



CITY OF RICHMOND

**Richmond Fire and
Emergency Services**

2 December 2022

The Impact of Traffic Calming Measure and All-way Stops on Fire Emergency Response Times

Safety first, No doubt, this is a value and a goal for the City of Richmond, The goal of the Traffic calming devices should be to reduce overall speeds on residential streets and in our school zones. Several hundred traffic calming devices are deployed throughout the City of Richmond, with more under construction and in the design phase. There are approximately three hundred (300) plus all-way stops adopted across the city, with an additional one hundred (100) plus requiring an engineering study. Let's not forget that the city has signalized intersections in the hundreds. Studies have also shown neighborhood/residential traffic circles to be the most hampering Traffic calming measures for departments across the country.

Unfortunately, Traffic calming devices, *speed humps, speed tables, and all-way stops* that reduce overall vehicle speed in neighborhoods also impact emergency vehicles by increasing their response times. The Fire Department is recognized for its prompt service and deliverables to city residents. When service is slowed, this disrupts the Fire Department's service delivery, which reduces the survival outcomes of those needing immediate care. Given the number of existing and planned Traffic calming devices, additional *traffic signals, and all-way stops*, the Fire Department is becoming more concerned about the cumulative impact of such devices and our ability to respond to those who require our services. The Fire Department is not opposed to reducing neighborhood speeding on city streets. However, in doing so, we don't want our response times to be significantly reduced either!

Thus, more importantly, the debate on how to move forward has resulted in more community discussions on broader public safety policy issues, slowing of vehicular Traffic on community streets, and working to increase response times. The Fire Department, Richmond Police Department, and the City's Transportation Engineering Division share the same goals, safer streets in our communities and neighborhoods. In addition, our department requires that vehicle operators devote a lot of time to learning the streets in their districts and throughout the City of Richmond. Knowing and being familiar with these streets help responding companies choose the safest and fastest route.



CITY OF RICHMOND

Richmond Fire and Emergency Services

Here's what also must be considered:

Our department utilizes several different apparatus types. Fire apparatus have longer wheelbases, more rigid suspensions, and heavier gross weights. Fire pumpers and tankers are designed to carry a minimum of 500 gallons and, in some cases, as much as 2,000 gallons of water. Aerial ladders are designed to support a minimum of 75 feet to 105 feet (*Richmond Fire*), which is the current length of our department's equipment. At a minimum, the gross weight of some vehicles can be 72,000 pounds.

Some Traffic calming devices, *speed tables, speed humps, and all-way stops* force our vehicles to come to a complete halt to transverse these obstacles. And, because of the vehicle size, they are not designed to regain their speed immediately as smaller, more maneuverable vehicles, such as police and smaller automobiles. Street closures add an additional 60-240 seconds on average to response times. Traffic calming devices impose permanent, 24-hour delays to emergency responses, unlike traffic congestion which occurs periodically.

All the slowing and re-starting increases the potential to harm Fire Department vehicles and levies a cost to taxpayers when they need to be replaced. Damage to apparatus can be created when leaf spring suspensions are twisted, welds are broken, and axles are impaired. This can shorten the life of the fire apparatus. Class A pumpers have a price tag of \$525,000; aerial apparatus carries an estimated price tag of \$750,000 and \$1.6 million. Life expectancy for these vehicles is 7-10 years. When shortened, the costs to taxpayers for repairs can get even more expensive on top of the already costly equipment.

Furthermore, research was conducted in cities and states around the country that showed these devices, factor in slowing response times, were directly responsible for contributing to the worsening of injuries (Montgomery County, Maryland, and Sacramento, California), especially injuries sustained to the neck, back and compression of the spin. It is reported that these kinds of injuries are responsible for about two months of lost time from work and disability retirement.

Response travel time begins when the fire company receives the dispatch and ends when the unit arrives on the scene. This does not account for the time it takes to generate the call. Data collected with the help of Richmond's Department of Emergency Communication (DEC) show how this impacts our service delivery.



CITY OF RICHMOND

Richmond Fire and Emergency Services

A compilation of 18 travel scenarios located in different areas of the City of Richmond had one common denominator: Traffic calming devices *and all-way stops* will indeed impact service delivery. Delaying emergency response by these devices is not a simple trade-off for increased safety for speeding cars. The connection is not being made about which risk is greater. The results from studies show that even a minor delay to emergency response by calming devices imposes far greater risk on the community than vehicles speeding or not.

The two examples below show extreme impact, revealing doubled response times because of Traffic calming devices.

1). Unrestricted	Route Distance:	0.33 miles (1742) feet
	Travel Time:	0.29 minutes (47 seconds)
Restricted -	Route Distance:	0.44 miles (2323) feet
	Travel Time:	1.02 minutes – 62 seconds
2). Unrestricted	Route Distance:	0.78 miles (4118) feet
	Travel Time:	1.88 minutes 113 seconds
Restricted	Route Distance:	2.27 miles (11986) feet
	Travel Time:	4.67 minutes 280 seconds

However, the other 16 scenarios also showed how calming devices *and all-way stops* can force slower speeds and redirect traffic patterns, adding to mileage traveled and trip times. Among the 18 scenarios, roughly 40 seconds was added to each response time.

This data supports the Fire Department's concern about how service delivery can and will be impacted. Our citizens should be concerned as well. As shown in each example, time and distance are increased. Why is this important? Because the greatest risk in slowed response times will come at a cost to those experiencing Sudden Cardiac Arrest (SCD). Any additional time added to the response can threaten life in this situation.

“A study by the City of Austin, Texas, suggests that even a 14% increase in response times because of Traffic calming devices can lead to an additional 37 lives lost each year.” Research conducted by Underwriters Laboratories (UL), an independent research lab, has determined that *every 30 seconds, a fire will grow exponentially*, which can lead to catastrophic failure. If the building is occupied, a slower response time lessens the chance of survival and can lead to death or injuries to our firefighters and citizens.



CITY OF RICHMOND

Richmond Fire and Emergency Services

The Virginia Statewide Fire Prevention Code (2018 Edition):

“503.4.1 Traffic calming devices. Traffic calming devices shall be prohibited unless *approved* by the *fire code official*.” This clear language does not lend itself to any vagueness or misinterpretation of the existing fire code. Moreover, putting devices not supported by transportation or traffic studies in place could also expose the City of Richmond to unwanted lawsuits.

Safety first, yes. Let’s consider how traffic calming devices are best used and how we might use them on city roadways, but let’s also consider response times for firefighters so that their vital work is not impaired.

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