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Urban Sprawl

If you saw the movie “Gangs of New York” you might recall a couple of scenes in which the volunteer firefighters were seen systemically destroying a place of business as part of the process of attempting to save it. That was during the early days of the history of the fire service. New York was a heavily concentrated city with everything from tenements and ghettos to the extremely rich living in a very, very narrow spit of land that the Dutch had initially colonized.

For a period of about 300 years the vast majority of “American” cities were essentially snuggled up next to the Eastern coastline of this country with very little concentration of the public out on the road in those areas. The Theory of Jacksonian Democracy and the Manifest Destiny movement resulted in many people abandoning those dense communities and becoming the pioneers who explored the rest of this country in the 1800’s. If one looks at the historical perspective of that phenomena, at one point with almost the entire major cities clinging to the east coast, the majority of the country was wide open spaces. They beckoned

One of the reasons our original communities were dense in the first place was for purposes of defense. One had to protect the community by concentrating human and physical resources into an area that you could barricade and protect. That is kind of a cozy explanation, but it was exactly one of the reasons why some of the country’s first cities became overcrowded and subsequently created lifestyles to cause people to want more space and more freedom.

And, if it is space that society wanted they got by expanding all across the breadth and depth of the North American Continent. Today our problem is not so much density as it distribution. While we still have concentration of society in some of our larger metropolitan cities, reality is that within almost every square mile in this country is got somebody staked out calling it “home” or a place of business. This is beginning to create a little bit of a planning problem for many fire departments. The planning problem is manifested in issues associated with providing the same level of service with totally different amounts of resources available to pay for those services when they are spread across a wide landscape.

Initially most community’s older communities started off with the idea that fire protection was not a serious issue. Going back to the early days of many of our cities and towns today there was a point in which there were key roads that came together and three people decided to settle there. There not only wasn’t a fire department there wasn’t any government to speak of. However, as people begin to gather in the general vicinity of that intersection there became an accumulation that resulted in homes being built, businesses being started and eventually someone looked up and said we need to have a fire department. The vast majority of fire departments in this country started off as volunteer for the very simple reason that there was no money to pay for fire trucks, fire stations or for that matter fire



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personnel. Most of the initial decisions to start volunteer departments were incited by a catastrophic event that occurred.

The modern phenomenon of urban sprawl however, is the antithesis of concentration. Having all of this vacant land in the USA has also tempted our society to spread our population out over larger and larger areas resulting in a somewhat complicated way in which we developed levels of fire protection. In essence I am saying that the number of people per square mile in many cases has a very significant impact on the ability of a local community to provide the fire and life safety services.

In other articles I have broached a similar subject by saying that it takes a minimum number of people to be able to generate a sufficient amount of tax revenue to pay for a fire department. That is a reality. If you take 10,000 people who have to pay a minimum of \$100 of per capita contribution every year you will raise about \$1,000,000. That begins to get in the ball park of what kind of fire protection you could or should have.

However, if you take those 10,000 people and spread them over 50 square miles, what they can afford and what they are going to get are two different things. That is because the other benchmark and baseline of fire department operations has to do with response time. These two factors are almost mutually exclusive.

In other words, people who are highly concentrated can be served with a minimum amount of time. People who are widely distributed but cannot achieve the baseline of funding within the response time area are going to have to be satisfied with something less than that.

In examining fire departments all across this country this phenomenon plays itself out in two arenas that have absolutely nothing to do with fire protection. The first of these is in land use policies. The second of these is in community tax structures. Neither of these is under the purview of the fire chief yet both of them simultaneously result in a set of circumstances that affect the level of service.

For example, if the tax structure is very low in a community it takes more people to afford the minimum level of service. It is also true that if the tax structure is very high, then a smaller number of people can afford a specific level of protection. Where it really gets awkward is when you start looking at fire protection across a broad landscape in which there are areas of minimum density and there are areas of maximum density and they both have the moral right to demand the same level of service be provided to both of them. However they may generate totally different amounts of tax revenue to pay for what they want

This dilemma is a lot more common than is generally considered. This is especially true in areas that are rapidly developing over the last fifteen to twenty years. That is because urban sprawl has encouraged a



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much lower density population by creating a housing market that is all single story. Residences are sort of squashed out across the environment like a thin paste of potential problems.

If we remember our older city's which were populated by a wide variety of housing stock, a single family dwelling at one time was a relatively rare commodity. Most people lived in multiple story buildings and the density per square mile or for that matter the density per acre was much higher. That was then. For about the last 50 years or so the opposite has been occurring. If there was land to develop, it got developed whether it could be served or not in many cases. That era may be ending.

Today land use policies regarding densities are undergoing another renaissance. It has been proven to some land use planners that urban sprawl has been counterproductive for a variety of purposes. One of the things it has done is encouraged a very large problem with regard to transportation and in the case of the fire service it has created gaps between the haves and the have not's in our community.

A recent backlash for this is the idea of the "sustainable community". While fire departments have not been focusing on this particular issue land use planners have. The concept of the sustainable community violates almost all of the assumptions that have lead to urban sprawl. One of the first of these is the ideas that instead of separating occupancies such as dwelling from commercial businesses they are now being encouraged to be placed one on top of the other. In other words the density on the ground, the footprint of the buildings is beginning to morph into something different than what many of our communities have developed over the last thirty years.

For example, the sustainable community is not particularly high on the use of large morals as a concentration of commercial enterprise. The sustainable community has another term that is often applied to it called the "walkable community". The context of this is that if a person could live in a building, be able to do their minor shopping for groceries and normal day to day commodities without ever having to use an automobile it has a positive impact.

This impact is reflected in the development of sustainable communities by the reduction in road widths. And while the American Fire Service keeps building bigger and bigger fire trucks the sustainable community wants to make for smaller and smaller access facilities. It sounds to me like a gap that could someday result in some rather significant problems.

The concept of a sustainable community gives some hope in the sense that it may be the one component that results in more sprinkler technology being used to protect these denser areas. On the other hand, it creates another set of problems as more and more fire departments are relying on their fire apparatus to serve dual purposes of being both fire engines and first responders to provide medical aid.



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Generally speaking when I work on an article I always try to come up with a conclusion at the end of it regarding an action plan that you as a reader might wish to consider. But in this particular case I don't have any solution readily available to mitigate against the urban sprawl problem or to give you tools to respond to sustainable communities.

Therefore, the action of this particular article is to look at the idea of what you know about both of these elements and compare them to your expectations.

For example, here are some questions that if you don't know the answer to them you might find yourself in some degree of difficulty:

1. What is the overall population density for the community you protect?
 - a. Per square mile or acre
2. Do you have an accurate understanding of the differences in land densities with regard to different neighborhoods and different locations in your community on a daytime and nighttime basis?
3. If your area includes a sphere of influence that could result in further annexation, what does the general plan say about the density and the newly populated areas?
4. What is your department's per capita expenditure for fire and life safety services?
5. what is the population protected by each of your respective fire stations, i.e., are they all protecting the same amount of people or is there any disparity between the number of people based on land use?

After you have reviewed these facts, you may wish to go back and look at your emergency response workload and do some comparisons of population densities and frequency by types of calls. There is often a very strong correlation between these two factors. The significance of that is that it may well also be representative of where you would expect your concentration of calls to be in the future depending upon the land use patterns that are built into your long range community plan.

Last but not least, when it comes to looking at urban sprawl, perhaps it is time for us to steal a few pages out of the textbook of the land use planners. For example, I have provided you with a couple of definitions that I have extracted from a combination of census information and from land use vocabulary, it should become part of our category as we begin to articulate what level of service needs to be provided to our respective communities.

To paraphrase a famous line uttered by George C. Scott as an actor in Patton, "planners – I read your book!

Terms



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Affordable housing - Housing capable of being purchased or rented by a household with very low, low, or moderate income. Housing is considered affordable when a household pays less than 30 percent of its gross monthly income (GMI) for housing, including utilities.

Business Park - An employment park that meets the needs of converging industrial and office needs; has a multi-use nature; and possesses a de-emphasized industrial character due their higher quality architectural design and building flexibility. Business parks may also contain high-technology businesses; research laboratories; prototype development, assembly, and fabrication; and warehouse distribution facilities; incubator space for emerging companies; and headquarters offices.

Floor-Area-Ratio (FAR) - The ratio of the gross building square footage permitted on a lot to the net square footage of the lot. For example, on a lot with 10,000 net square feet of land area, an FAR of 1.00 will allow 10,000 square feet of gross square feet of building floor area to be built, regardless of the number of stories in the building (e.g., 5,000 square feet per floor on two floors or 10,000 square feet on one floor). On the same lot, an FAR of 0.50 would allow 5,000 square feet of floor area and an FAR of 0.25 would allow 2,500 square feet.

Green Building - Environmentally sensitive design and construction practices, which conserve natural resources such as energy, building materials, water, soil and air quality, producing broad economic, community and environmental benefits.

Gross Density and Net Density - The number of dwelling units per acre before the acreage dedicated for roads, open space, and other public uses has been subtracted from the acreage of the entire development site. Net density is the number of dwelling units per acre, after all the dedicated areas have been subtracted.

Leapfrog Development - Development that occurs beyond the limits of existing development thus creating pockets of vacant land.

Major Development Project - A residential project with 100 or more dwelling units or a commercial, professional office, or industrial development on 10 or more acres of land.

Mixed-Use Development - Development that includes housing, retail, entertainment, office, civic, possibly light industrial generally focused around a common public feature such as a plaza. Architectural variety and pedestrian friendly design are key components. Parking structures, if affordable, play a key role in many cases. A reduction of traffic and parking over a standard development is a key benefit.

Principal dwelling - A single family detached dwelling that generally is established first and is the largest dwelling on a lot.



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Urban - Areas generally characterized by moderate and higher density residential development (e.g., 5 or more dwelling units per acre), commercial development, and industrial development.