp at Boston Road. We would be getting rid of the Brunswick traffic, which in turn, makes our streets safer. I believe the city border is at the halfway point of Boston Rd.

4. If 'Build' is selected, then:

Create a center turn lane, as planned, so that our ambulance will be able to quickly go down Howe.

**NO trucks, buses allowed to use the slip ramp**

Create safe areas to cross the street, especially at the ramp. Children live in this area and should be able to meet their friends on the other side of the street.

Also, walkers and bike riders need safe crossing.

**Last date used for study of intersection I-71/Royalton/Howe was 3/5/2012**

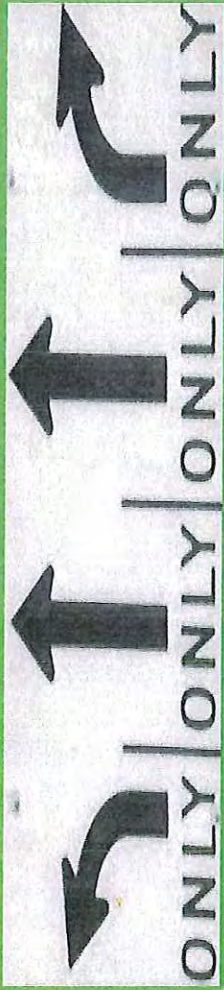
ODOT is expected to begin another slip ramp project this year at the I-71/SR 303 interchange in neighboring Brunswick.



Howe  
Road

Mall  
Pearl Rd. & 82

Mall  
Costco  
Best Buy



Howe  
Road

Howe  
Road

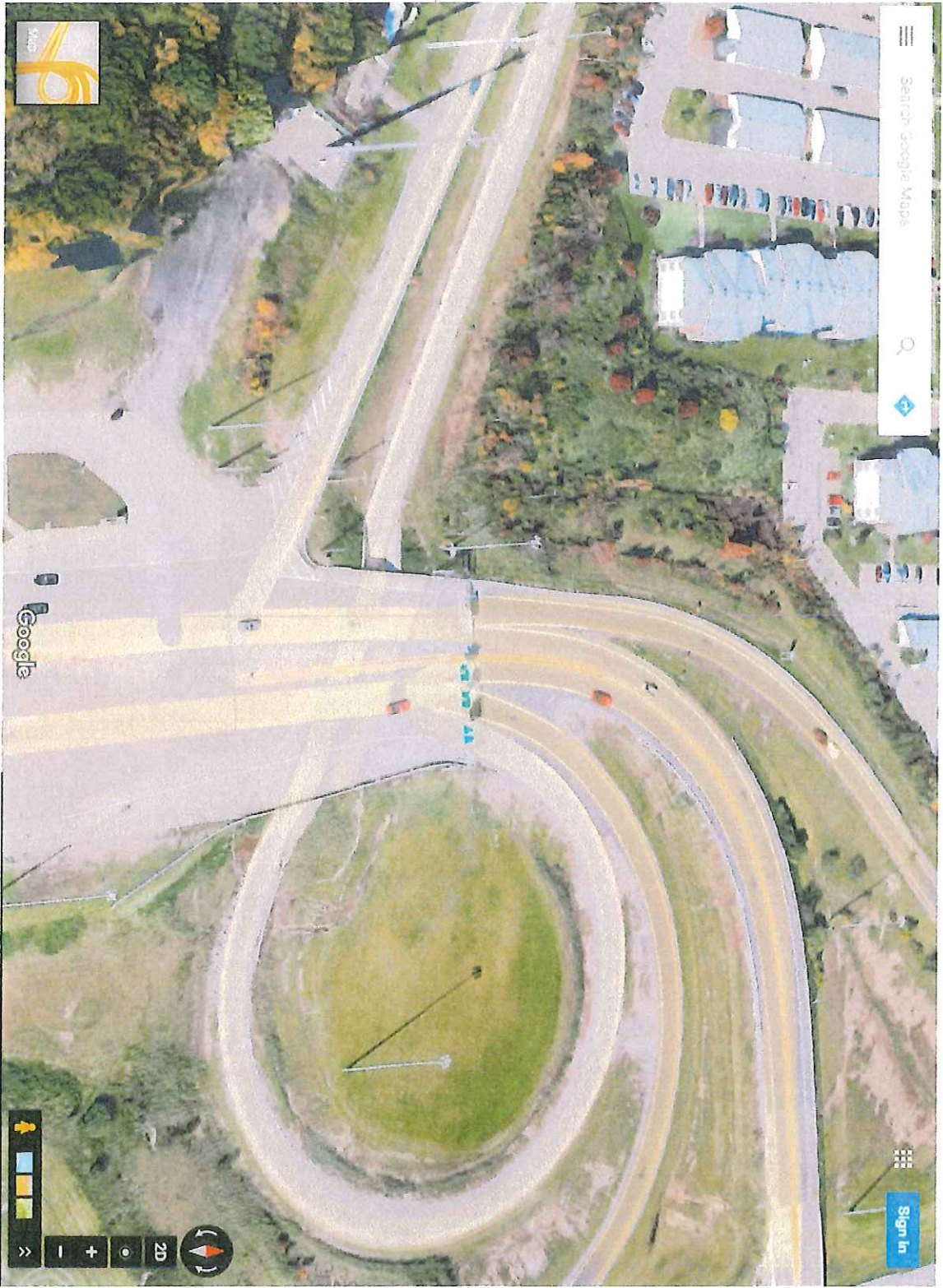
Rte. 82 to Pearl Rd.  
Mall

Costco  
Mall

Best Buy













## Edge line Rumble Stripes

- Compared 420 segments where edge line rumble stripes were installed in 2010.
- Segments varied in length
- Avg of 2007-09 vs 2011 data
  - 15.5% reduction in fatalities
  - 10% reduction in total crashes
  - 26% reduction in fixed object crashes
  - 33% reduction in nighttime crashes on roads with lights (increase reflectivity of pavement markings)



# GCAT Crash Query Form



When Occurred

Caution: Using the Query Form in conjunction with shapes or boundaries for the same elements (particularly those representing number of incidents) may result in incorrect information. See the help file for details and examples.

Use Ctrl + click for multiple selections in the list boxes below.

- When Occurred**
- Year
  - Month
  - Day of Week
  - Hour of Day
  - Date Range (If requesting a certain time period)

- Crash Details**
- Crash Type
  - Crash Severity
  - Crash Related Attributes
  - Road Conditions
  - Weather Conditions
  - Lighting Conditions
  - Animal Type
  - Road Contour
  - Document Number search

- Driver/Vehicle**
- Gender
  - Alcohol/Drugs Suspected
  - Pre-Crash Actions
  - Contributing Circumstances
  - Sequence of Events
  - Driver Distracted by
  - Hands Free Device Used
  - Direction From
  - Direction To
  - Traffic Control Type
  - Type of Use
  - Type of Unit
  - Special Function
  - Posted Speed
  - Unit Speed

- Location**
- Crash Location
  - District
  - County
  - ODPS City/Village/Township
  - NLF-ID