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The Fire Apparatus Industry: An Update

(Report V4 Abridged)

April 2021

Developed By: Sage Policy Group, Inc. for the
Members of FAMA

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Submitted by:
Sage Policy Group, Inc.

Submitted to:
The Fire Apparatus Manufacturers' Association
(FAMA)
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A Sage Industry Analysis



Fire Apparatus Industry: An Update

2020 Was a Rough Year for Everyone

The pandemic of 2020-21 has had significant implications for public sector revenues and expenditures, on the funding available for fire departments, and on the demand for fire apparatus. This Sage Policy Group (Sage) report analyzes FAMA and other industry-relevant data to generate insights regarding industry trends and likely future performance.

Fire Apparatus Industry Sales Slump

The pandemic ended a period of building momentum for the industry. Units booked had increased in every year from 2016-2019 but declined significantly in the first half of 2020, first by a bit more than 3% during the first quarter and then by 38% during the second. The second half of 2020 saw partial recovery; units booked rebounded 25% during the third quarter and 29% during the fourth. Despite that rebound, total units booked in 2020 were down 12.2% compared to 2019.

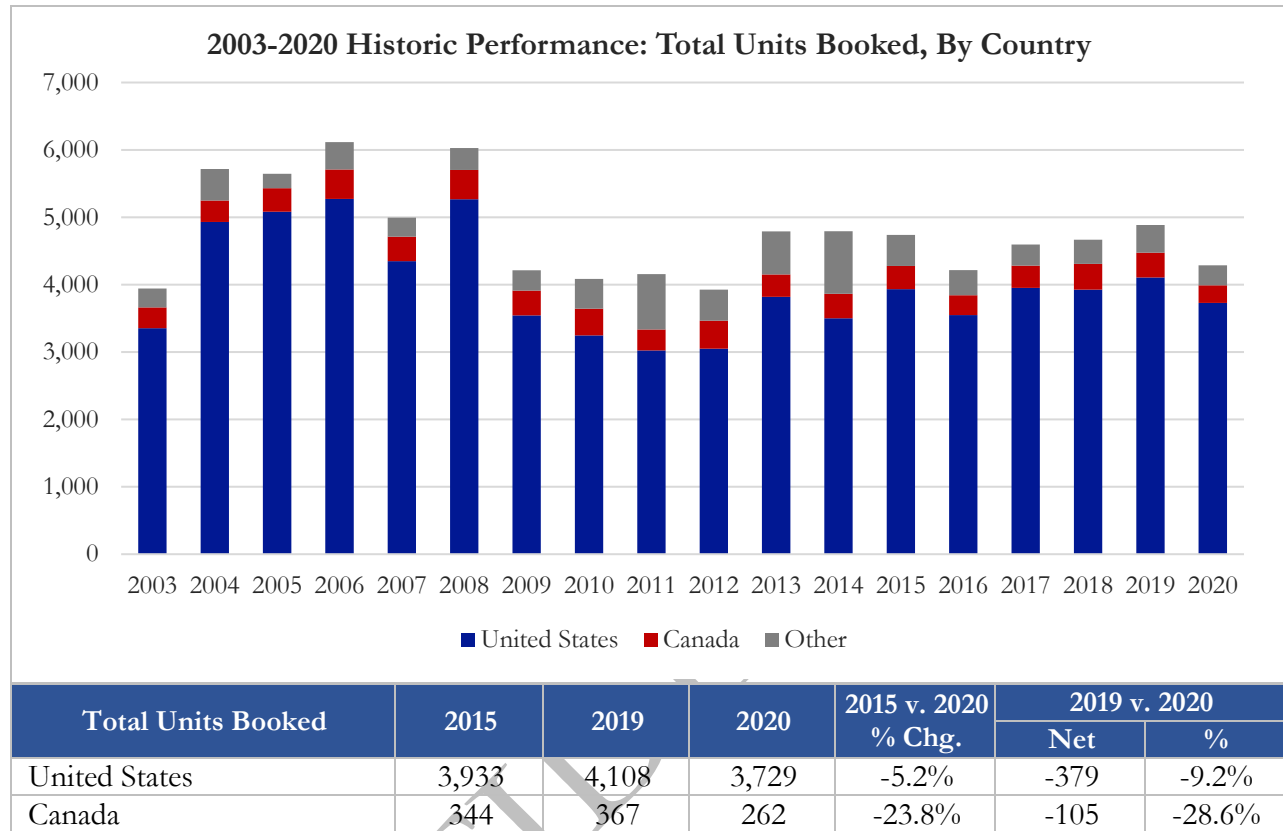
Brush trucks was the only category that did not experience an orders' decline in 2020 and experienced the fastest rate of growth in booking over the past five years among all types of apparatus. This is at least partially in response to devastating wildfires, particularly in California.

Units Booked by Vehicle Class, 2019 v. 2020				
Vehicle Class/Units Booked	2019	2020	2019 v. 2020	
			Net	%
Pumpers	2,798	2,456	-342	-12.2%
Walk-In Rescue	88	65	-23	-26.1%
Non-Walk in Rescue	228	179	-49	-21.5%
Rectangular and Elliptical Tanker Sales	551	499	-52	-9.4%
Aerial	662	604	-58	-8.8%
Airport Rescue and Fire Fighting (ARFF)	196	150	-46	-23.5%
Major Refurbishment	84	54	-30	-35.7%
Brush Trucks	278	280	2	0.7%
Total Units Booked	4,885	4,287	-598	-12.2%

Source: FAMA; Sage



Canada's economy didn't fare as well as the U.S. economy in 2020, and after strong sales growth in 2018 and 2019, Canadian sales fell by more than 28% in 2020, reaching their lowest level since 2005.



Source: FAMA; Sage

Average FAMA members' apparatus sales during 2020 were 10% below the average observed over the past 16 years, and the previous low in sales activity occurred in 2012, three years after the end of the Great Recession. If this time is similar, the financial impact of 2020/21 may be felt for years to come, resulting in stagnant industry sales or worse.

There are some offsetting considerations, however. Policymakers in Washington, Ottawa, state capitals, provincial capitals, and elsewhere could invest more aggressively in infrastructure in order to accelerate the economic rebound from the pandemic. The Biden Administration has been emphasizing the need for stepped up infrastructure spending, and that, along with the \$350 billion in state and local aid included in the American Rescue Plan Act, could offset at least some of the damage done to public finances in recent quarters.



State & Local Finances Suffer, but Less than Expected

According to data compiled by the Urban Institute, state government revenue from April-December 2020 was down in 28 states compared to the same period a year prior. Some of these losses resulted from government actions that deferred revenue collections to a later period, while other financial losses are likely permanent and unrecoverable.¹

Change in State Tax Revenue: April-December 2019 v. April-December 2020					
State	% Chg.	State	% Chg.	State	% Chg.
Alaska	-42.5%	Missouri	-2.7%	California	1.2%
Hawaii	-17.0%	Minnesota	-2.5%	Virginia	1.2%
North Dakota	-14.8%	Connecticut	-2.5%	Kentucky	1.5%
Nevada	-11.8%	Indiana	-2.4%	South Carolina	1.7%
Florida	-11.3%	New Jersey	-2.4%	Georgia	1.9%
Oregon	-10.5%	New Hampshire	-2.0%	North Carolina	2.1%
Texas	-10.4%	Illinois	-2.0%	Maine	2.2%
Wyoming	-8.5%	Iowa	-2.0%	Vermont	2.2%
Louisiana	-7.5%	Tennessee	-1.3%	Arizona	2.4%
Delaware	-7.3%	Ohio	-0.9%	Washington	2.5%
Montana	-5.6%	Arkansas	-0.2%	Alabama	3.7%
West Virginia	-4.3%	Maryland	0.1%	New Mexico	4.3%
New York	-4.1%	Mississippi	0.3%	Colorado	5.7%
Oklahoma	-4.0%	Michigan	0.3%	South Dakota	6.3%
Pennsylvania	-3.1%	Wisconsin	0.5%	Utah	8.0%
Massachusetts	-2.8%	Nebraska	0.7%	Idaho	10.4%
Kansas	-2.7%	Rhode Island	0.8%	All U.S. States	-1.8%

Source: Urban Institute, State and Local Finance Initiative. Notes: For Nevada data is through November, for New Mexico and Wyoming data is through September.

State tax revenues are more cyclical than local tax revenues because states are more reliant on income and sales tax revenues, while local governments rely more on property tax revenues. Income and sales tax revenues are significantly correlated with macroeconomic activity, while property tax revenues are based on assessed values that tend to be adjusted with multi-year lags.

As a result, local government revenues tend to react to recessions with an 18-24 month delay. This means that for many localities, the full financial impacts of COVID-19 on government finances have not yet been experienced, and given a booming residential market, may not be felt at all. Given the magnitude of aid provided to state and local governments in the recent \$1.9 trillion stimulus package, it is possible that budgets will emerge from the pandemic larger than before it.

¹ Urban Institute, State and Local Finance Initiative. "State Tax and Economic Review, 2020 Quarter 2" by Lucy Dadayan. December 2020. https://www.urban.org/sites/default/files/publication/103423/state-tax-and-economic-review-2020-quarter-2_0.pdf.



COVID-19 Creates Challenges for Fire Departments

In a survey of volunteer and combination fire, EMS, and rescue departments administered during late-March and early-April 2020 by the National Volunteer Fire Council (NVFC), running low on Personal Protective Equipment (PPE) was the most frequently cited challenge, with 60% of respondents indicating that their department was encountering this challenge. Nearly 50% of respondents indicated they were experiencing challenges fundraising, which comes as little surprise given the massive job losses and financial meltdowns occurring during the early spring of 2020.

COVID-19 also produced a range of staffing problems, from challenges training and certifying new personnel due to forestalled EMS education processes to difficulties acquiring test results for personnel, concerns around the mental health of staff members, and low morale.²

Data indicate that the pandemic resulted in greater need for fire and emergency services while limiting fire department funding as North America's economy collapsed during the spring of 2020. A survey by the International Association of Fire Chiefs (IAFC) indicates that 29% of departments sustained an increase in COVID-19 related expenses in 2020. Simultaneously, the aggregate budget loss among respondents was in excess of \$1.8 billion. Importantly, anticipated 2021 budget losses among respondents totaled more than \$2 billion. Responding departments reported that 19-25% of their time was spent on logistics or planning for COVID-19 on average.^{3,4}

The impact on fire department funding is reflected in departments' expectations for 2021. FAMA surveys fire departments annually, asking about expectations for staffing and funding levels and plans for apparatus purchases. The most recent results show that 70% of departments expect staffing levels to stay the same in 2021 and 10% expect staffing levels to decline. Only 20% expect staffing to grow in 2021. Similar to expectations regarding staffing, an easy majority of respondents expect budgets for apparatus to stay the same next year (62%). Just over 21% expect apparatus budgets to increase and almost 17% expect apparatus budgets to decline in 2021. Expectations for overall equipment budgets (excluding capital purchases like apparatus) are generally the same as expectations for apparatus budgets.

² National Volunteer Fire Council (NVFC), "Weekly Results of NVFC Survey to Document Volunteer Emergency Services' Covid-19 Experiences" 4/3/2020. <https://www.nvfc.org/weekly-results-of-nvfc-survey-to-document-volunteer-emergency-services-covid-19-experiences/>.

³ International Fire Chiefs Association (IAFC). <https://www.iafc.org/topics-and-tools/coronavirus-covid-19>.

⁴ 903 respondents, weekly survey results through 12/31/2020.



FAMA Members Still Optimistic

In late 2020/early 2021, FAMA surveyed its member companies regarding an array of issues ranging from factory utilization to marketing strategies. Among other things, member companies were asked about their most pressing issues and about their expectations for the future.

Despite 2020 bringing a sharp decline in sales, it appears that FAMA member companies remain optimistic... Even in the short-term, more FAMA members expect orders and sales to increase in the next six months than expect them to decrease.

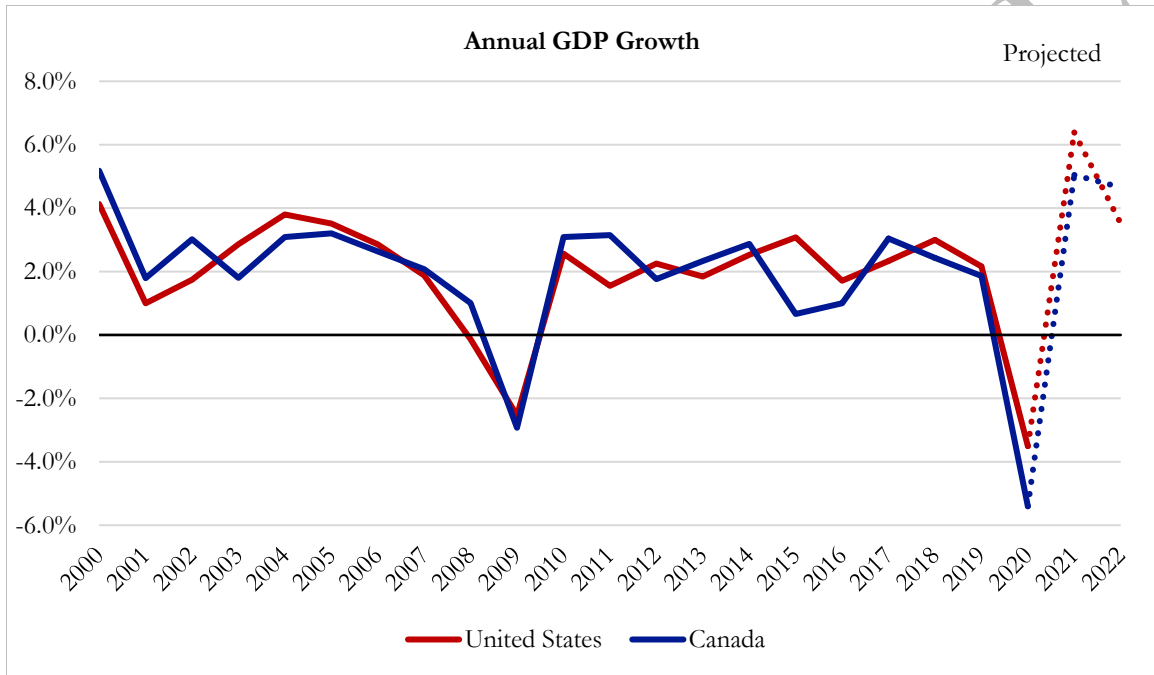
Unsurprisingly, responding companies ranked funding availability as their highest level of concern (71.4% of companies ranked it 4 or 5), followed by 'overall economic conditions/general sales declines' (62.3% of companies ranked that as a 4 or 5) among a range of issues. In the face of challenging economic times, member companies identified greater diversification through entry into new markets and focusing on several markets as the most successful strategies to employ (identified as the most successful by almost half of member companies).

Despite 2020 bringing a sharp decline in sales, it appears that FAMA member companies remain optimistic. The latest industry survey data indicate that more than 80% of responding member companies expect their employment levels to increase and 75% expect capital investment to rise over the next three years. Even in the short-term, more FAMA members expect orders and sales to increase in the next six months than expect them to decrease (44% expect orders/sales to increase; 27-28% expect orders/sales to decrease).



Economic Outlook

The IMF estimates that total GDP contracted by 3.5% in the U.S. and 5.4% in Canada in 2020, and their forecasts project that the U.S. economy will expand sharply in 2021 (6.4%) before slowing to 3.5% growth in 2022. Canada's economy is expected to grow 5.0% in 2021 and 4.7% in 2022.



Source: 1. Sage. 2. International Monetary Fund: World Economic Outlook Database, April 2021.

The faster the economic recovery, the better. Data indicate that FAMA units booked were down 4 percent from a year earlier during 2020's fourth quarter. That capped what turned out to be a lousy year, with total units booked down 12.2 percent compared to 2019.

The pandemic has ushered forth many transformations, including where people live as remote work becomes more popular. Accordingly, there has been rapid migration to the suburbs. As an example of this dynamic, in January 2020, the value of building permits for single-family structures in Canada was in the range of C\$2.4 billion. One year later, the tally was C\$3.5 billion.^{5,6}

⁵ Denotes Canadian dollars.

⁶ Statistics Canada, "Building permits, January 2021". <https://www150.statcan.gc.ca/n1/daily-quotidien/210303/dq210303a-eng.htm>.



Similar dynamics are apparent in the U.S. Single-family residential permits are surging as coastal cities experience a flurry of outmigration, causing home prices in the suburbs to surge. The development of new subdivisions will eventually translate into robust new demand for greater firefighting capacity and shorter response times. In short, population is becoming more diffuse in the context of remote work and surging e-commerce, and that should support greater demand for apparatus.

Moreover, while commercial real estate fundamentals have been ravaged by the pandemic (e.g., less demand for office space, shuttered retailers, empty restaurant spaces, and under-occupied hotels), it has turbocharged segments like fulfillment and data centers, which form the backbone of the e-commerce economy. That will help stabilize commercial tax base assessments while also creating an additional population of structures that require firefighting protection. This further strengthens the longer term outlook for apparatus demand.

There are other factors at work. The postponed purchases of 2020 have likely generated pent-up demand. There has also been renewed awareness among policymakers of the importance of sufficient emergency response capacity, whether to respond to emergencies suffered by those experiencing flu-like symptoms or to combat wildfires. All of these considerations help explain why Congress recently passed a stimulus package that includes \$350 billion in assistance to state and local governments and is contemplating another package focused on infrastructure.

Coronavirus State Fiscal Recovery Fund, Distribution of \$195.3 Billion in State Aid (\$ millions)

Rank	State	Aid	Rank	State	Aid	Rank	State	Aid
1	CALIFORNIA	\$27,230.7	18	MARYLAND	\$3,743.1	35	KANSAS	\$1,592.4
2	TEXAS	\$15,937.8	19	INDIANA	\$3,092.6	36	ARKANSAS	\$1,581.8
3	NEW YORK	\$12,843.7	20	LOUISIANA	\$3,031.4	37	IOWA	\$1,488.8
4	FLORIDA	\$8,883.6	21	MINNESOTA	\$2,852.1	38	UTAH	\$1,384.9
5	ILLINOIS	\$8,189.2	22	CONNECTICUT	\$2,830.9	39	WEST VIRGINIA	\$1,362.4
6	PENNSYLVANIA	\$7,346.1	23	NEVADA	\$2,756.9	40	RHODE ISLAND	\$1,136.1
7	MICHIGAN	\$6,589.1	24	MISSOURI	\$2,702.9	41	IDAHO	\$1,098.8
8	NEW JERSEY	\$6,290.8	25	OREGON	\$2,665.3	42	NEBRASKA	\$1,044.5
9	NORTH CAROLINA	\$5,479.1	26	WISCONSIN	\$2,549.5	43	MAINE	\$1,001.5
10	OHIO	\$5,407.6	27	SOUTH CAROLINA	\$2,515.2	44	NEW HAMPSHIRE	\$998.5
11	MASSACHUSETTS	\$5,324.6	28	KENTUCKY	\$2,196.8	45	DELAWARE	\$928.0
12	GEORGIA	\$4,888.6	29	ALABAMA	\$2,133.3	46	MONTANA	\$866.9
13	WASHINGTON	\$4,459.4	30	OKLAHOMA	\$1,881.5	47	ALASKA	\$853.4
14	VIRGINIA	\$4,324.3	31	MISSISSIPPI	\$1,816.9	48	NORTH DAKOTA	\$791.1
15	ARIZONA	\$4,212.5	32	D.C.	\$1,802.0	49	SOUTH DAKOTA	\$753.3
16	COLORADO	\$3,855.6	33	NEW MEXICO	\$1,761.6	50	WYOMING	\$739.7
17	TENNESSEE	\$3,751.8	34	HAWAII	\$1,650.8	51	VERMONT	\$680.3

Source: American Rescue Plan Act of 2021, U.S. Bureau of Labor Statistics



Indeed, the industry's outlook has been rapidly brightening in recent months for three reasons. First, the economy has recovered faster than many anticipated. Second, many state governments did not suffer as much revenue loss in 2020 as expected. Third, massive federal stimulus, including an expected infrastructure package, should result in rapid recovery in units sold.

The table at the bottom of page 8 supplies estimates of the amount of money state governments will receive from the already passed American Rescue Plan Act. In addition to these monies, additional funds, often totaling in the billions, will be sent to cities and other communities.

The primary implication is rather straightforward. Many communities that had been in dire financial straits just a few months ago are now flush with cash. This more than any other factor shapes the increasingly benign outlook for apparatus sales going forward. Additionally, these positive impacts stand to be significantly bolstered by a federal infrastructure package that as of this writing is in its formative stages.

This Time may be Different

Prior to COVID-19, the fire equipment industry had been puzzling over an unduly soft recovery in the aftermath of the Great Recession (2007-09). There have been a number of candidate explanations, including the slow and erratic pace of economic recovery during the years after the global financial crisis and the diminished pace of depreciation that characterizes contemporary equipment, including fire trucks.

But these explanations failed to pass muster. Even after the North American economy began to experience accelerating growth during the latter years of the previous decade, units booked and other industry metrics remained underwhelming. By this point, state, local, and provincial government finances had been much improved. Borrowing costs remained low. Aggregate social wealth climbed.

Despite all of this, industry performance remained lackluster. This time will likely be different. The American Rescue Plan Act allocates \$350 billion to state and local governments, and the Biden Administration just released an outline of a \$3 trillion economic plan that will include significant investments in infrastructure.

Industry insiders expect employment and capital investment to expand over the next three years. Given the magnitude of Federal assistance to state and local governments and despite recent trends, their optimism may be justified.

In sum, industry prospects have improved rapidly as the pandemic's influence over North American life steadily ebbs. The massive response by central governments and banks to the crisis has left behind less damage than anticipated and greater appetite and purchasing power for firefighting apparatus.



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