



New Emergency Management in a Resilience Era Facing Health, Climate and Energy Challenges

6th to 10th December 2021

THE ECONOMIC AND SOCIAL
BENEFITS OF FIRE PREVENTION
Monday, December 6th 2021

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Department

It starts with an idea...

Previous studies were made to demonstrate the economic impact of a Fire Department's operational activities for fires in commercial buildings, EMS call for CRA patients and operations on highways.

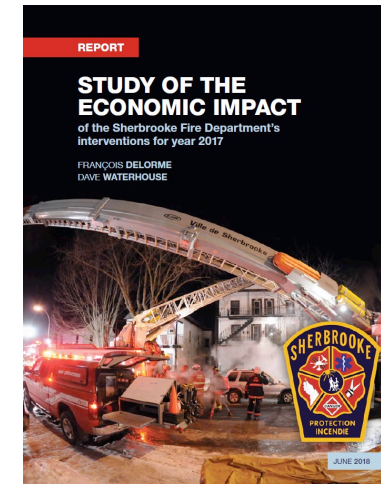
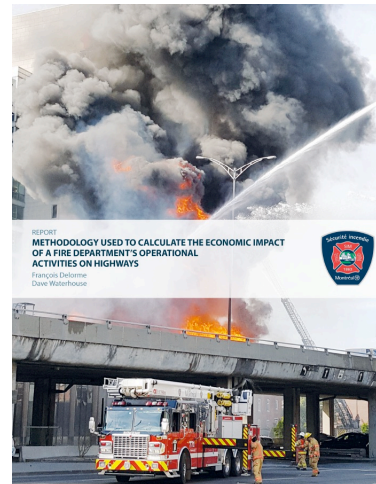
ASU W.P. CAREY
ARIZONA STATE UNIVERSITY

THE ECONOMIC IMPACT OF
SUCCESSFUL COMMERCIAL FIRE INTERVENTIONS


PHOENIX FIRE DEPARTMENT
JUNE 1, 2012 – MAY 31, 2013



Dr. Anthony Evans
L. William Seidman Research Institute,
W. P. Carey School of Business,
Arizona State University
February 12, 2014



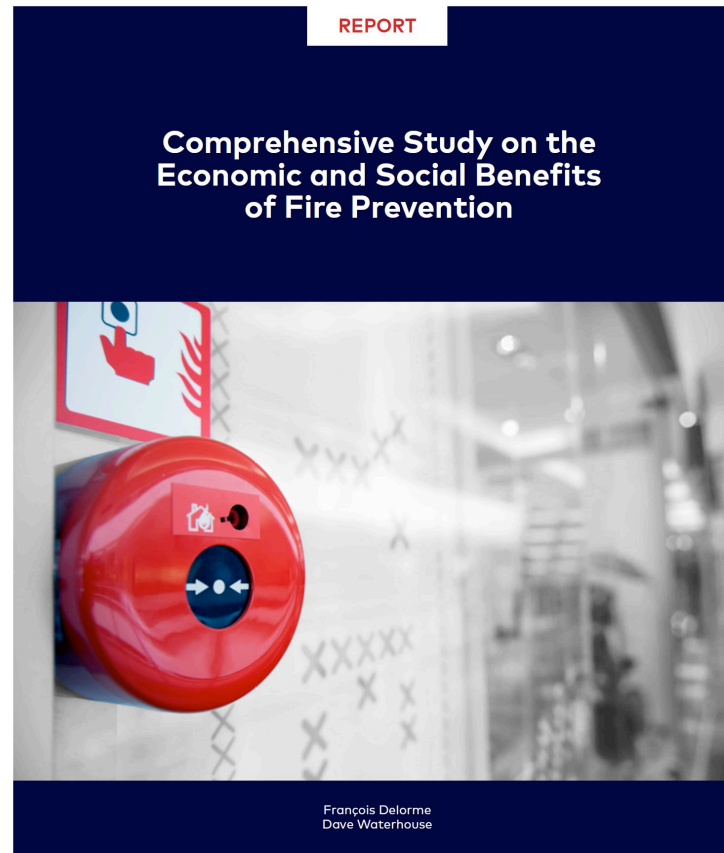
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Summary Table						
						
Commercial building fire	Number of interventions	42	44	271	16	20
	Excluded	N/A	16	97	3	8
	Eligible	42	28	174	13	12
	Response rate	N/A	N/A	63%	84.6%	83.3%
	Final sample	42	28	110	11	10
	Economic value preserved	\$650M (US, 2012)	\$831M (US, 2014)	\$1.55B (CAN, 2015)	\$63.3M (CAN, 2017)	\$368.8M (CAN, 2017)
	Number of jobs saved	7,446	10,082	20,903	695	1,917
FR-CRA	No. of persons in CRA	N/A	N/A	735	29	97
	CRA survivors	N/A	N/A	43	4	8
	CRA economic value	-	-	\$348M (2015)	\$32.4M (2017)	\$64.8M (2017)
Conclusion	Total economic impact	\$650M (US, 2012)	\$831M (US, 2014)	\$1.89B (2015)	\$95.7M (2017)	\$433.6M (2017)
	Annual budget	\$297M (US, 2013)	\$469M (US, 2014)	\$360.5M (2015)	\$20.6M (2017)	\$20M (2017)
	Return on investment	219%	177%	527.5%	464.6%	2,168%
Analysis	Total economic impact per intervention	\$15.5M (US, 2013)	\$29.7M (US, 2014)	\$17.2M (2015)	\$8.7M (2017)	\$43.4M (2017)
	Jobs saved per intervention	177	360	190	66	191

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What are the economic and social benefits of fire prevention investments?



OBJECTIVE OF THE STUDY

- **The first part** of the study seeks to measure the economic value of fire prevention, for a municipality, in the risk reduction for disasters in residential buildings.
- **The second part** focuses on the evaluation of the social consequences of investments in fire prevention, able to reduce the impact on the social variables in residential building fire.



City of Laval Fire services

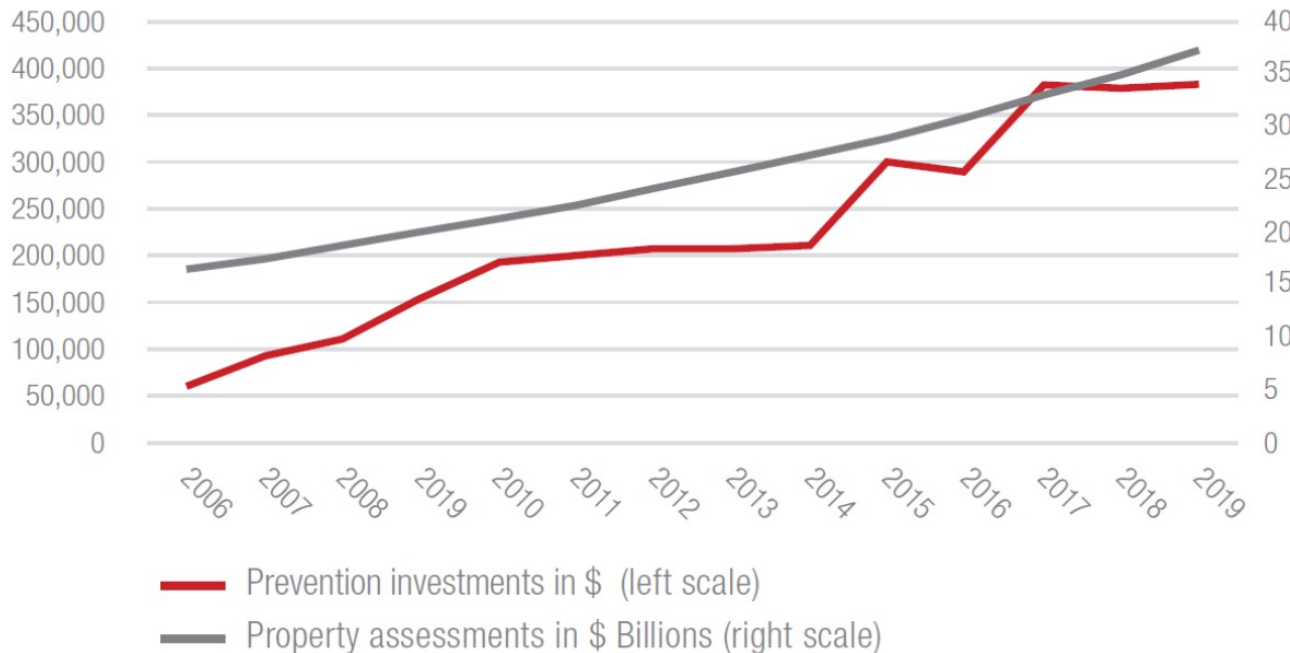
- pop. 425 000
- 9 Fire Stations
- 300 paid Firefighters
- 243 square KM of territory
- Presentation text.



Economic benefit of fire prevention for Laval

Investments in fire prevention and property assessments

The evolution of investments in fire prevention VS property assessments between 2006 and 2019



On average, a **1% increase in prevention investments** (approximately **\$2,270**) contributed to an **increase in net property value of 0.5%**, representing an increase of **\$130 million**.



La Matapédia Fire services

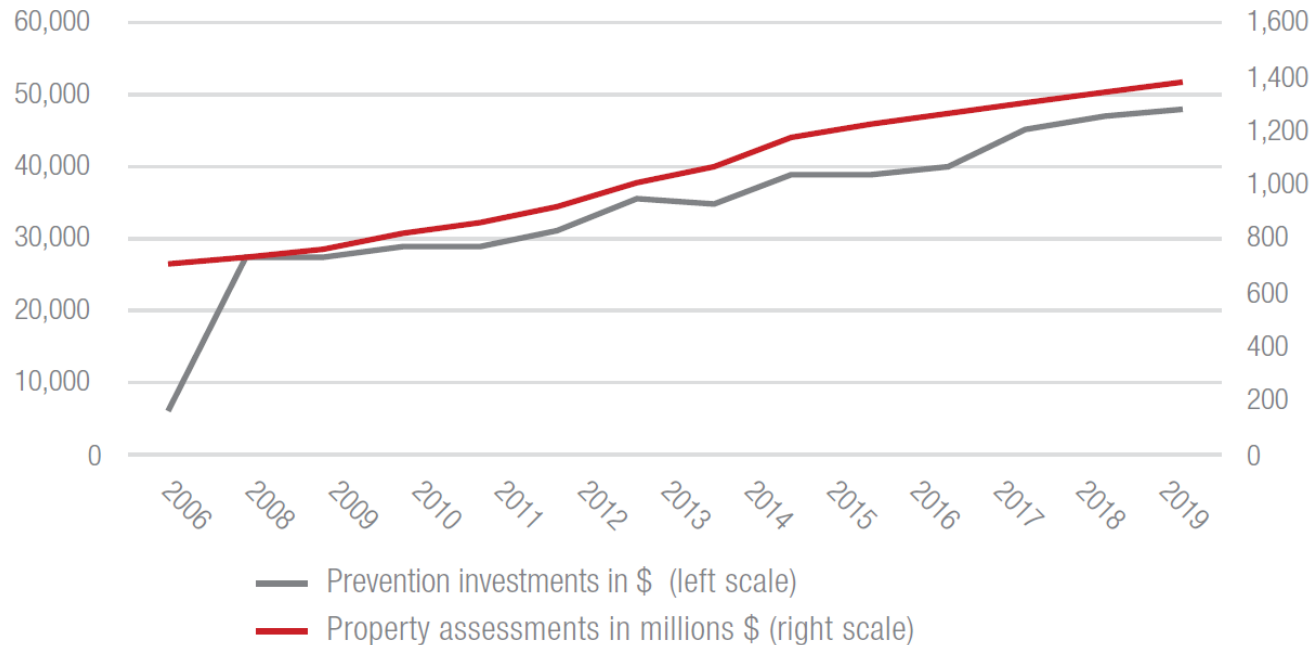
- pop. 17 500
- 6 Fire Stations
- 81 part-time and 8 paid Firefighters
- 5,376 square KM of territory
- Presentation text.



Economic benefits of fire prevention for La Matapédia

Investments in fire prevention and property assessments

The evolution of investments in fire prevention VS property assessments between 2006 and 2019



On average a **1% increase in prevention investments (approximately \$341)** led to an **increase in net property value of 0.3%**, an increase of **\$37M.**



Summary table

1% investment increase in fire prevention.			
	Average budget value equivalent to 1 %	Part I Economic benefits: preservation of average property value	Part 2 Social benefits
City 1 Fire Services (2006-2019)	\$226,719	↑ 0,5% = \$130M	<ul style="list-style-type: none"> •Number of evacuees type 1 (- 24 h) ↑ 3,3 % •Number of evacuees - type 2 (+ 24 h) ↑ 2,9 % •Number of injured civilians ↑ 0,3 % •Number of deaths ↓ 0,8 % •Number of injured firefighters ↓ 0,9 %
City 2 Fire Services (2006-2019)	\$34,140	↑ 0,3 % = \$37M	<ul style="list-style-type: none"> •Number of evacuees ↑ 0,2 % •Number of injured firefighters ↓ 0,1% •Regional labour market ↑ 10 % •Median income for the region ↑ 3 %



Exploratory section – Additional calculation of the economic benefits of fire prevention and operations of a Fire Service

- **SCILL equation**; D. Byrne, L. Levesque (Firehouse article 2018)
- **Ratio of property saved**: Quantifying the negative (QTN), E. Saylor, 2015.
- **Discussions with key players in the insurance industry** in Canada and the United States



3 Key messages



1. Clean and robust data is the cornerstone of any economic and social benefit analysis for Fire Services



2. Fire Services have an economic impact on local jobs and the GDP by:
 - Preserving businesses in case of fire
 - Rescucitating CRA patients



3 Key messages



3. Fire Services have an **economic and social benefit** in their communities, by:

- Lowering down the number of fires
- Preserve the increase in the overall net property value
- Reducing civilian deaths and firefighter injuries



We thank the following:

- The International Emergency Management Society
- Quebec's Ministry of Public Security and
- Quebec's Association of Fire and Civil Security Managers (AGSICQ)
- The Canadian Association of Fire Chiefs
- Montreal Fire Department
- Laval Fire Department
- La Matapédia Fire Department

