Act No. 26 (2023) Report:

Workers' Compensation for Firefighters with Cancer; Eligibility

January 15, 2024

Submitted by:
Michael Harrington, Commissioner of Labor
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Executive Summary

Section 3 of Act 26 of 2023, *An act relating to workers' compensation coverage for firefighters with cancer,* directs the Commissioners of Labor (DOL) and Financial Regulation (DFR), in consultation with the Director of the Division of Fire Safety, to explore potential changes to the presumptions limiting workers' compensation coverage for firefighters with cancer and to the types of cancers covered, as well as, the apportionment of liability when a firefighter has been employed by multiple departments.

In preparing this report, DOL and DFR, with the assistance of Oliver Wyman Actuarial Consulting, Inc. (OW) conducted research into topics such as cancer rates, treatment costs, claims, firefighter demographics, premium costs and calculations, laws and practices in other states, and consulted with stakeholders in the firefighting, governmental and insurance communities.

As explained in the report, it became clear that calculations of the potential impacts of changes to current statutes were severely limited due to the lack of critical demographic and claims data. Premium impacts were unable to be estimated while liability impacts (including certain loss costs) were estimated using various assumptions which, if altered, would significantly impact those estimates. Although these estimates were assessed for reasonability via a comparison to similar calculations performed in Nevada, they are directional in nature only and cannot accurately anticipate future costs.

In addition to the data limitations encountered, several potentially complicating factors emerged which are identified for consideration in future discussions regarding contemplated statutory changes. These factors include possible claims shifting from Medicare/private insurance to the workers' compensation system; the potential of large claims to skew premium rates; and the complexities of predicting the impacts of changes with a primarily volunteer firefighting community such as difficulties estimating indemnity costs and the implications of volunteers continuing to serve after normal retirement age.

With respect to apportionment methodology, several mechanisms for apportioning liability between multiple fire departments were identified as already existing in Vermont law. These include use of the last injurious exposure rule [21 V.S.A. § 662 (d)], binding arbitration [21 V.S.A. § 662 (e)], apportionment by the Commissioner of Labor following evidentiary hearing, or by agreement of the parties. Although a simpler

methodology could be defined by statute, the risk of it being deemed arbitrary given the unique circumstances of each situation is significant.

The report highlights the need for additional data to track and understand the potential impacts of changes to statutes governing workers' compensation coverage for firefighters. Development of a mechanism to identify and record necessary demographic and claims information is recommended as an important next step.

Summary of Legislative Charges

Section 3 of Act 26 of 2023, *An act relating to workers' compensation coverage for firefighters with cancer,* directs the Commissioners of Labor (DOL) and Financial Regulation (DFR), in consultation with the Director of the Division of Fire Safety, to consider the following topics relating to 21 V.S.A. § 601(11)(E) and 21 V.S.A. § 601(11)(E)(iii).

- The potential impacts on workers' compensation claims, premiums, and loss costs of:
  (1) amending or repealing provisions of 21 V.S.A. § 601(11)(E) that bar a firefighter from the presumption that the firefighter's cancer resulted from work-related exposure if the firefighter is:
    (A) 65 years of age or older;
    (B) or has used tobacco products within the last 10 years;
  (2) expanding the list of cancers in 21 V.S.A. § 601(11)(E)(iii) presumed to have been caused by exposure to working conditions as a firefighter, including:
    (A) additional types of cancer:
      (i) that occur more frequently in firefighters than the general public;
      (ii) that are caused by carcinogens to which firefighters are exposed in the line of duty; or
      (iii) both; or
    (B) all forms of cancer.

- Potential methods for apportioning liability for workers' compensation in instances where a firefighter has been employed by more than one fire department, including when a firefighter is employed as a career firefighter by one department and a volunteer firefighter by another department.

In accordance with the Legislature's directive in Section 3 of Act No. 26 of 2023, the Commissioners of Labor and Financial Regulation hereby submit to the House Committee on Commerce and Economic Development and the Senate Committee on

Economic Development, Housing and General Affairs this report, which contains the Departments' findings and recommendations related to workers' compensation coverage for firefighters with cancer.

Introduction

1. Summary of Research and Stakeholder Engagement

In preparing this report, DOL and DFR conducted research and gathered available data on topics including but not limited to, cancer rates and treatment costs, firefighter cancer concerns, Vermont firefighter demographics and claims, and workers' compensation premium rates. In addition, representatives of the following stakeholders were contacted to obtain background information, data and input:

- National Council on Compensation Insurance (NCCI)
- Vermont League of Cities and Towns
- Professional Firefighters of Vermont
- Firefighter Cancer Foundation
- Vermont State Firefighters Association
- Vermont Department of Public Safety, Division of Fire Safety

NCCI provided a copy of their most current Research Brief - *Firefighters and First Responders: 2023 Update on Presumptive Workers Comp Benefits*[1] which discusses the national landscape related to firefighter presumptive benefits and highlights considerations for the analysis of the effect of presumptions on the insurance market.

DOL and DFR also engaged the services of Oliver Wyman Actuarial Consulting, Inc. (OW) to review the potential statutory changes and to perform an actuarial estimate of future increased workers' compensation liability. As a part of their review, OW drafted an extensive data request and provided a report of their findings (see Appendix A).

2. Current Law

Currently, 21 V.S.A. § 601(11)(E) provides that qualifying firefighters who are disabled or die because of certain types of cancer are presumed to have contracted cancer

[1] Kim Neugent and Bruce Spidell, NCCI Research Brief - Firefighters and First Responders: 2023 Update on Presumptive Workers Comp Benefits (February 2023) Insights-Firefighters-First-Responders-2023-Update-Brief.pdf (ncci.com)

because of exposure in the line of duty. To qualify, firefighters must meet the following criteria:

- The firefighter has completed specified cancer screenings and there is no indication of cancer.
- The firefighter has engaged in firefighting duties for at least five years in Vermont.
- The firefighter is under age 65.
- The firefighter cannot have used tobacco products within 10 years of diagnosis.
- The firefighter has been diagnosed with at least one of the following cancers:
    - Leukemia
    - Lymphoma or multiple myeloma
    - Bladder
    - Brain
    - Breast[2]
    - Colon
    - Gastrointestinal tract
    - Kidney
    - Liver
    - Lung
    - Pancreas
    - Reproductive system
    - Skin
    - Thyroid

In its charge, the Legislature required that DOL and DFR explore the potential impacts of removing the age, tobacco and identified cancer restrictions in the current statute.

3. Workers' Compensation Premium Calculations

Workers' Compensation premiums are based on several factors which influence the rate ultimately charged for coverage.

[2] Breast, lung, reproductive and thyroid cancers were added effective July 1, 2023. As such, they were treated as possible changes in the analysis since an inadequate time had elapsed to measure any impact.

First, the market, voluntary or assigned risk, in which insurance is obtained influences cost. The voluntary or private market provides coverage on a competitive basis considering relevant risk factors such as the entity's size and age, the level of hazardous activity and claims history. Because workers' compensation insurance is mandatory, the assigned risk pool provides coverage for those entities who are unable to obtain coverage in the voluntary market. These are often entities that are small, newly formed, have a significant loss history, or are highly hazardous. This coverage is generally more costly due to the lack of competition and the higher concentration of risk.

Second, the payroll size for the entity impacts premiums. Employers are required to estimate annual payroll cost and adjustments at year end due to changes in payroll are not uncommon. Coverage of volunteer firefighters further complicates the calculation of payroll and resulting rates due to the volunteer status and nature of their work.

Third, the rate for the industry or type of work is applied. Rates are based on classifications related to the risk of potential loss and are Vermont specific.

Finally, the experience rating for the particular entity is calculated. This experience rating is based on number and severity of prior claims and is used to adjust the standard rate for the industry or type work depending upon whether the claims activity is higher or lower than average.

As indicated above, the coverage of volunteer firefighters adds a level of complexity to premium and loss calculations not experienced in other situations. As noted in NCCI's report[3], calculations related to volunteer benefits are more difficult due to issues with tracking, lack of industry benchmarks, payroll and quantification of the impacts of exposure to hazards. Based on our research and OW assumptions, approximately 93% of firefighters in Vermont are volunteers. VLCT has identified that increasingly more fire departments are being forced to seek coverage via the assigned risk pool. The previous factors and the difficulties insurers have estimating potential indemnity payments that could include salaries for volunteers' unknown primary occupations are factors in this shift.

Data Limitations

DOL and DFR engaged the services of Oliver Wyman Actuarial Consulting, Inc. (OW) to calculate estimated baseline future costs using existing statutes in comparison to potential future costs for each change separately and as a group. OW has experience

[3] Ibid, pg. 11

performing work to estimate presumptive benefits liabilities in Nevada. OW initially requested extensive demographic information on firefighters and fire departments, as well as detailed claims information (see Appendix A page 19-20).

To collect this data, DOL searched its own records, and DOL and DFR contacted NCCI and VLCT since the majority of firefighter workers' compensation coverage flows through those entities. Although VLCT was able to provide information for approximately 227 fire departments and 3,819 firefighters, it was quickly determined that demographic data was limited to lists of firefighters and anticipated salaries by department. Critical information such as hire and termination dates, birth dates, gender, etc. was not available and tracking by year was limited due to the use of last names, sometimes with only a first initial in the lists provided. Claims related data was also limited, partially due to the small number of claims (25) identified as firefighter specific. This small number of claims was not inconsistent based on the limited claims data NCCI noted in their report[4] (180 claims in 38 jurisdictions since 2004). As noted in OW's report (see Appendix A), the lack of critical demographic and claims data limited the ability to estimate potential liability and resulted in the need to base calculations on multiple assumptions which are identified in further detail in the report. As discussed in the report, any change in these assumptions poses the risk of a significant change in the estimates.

Given the uncertain nature of the estimates, DOL and DFR believe the percentage change from baseline numbers which reflect the directionality and potential degree of change in liability is more instructive for these purposes than the calculated dollar values. Contained within the OW report is a discussion of the extensive work done in Nevada as an example of how other jurisdictions have chosen to address these types of data uncertainties. Similar efforts in Vermont to create a comprehensive tracking mechanism and/or database for firefighter demographic data would be needed to improve the ability to develop more concrete estimates in the future.

Potential Future Impact Analysis

Given the lack of data and the complexities identified in calculating premiums for a primarily volunteer firefighting population, neither NCCI nor OW were able to provide estimates of future increases in premium resulting from any or all the potential statutory changes. NCCI's report[5] discusses in detail the difficulties of assessing the impacts of presumptions and its expectation that broadened presumptions will result in

[4] Ibid, pg. 4
[5] Ibid, pg. 1

increased cost to the workers' compensation system but it did not attempt to quantify those costs. OW did complete an analysis of estimated future liabilities based on the current statutes using the limited demographic and claims data available, as well as estimates of future liabilities due to the identified potential changes. This report can be found in Appendix A.

As discussed previously, OW's calculations required the use of numerous assumptions due to the lack of critical data. To assess these assumptions, the resulting calculations were reviewed for reasonability based on OW's work in Nevada (see Appendix A, page 15). Reliance upon the estimates must be tempered by their inherent risk and the percentage of change should be viewed as more illustrative than the specific dollar values. Among the important assumptions discussed in more detail in the report are:

- Calculations are based on the static set of 3,819 firefighters identified by VLCT and any potential future claims for that group.
- An average age of 48 was used.
- Retirement age was assumed to be 65, therefore the last age at which to be diagnosed with cancer would be 75.
- Maximum weekly indemnity benefits were assumed since the value of volunteer firefighter indemnity is unknown.
- Cancer rates and medical costs are based on national averages. Variations between rates and costs for different cancer types are unaccounted for.
- Tobacco usage was based on national averages.

Bearing in mind these and other important assumptions, following are certain highlights from the report:

Statutory Change	% Change from Baseline total liability cost (discounted)
Presumption age extended to 75	28%
Tobacco restriction removed	21%
Expanded cancers covered	76%
All parameters combined	262%

As indicated above and in more detail in OW's report (see Appendix A), moderate to significant increases can be anticipated depending upon the nature of the modification

made. The degree of those changes is highly dependent on the accuracy of the assumptions that were necessary for the calculations due to lack of certain critical data.

Other Issues

During our research, several other issues emerged which should be considered when assessing potential statutory changes related to firefighter presumptive benefits. These issues include:

- Cancer claims are generally costly, and treatment can be lengthy. When large claims are included in the experience rating, even if isolated, they can have a significant impact on premiums, particularly in a small market, such as Vermont, with small insured entities. Expanding the types of cancers or including all cancers will increase the likelihood of large cancer claims, therefore increasing the likelihood that large claims will create skewed premium increases.

- The probability of cancer diagnosis increases significantly with age regardless of occupation[6]. Removal of the age limit increases the possibility that cancers unrelated to firefighting activity would be swept into coverage as workers' compensation claims. The presumption is rebuttable; however, the statutory standard requires that it be proven by a preponderance of the evidence that the cancer was unrelated to firefighting. This high bar, combined with the difficulties of proving or disproving the underlying cause of any particular cancer would make rebutting the presumption difficult. As a result, significant claims costs could be unnecessarily added into the system and affect future premium rates.

- Generally, individuals over the age of 65 obtain health benefits through Medicare. Eliminating the age limit will increase the number of firefighters on Medicare that may qualify for the presumption. Medicare is considered the secondary payer with respect to any claims qualifying for other coverage. Reporting to CMS (The Centers for Medicare & Medicaid Services) of possible crossover cases is required and CMS takes an aggressive stance with respect to its evaluation of these claims. CMS will make an independent determination of whether claims should be covered by workers' compensation and can refuse coverage and/or demand repayment even in situations in which a state DOL has determined the claim to be ineligible. The

[6] See National Cancer Institue, Age and Cancer Risk, Risk Factors: Age - NCI (cancer.gov)

elimination of the age limit combined with the expansion of cancer categories could result in a shift of Medicare eligible claims to the workers' compensation system.

Apportionment

Along with the impact of an expanded presumption of coverage, the Legislature asked the Commissioners of Labor and Financial Regulation, in consultation with the Director of the Division of Fire Safety, to examine

> potential methods for apportioning liability for workers' compensation in instances where a firefighter has been employed by more than one fire department, including when a firefighter is employed as a career firefighter by one department and a volunteer firefighter by another department.

S.73, Sec. 3(a)(3). Apportionment of liability has long been an issue in workers' compensation disputes, since injured workers often change jobs, have more than one employer, or suffer aggravations or recurrences of old injuries when working for a different employer. Occupational diseases (such as cancer) are problematic because such diseases may be contracted over time by prolonged exposure to a particular workplace hazardous material, toxin, or carcinogen, and the responsibility for such exposure between an injured worker's various employers may be difficult or impossible to accurately apportion.

When assigning responsibility for occupational diseases, Vermont, like many other states, has adopted the "last injurious exposure" rule, which is codified as 21 V.S.A. § 662(d).[7] However, this rule may prove inapplicable when a firefighter works for two different departments simultaneously.

Vermont also has a binding arbitration statute. In 2000, in part as a reaction to the Vermont Supreme Court's decision in *Pacher v. Fairdale Farms*, 166 Vt. 626 (1997), 21 V.S.A. § 662 was amended to allow the Commissioner of Labor to resolve apportionment disputes by ordering binding arbitration.[8] This method is generally

[7] 21 V.S.A. § 662(d) Where more than one employer or insurer may be liable for an employee's occupational disease, the employer in whose service the employee was last injuriously exposed to the hazard that caused the disease, and the insurance carrier, if any, on the risk when the employee was last exposed, shall be liable if it can be proven that the service for the last employer causally contributed to the disease.

[8] 21 V.S.A. § 662(e) In any dispute between employers and insurers arising under subsection (c) or (d) of this section, after payment to the claimant, the Commissioner may order that the dispute be resolved

appropriate when the compensability of the claim is not in dispute, but the allocation of liability among multiple employers is.

When compensability as well as apportionment are contested, the Commissioner of Labor retains the ability to apportion liability after an evidentiary hearing, based on the facts as they are presented by the parties. In *White v. Town of Hartford and Town of Hartland*, the Commissioner of Labor held that her power to apportion liability among municipalities that employed the same firefighter who was entitled to the presumption was implicit in Vermont's Workers' Compensation Act.

> [a]lthough 21 V.S.A. § 601(11)(E) is silent regarding the division of liability between multiple employers subject to its presumption, another of the Act's key provisions provides that "[i]f a worker receives a personal injury by accident arising out of and in the course of employment by an employer subject to this chapter, ***the employer or the insurance carrier shall pay compensation***[.]" 21 V.S.A. § 618 (emphasis added). It follows from Section 618 that if two employers are covered by a presumption of compensability and neither rebuts it, then they both "shall pay compensation." At the same time, the Supreme Court has recognized that the Workers' Compensation Act reflects a "strong policy against double recovery[.]" *Conant v. Entergy Corp.*, 2016 VT 74, ¶ 16. Requiring both employers to separately pay 100 percent of the benefits owing to an injured worker would clearly violate this principle. Apportioning liability between them resolves this tension by requiring both employers to pay compensation while only compensating the injured worker once. Thus, although the Act does not expressly provide a ***method*** of apportioning liability between multiple employers in such circumstances, I conclude that the ***fact*** of such apportionment necessarily follows from reading Sections 601(11)(E) and 618 together.

White v. Town of Hartford and Town of Hartland, Opinion No. 14-19WC (emphasis in the original).

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through arbitration rather than the formal hearing process under sections 663 and 664 of this title. Qualifications for arbitrators and standards for the arbitration process shall be established by the Commissioner by rule. If arbitration is ordered, the process shall proceed as follows:

(1) The parties shall select an arbitrator from a list provided by the Commissioner.

(2) The arbitrator shall:

(A) Determine apportionment of the liability for the claim, including costs and attorney's fees, among the respective employers or insurers, or both. The apportionment may be limited to one or more parties. If the parties do not agree, the costs of arbitration may be apportioned among the parties by the arbitrator.

(B) Issue a written decision which shall be final.

While the *White* decision established the Commissioner of Labor's authority to apportion liability among municipalities in presumption claims, she did not actually do so in that instance, as the defendant municipalities settled the matter prior to a hearing on the merits. This, then, represents the fourth method of apportioning liability: mutual agreement between the liable municipalities.

In summary, several mechanisms for apportioning liability between multiple fire departments already exist in Vermont law:

(1) applying the last injurious exposure rule (if last exposure is ascertainable);
(2) referring the case to binding arbitration (if it is undisputed that the claim itself is compensable);
(3) based on evidence at a formal hearing (if not sent to arbitration and last exposure not ascertainable); or
(4) agreement by the parties.

The perceived downside to these methods is that, if liability is disputed, apportionment is subject to fact-finding and litigation. However, such litigation need not necessarily delay recovery by the injured firefighter. In the *White* claim, for example, Hartford's insurance carrier paid benefits without prejudice, and sought recovery against Hartland later.

The Legislature could, if it chose, provide for a simpler method of explicitly apportioning liability by statute, such as equally apportioning liability among all liable municipalities. While doing so would have the benefit of simplicity, it runs the risk of appearing arbitrary when exposure to carcinogens is not proportionate between the departments involved. We make no recommendations in this regard but leave the matter for the Legislature to consider.

Summary

As indicated throughout this report, the lack of available data significantly limits the ability to accurately estimate the impacts of potential statutory changes. Even with this data, uncertainty around the attribution of any specific type of cancer to firefighting activity remains difficult given the complex nature of these diseases and the difficulties tracking exposure. The addition of the considerable number and variety of intervening factors posed by a primarily volunteer firefighting community further complicates the analysis. At a minimum, the development of a mechanism to track and record necessary data is a critical next step towards the success of any future analyses or proposals.

With respect to apportionment of liability in circumstances involving multiple fire departments, several methodologies are currently available under Vermont law. Any change to simplify this process must be made carefully to ensure it can incorporate the unique factors of each situation and does not unfairly impact individual departments.

APPENDIX A

OliverWyman

ACTUARIAL VALUATION OF PRESUMPTIVE BENEFIT CANCER LIABILITY AS OF JUNE 30, 2023

STATE OF VERMONT

JANUARY 5, 2024

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Executive Summary

Scope

Oliver Wyman Actuarial Consulting, Inc. (Oliver Wyman) has been engaged by the Vermont Departments of Financial Regulation and Labor ("Vermont", "the client") to review the impacts of potential changes to 21 V.S.A. 601(11)(E). This engagement was in response to a requirement by the Vermont Legislature in Act 26 of 2023 that the Departments of Financial Regulation and Labor, in consultation the Director of the Division of Fire Safety, submit a written report related to presumptive benefits[1] entitled to firefighters in the State of Vermont.

Specifically, Vermont requested that Oliver Wyman provide the following:

1. An actuarial estimate of the liability due to claims filed by firefighters who develop cancer and file workers compensation claims under the presumptive benefit laws. In the context of this report, liability represents the expected future cost of indemnity (wage replacement) benefits, medical benefits, and allocated loss adjustment expenses (ALAE[2]).

2. An actuarial estimate of the change in liability associated with adjusting various parameters of the current Statute, as follows:
   a. Removing the restriction prohibiting firefighters over the age of 65 to receive benefits.
   b. Removing the restriction prohibiting firefighters who use tobacco products from receiving benefits.
   c. Extending coverage to include:
      i. Additional types of cancer that occur more frequently in firefighters than the general public.
      ii. Additional types of cancer that are caused by carcinogens to which firefighters are exposed to in the line of duty.
      iii. All types of cancer.

3. The above estimates discounted[3] for the time value of money.

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[1] Firefighters who develop cancer and have worked a minimum number of years are presumed to have developed the disease due to employment and are therefore entitled to workers compensation benefits.

[2] ALAE represent costs other than benefits that are generally attributable to individual claims. ALAE will typically include the costs of legal defense, surveillance, document production and other similar claim related expenses. The precise definition of ALAE is ultimately will be determined by the expense elements included in the underlying expense data.

[3] Discounted estimates reflect the time value of money and are equal to the undiscounted estimates reduced by the investment income that theoretically could be earned, using the specified interest rate, between the accounting date of the study and the dates claim payments are actually made. Undiscounted estimates do not reflect the time value of money.

Summary of Possible Changes in Statute

The table below summarizes provisions of the current Statute, along with possible changes that would impact liability projections.

Current Statute Eligibility Criteria	**Possible Changes**
Firefighter engaged in firefighting duties or other hazardous activities over a period of at least 5 years in Vermont prior to the diagnosis.	Maintain criteria.
Firefighter is under 65 years of age	Remove age limit.
Presumption will not apply to any firefighter who has used tobacco products at any time within 10 years of the date of diagnosis.	Remove tobacco use exclusion.
Covered Cancers Include: • Leukemia • Lymphoma • Multiple myeloma • Bladder • Brain • Breast • Colon • Gastrointestinal tract • Kidney • Liver • Lung • Pancreas • Reproductive system • Skin • Thyroid	Extend to also include either: 1. Additional types of cancer that occur more frequently in firefighters than the general public. 2. Additional types of cancer that are caused by carcinogens to which firefighters are exposed to in the line of duty. 3. All types of cancer.
Firefighter is diagnosed with cancer within 10 years of the last active date of employment.	Maintain criteria.

Impact of Possible Changes in Statute

Liability Associated with Current Statute:

The table below displays estimates of future costs by component (indemnity, medical, and ALAE), on both an undiscounted basis and on a basis discounted using an interest rate of 4.0%, based on eligibility criteria included in the current Statute.

Table 1: Liability Estimate - Current Statute
Baseline Scenario

Component	Undiscounted	Discounted
Indemnity	$93,200,000	$64,100,000
Medical	62,100,000	42,700,000
ALAE	7,000,000	4,800,000
Total	**$162,300,000**	**$111,600,000**

The following items apply to the estimates displayed in Tables 1 through 6:

1. Estimates are actuarial central estimates and do not include a margin for risk.

2. The estimates include a provision for indemnity benefits, medical benefits, and the cost of ALAE, as applicable. There is no provision for any other expenses associated with the cost of claims filed under the presumptive benefit statutes.

3. The estimates assume a net annual investment return of 4.0% and expected future medical inflation of 2.9%.

4. The terminated firefighter population is unknown. As such, the liability estimates are based only on the count of “active” firefighters as provided by Vermont. To the extent that terminated firefighters also have potential to file claims, their liabilities are not reflected in these estimates.

5. Demographic information associated with active firefighters is unknown. As such, liability estimates account for general demographic assumptions specific to firefighters. If demographic information were available and the estimates could be refined accordingly, it is possible that the estimates would change materially.

Adjustment to Age Restriction:

The current Statute prohibits a firefighter from filing for a presumptive benefit claim if he/she is diagnosed with cancer after age 65. The Vermont Legislature requested that the report discuss the impact of removing that restriction. However, there is still a restriction that mandates a firefighter be diagnosed with cancer within 10 years of the last active date of employment. For the purpose of this study, we are assuming a firefighter will retire at age 65, and therefore would qualify for presumptive benefits coverage if diagnosed with cancer through the age of 75.

The table below displays estimates of future costs, by component, after extending the age limit to file a presumptive benefit claim to age 75 while keeping all other provisions the same as the current Statute. Estimates are displayed on both an undiscounted basis and on a basis discounted using an interest rate of 4.0%.

Table 2: Liability Estimate – Extend Age to 75

			$ Change from Baseline		% Change from Baseline	
Component	Undiscounted	Discounted	Undiscounted	Discounted	Undiscounted	Discounted
Indemnity	$93,200,000	$64,100,000	$0	$0	0%	0%
Medical	130,400,000	72,800,000	68,300,000	30,100,000	110%	70%
ALAE	10,100,000	6,200,000	3,100,000	1,400,000	44%	29%
Total	**$233,700,000**	**$143,100,000**	**$71,400,000**	**$31,500,000**	**44%**	**28%**

There is a significant increase in costs because cancer incidence rates increase as a person ages. There is no change in the indemnity component however since it is assumed firefighters will retire by the age of 65 and would therefore not be entitled to indemnity benefits after retirement.

As noted above, these calculations assume that firefighters will retire at age 65 and file their claims by age 75. However, it should be noted that volunteer firefighters could continue their "employment" long beyond this normal retirement age. As such, the reality is that a firefighter that continues to periodically volunteer until age 85 could file a claim until age 95. This scenario is not accounted for in the estimates above. If it is concluded that this is not the intention of the Statute, two possible revisions could be made:

1. An hours requirement could be added to maintain "volunteer" status.
2. Instead of removing the age 65 age restriction in its entirety, it could simply be adjusted to age 75.

It is also important to consider that once someone turns 65, Medicare would likely pick up the medical cost of cancer treatment. Thus, the change under consideration would essentially be shifting medical costs from the Medicare system to the workers compensation system.

Remove Tobacco Use Restriction:

The current Statute prohibits a firefighter from filing for a presumptive benefit claim if they have used tobacco within 10 years of the cancer diagnosis. The Vermont Legislature requested that the report discuss the impact of removing that restriction.

The table below displays estimates of future costs, by component, after removing the tobacco use restriction to file a presumptive benefit claim while keeping all other provisions the same as the current Statute. Estimates are displayed on both an undiscounted basis and on a basis discounted using an interest rate of 4.0%.

Table 3: Liability Estimate – Remove Tobacco Use Restriction

			$ Change from Baseline		% Change from Baseline	
Component	Undiscounted	Discounted	Undiscounted	Discounted	Undiscounted	Discounted
Indemnity	$112,500,000	$77,400,000	$19,300,000	$13,300,000	21%	21%
Medical	75,000,000	51,600,000	12,900,000	8,900,000	21%	21%
ALAE	8,400,000	5,800,000	1,400,000	1,000,000	20%	21%
Total	**$195,900,000**	**$134,800,000**	**$33,600,000**	**$23,200,000**	**21%**	**21%**

The above estimates are based on the following assumptions:

- 13.6% of career firefighters are smokers[4]
- 17.4% of volunteer firefighters are smokers[4]
- 93.7% of firefighters in Vermont are volunteers and 6.3% of firefighters in Vermont are career firefighters

Consequently, on average, 17% of all firefighters (career and volunteer) are assumed to be smokers. This information is from publicly available data along with information provided by Vermont. This results in a 21% increase in liability (1 / (1 – 17%) = 121%). It should be noted that confirming if a firefighter did or did not use tobacco products may be difficult to verify, so the impact of the removing this restriction may be less than estimated.

[4] Based on information found on tobaccofreelife.org.

Additional Types of Cancer:

The current Statute, as amended in 2023, only includes coverage for the following types of cancer:

- Leukemia
- Lymphoma
- Multiple myeloma
- Bladder
- Brain
- Breast
- Colon
- Gastrointestinal tract
- Kidney
- Liver
- Lung
- Pancreas
- Reproductive system
- Skin
- Thyroid

The Vermont Legislature requested information on the impact of extending the coverage to include either:

1. Additional types of cancer that occur more frequently in firefighters than the public.
2. Additional types of cancer that are caused by carcinogens to which firefighters are exposed to in the line of duty.
3. All types of cancer.

Given the ambiguity in possible additional coverage, we estimated liabilities inclusive of the following additional types of cancer, based on cancers covered by presumptive benefit statutes in other jurisdictions:

- Basal cell carcinoma, squamous cell carcinoma and malignant melanoma
- Hodgkin's Lymphoma
- Laryngeal
- Nasopharyngeal
- Non-Hodgkin's Lymphoma
- Ovarian
- Pharyngeal
- Prostate
- Rectal
- Stomach
- Testicular

The table on the following page displays estimates of future costs, by component, after expanding cancer coverage as noted above while keeping all other provisions the same as the current Statute. Estimates are displayed on both an undiscounted basis and on a basis discounted using an interest rate of 4.0%.

Table 4: Liability Estimate – Expand Cancer Coverages

			$ Change from Baseline		% Change from Baseline	
Component	Undiscounted	Discounted	Undiscounted	Discounted	Undiscounted	Discounted
Indemnity	$165,500,000	$113,000,000	$72,300,000	$48,900,000	78%	76%
Medical	110,300,000	75,300,000	48,200,000	32,600,000	78%	76%
ALAE	12,400,000	8,500,000	5,400,000	3,700,000	77%	77%
Total	**$288,200,000**	**$196,800,000**	**$125,900,000**	**$85,200,000**	**78%**	**76%**

Without knowing what and how many additional types of cancer could be covered by the Statute, it is difficult to estimate the resulting increase in liability. Every type of cancer has a different incidence rate, costs a different amount to treat, and will have a different mortality rate. If all types of cancer end up being covered by the Statute, the additional liability would be greater than estimated, perhaps significantly.

Combining Changes in All of the Parameters:

While each individual parameter change discussed previously would increase liability estimates, reflecting all adjustments on a combined basis would have a greater impact on liability estimates than the sum of each adjustment if reflected individually.

The table below displays estimates of future costs, by component, after accounting for the following adjustments to the parameters concurrently:

- Remove age restriction
- Remove tobacco use restriction
- Add additional types of cancer

Estimates are displayed on both an undiscounted basis and on a basis discounted using an interest rate of 4.0%.

Table 5: Liability Estimate – All Parameter Adjustments Combined

			$ Change from Baseline		% Change from Baseline	
Component	Undiscounted	Discounted	Undiscounted	Discounted	Undiscounted	Discounted
Indemnity	$416,100,000	$232,200,000	$322,900,000	$168,100,000	346%	262%
Medical	277,400,000	154,800,000	215,300,000	112,100,000	347%	263%
ALAE	31,200,000	17,400,000	24,200,000	12,600,000	346%	263%
Total	**$724,700,000**	**$404,400,000**	**$562,400,000**	**$292,800,000**	**347%**	**262%**

Allocation

Without specific demographic information, there are limited ways to allocate anticipated costs to the various departments. Due to the limited data, liability has been allocated according to the known number of firefighters serving each department. However, it should be noted it is possible demographic data varies by department, and incidence rates may also vary by geographic area. Furthermore, it is possible that firefighters may move between departments, further complicating allocation assumptions. Outlined on the following several pages is the allocation of the liability to each department, as estimated under the scenario where all parameter adjustments are combined.

Table 6: Allocation of Liability Estimate – All Parameter Adjustments Combined

		Allocation of:	
Organization Name	Number of Members	Undiscounted Liability	Discounted Liability
Addison Fire Department	17	$3,225,949	$1,800,157
Albany Fire Department	10	1,897,617	1,058,916
Alburgh Fire Department	30	5,692,852	3,176,748
Arlington Fire Department	27	5,123,566	2,859,073
Ascutney Fire Department	19	3,605,473	2,011,940
Bakersfield Fire Department	24	4,554,281	2,541,398
Barnard Fire Department	17	3,225,949	1,800,157
Barnet Fire & Rescue	10	1,897,617	1,058,916
Barre City Fire Department	22	4,174,758	2,329,615
Barre Town Fire Department	28	5,313,328	2,964,965
Barton Fire Department	17	3,225,949	1,800,157
Beecher Falls Fire Department	17	3,225,949	1,800,157
Bellows Falls Fire Department	20	3,795,234	2,117,832
Bennington Fire Department	34	6,451,898	3,600,314
Bennington Rural Fire Department	36	6,831,422	3,812,097
Benson Fire Department	13	2,466,902	1,376,591
Berkshire Fire Department	1	189,762	105,892
Berlin Volunteer Fire Department	38	7,210,945	4,023,881
Bethel Fire Department	14	2,656,664	1,482,482
Bolton Fire Department	2	379,523	211,783
Bradford Fire Department	17	3,225,949	1,800,157
Brandon Fire Department	23	4,364,520	2,435,507
Brattleboro Fire Department	25	4,744,043	2,647,290
Bridgewater Fire Department	19	3,605,473	2,011,940
Bridport Fire Department	23	4,364,520	2,435,507
Brighton Fire Department	12	2,277,141	1,270,699
Bristol Fire Department	33	6,262,137	3,494,423
Broad Brook-East Barnard Fire Department	1	189,762	105,892

Organization Name	Number of Members	Allocation of: Undiscounted Liability	Allocation of: Discounted Liability
Brookfield Fire Department	13	$2,466,902	$1,376,591
Burlington Fire Department	95	18,027,363	10,059,701
Cabot Fire Department	6	1,138,570	635,350
Cambridge Fire Department	28	5,313,328	2,964,965
Castleton Fire Department	22	4,174,758	2,329,615
Cavendish Fire Department	7	1,328,332	741,241
Champion Fire Co #5 Fire Department	17	3,225,949	1,800,157
Charleston Fire Department	24	4,554,281	2,541,398
Charlotte Fire Department	16	3,036,187	1,694,266
Chelsea Fire Department	4	759,047	423,566
Chester Fire Department	24	4,554,281	2,541,398
Chittenden Fire Department	18	3,415,711	1,906,049
Clarendon Fire Department	25	4,744,043	2,647,290
Colchester Fire Department	45	8,539,277	4,765,122
Concord Fire Department	8	1,518,094	847,133
Corinth Fire Department	15	2,846,426	1,588,374
Cornwall Fire Department	14	2,656,664	1,482,482
Craftsbury Fire Department	9	1,707,855	953,024
Danby/Mount Tabor Fire Department	12	2,277,141	1,270,699
Danville Fire Department	18	3,415,711	1,906,049
Derby Line Fire Department	21	3,984,996	2,223,723
Dorset Fire Department	15	2,846,426	1,588,374
East Burke Fire Department	19	3,605,473	2,011,940
East Dorset Fire Department	10	1,897,617	1,058,916
East Dover Fire Department	16	3,036,187	1,694,266
East Montpelier Fire Department	31	5,882,613	3,282,639
East Randolph Fire Department	7	1,328,332	741,241
East Wallingford Fire Department	1	189,762	105,892
Elmore Fire Department	8	1,518,094	847,133
Enosburg Fire Department	28	5,313,328	2,964,965
Essex Junction Fire Department	30	5,692,852	3,176,748
Essex Town Fire Department	27	5,123,566	2,859,073
Fair Haven Fire Department	21	3,984,996	2,223,723
Fairfax Fire Department	21	3,984,996	2,223,723
Fairfield Fire Department	12	2,277,141	1,270,699
Fairlee Fire Department	5	948,809	529,458
Ferrisburgh Volunteer Fire Department	18	3,415,711	1,906,049
Franklin Fire Department	10	1,897,617	1,058,916
Georgia Fire Department	14	2,656,664	1,482,482
Global Foundries Fab 9 Fire Department	15	2,846,426	1,588,374

Organization Name	Number of Members	Allocation of: Undiscounted Liability	Allocation of: Discounted Liability
Glover Fire Department	10	$1,897,617	$1,058,916
Grafton Fire Department	14	2,656,664	1,482,482
Grand Isle Fire Department	17	3,225,949	1,800,157
Granville Fire Department	8	1,518,094	847,133
Greensboro Fire Department	14	2,656,664	1,482,482
Groton Fire Department	20	3,795,234	2,117,832
Guilford Fire Department	24	4,554,281	2,541,398
Halifax Fire Department	3	569,285	317,675
Hancock Fire Department	4	759,047	423,566
Hardwick Fire Department	5	948,809	529,458
Hartford Fire Department	36	6,831,422	3,812,097
Hartland Fire Department	19	3,605,473	2,011,940
Highgate Fire Department	16	3,036,187	1,694,266
Hinesburg Fire Department	29	5,503,090	3,070,856
Hubbardton Fire Department	11	2,087,379	1,164,808
Huntington Fire Department	19	3,605,473	2,011,940
Hyde Park Fire Department	14	2,656,664	1,482,482
Ira Fire Department	7	1,328,332	741,241
Irasburg Fire Department	9	1,707,855	953,024
Isle LaMotte Fire Department	6	1,138,570	635,350
Jamaica Fire Department	6	1,138,570	635,350
Jay Fire Department	1	189,762	105,892
Johnson Fire Department	17	3,225,949	1,800,157
Killington Fire and Rescue	16	3,036,187	1,694,266
Lincoln Fire Department	18	3,415,711	1,906,049
Londonderry Phoenix No. 6 Fire Department	15	2,846,426	1,588,374
Lowell Fire Department	11	2,087,379	1,164,808
Ludlow Fire Department	37	7,021,184	3,917,989
Lunenburg Co. A Fire Department	1	189,762	105,892
Lyndonville Fire Department	30	5,692,852	3,176,748
Manchester Fire Department	20	3,795,234	2,117,832
Marlboro Fire Department	13	2,466,902	1,376,591
Marshfield Fire Department	7	1,328,332	741,241
Middlebury Fire Department	37	7,021,184	3,917,989
Middlesex Fire Department	12	2,277,141	1,270,699
Middletown Springs Fire Department	15	2,846,426	1,588,374
Milton Fire Department	41	7,780,230	4,341,555
Monkton Fire Department	7	1,328,332	741,241
Montgomery Fire Department	10	1,897,617	1,058,916
Montpelier Fire Department	16	3,036,187	1,694,266

Organization Name	Number of Members	Allocation of: Undiscounted Liability	Allocation of: Discounted Liability
Moretown Fire Department	20	$3,795,234	$2,117,832
Morrisville Fire Department	10	1,897,617	1,058,916
Mount Holly Fire Department	16	3,036,187	1,694,266
New Haven Fire Department	14	2,656,664	1,482,482
Newark Fire Department, Inc	14	2,656,664	1,482,482
Newbrook Fire Department	33	6,262,137	3,494,423
Newbury Fire Department	9	1,707,855	953,024
Newport Center Fire Department	16	3,036,187	1,694,266
Newport City Fire Department	19	3,605,473	2,011,940
North Bennington Fire Department	9	1,707,855	953,024
North Hero Fire Department	7	1,328,332	741,241
North Hyde Park/Eden Fire Department	14	2,656,664	1,482,482
North Troy Fire Department	13	2,466,902	1,376,591
Northfield Fire Department	17	3,225,949	1,800,157
Norwich Fire Department	21	3,984,996	2,223,723
Orleans Fire Department	29	5,503,090	3,070,856
Orwell Fire Department	13	2,466,902	1,376,591
Pawlet Fire Department	12	2,277,141	1,270,699
Peacham Fire Department	7	1,328,332	741,241
Peru Fire Department	9	1,707,855	953,024
Pittsfield Fire Department	5	948,809	529,458
Pittsford Fire Department	27	5,123,566	2,859,073
Plainfield Fire Department	15	2,846,426	1,588,374
Plymouth Fire Department	14	2,656,664	1,482,482
Pomfret-Teago Fire Department	12	2,277,141	1,270,699
Poultney Fire Department	19	3,605,473	2,011,940
Pownal Fire Department	19	3,605,473	2,011,940
Pownal Valley Fire Department	20	3,795,234	2,117,832
Proctor Fire Department	15	2,846,426	1,588,374
Proctorsville Fire Department	26	4,933,805	2,753,181
Putney Fire Department	16	3,036,187	1,694,266
Randolph Center Fire Department	8	1,518,094	847,133
Randolph Village Fire Department	15	2,846,426	1,588,374
Reading Fire Department	11	2,087,379	1,164,808
Readsboro Fire Department	13	2,466,902	1,376,591
Richford Fire Department	14	2,656,664	1,482,482
Richmond Fire Department	11	2,087,379	1,164,808
Ripton Fire Department	14	2,656,664	1,482,482
Rochester Volunteer Fire Department	4	759,047	423,566
Rockingham Fire Department	11	2,087,379	1,164,808

Organization Name	Number of Members	Allocation of: Undiscounted Liability	Allocation of: Discounted Liability
Roxbury Fire Department	5	$948,809	$529,458
Rupert Fire Department	21	3,984,996	2,223,723
Rutland City Fire Department	32	6,072,375	3,388,531
Rutland Town Fire Department	35	6,641,660	3,706,206
Ryegate Fire Department	12	2,277,141	1,270,699
Salisbury Fire Department	15	2,846,426	1,588,374
Saxtons River Fire Department	11	2,087,379	1,164,808
Shaftsbury Fire Department	15	2,846,426	1,588,374
Sharon Fire Department	17	3,225,949	1,800,157
Sheffield-Wheelock Fire Department	11	2,087,379	1,164,808
Shelburne Fire Department	32	6,072,375	3,388,531
Sheldon Fire Department	19	3,605,473	2,011,940
Shoreham Fire Department	15	2,846,426	1,588,374
Shrewsbury Fire Department	20	3,795,234	2,117,832
South Burlington Fire Department	36	6,831,422	3,812,097
South Hero Fire Department	11	2,087,379	1,164,808
South Royalton Fire Department	17	3,225,949	1,800,157
South Woodstock Fire Department	17	3,225,949	1,800,157
Springfield Fire Department	33	6,262,137	3,494,423
St. Albans City Fire Department	20	3,795,234	2,117,832
St. Albans Town Fire Department	25	4,744,043	2,647,290
St. Johnsbury Fire Department	22	4,174,758	2,329,615
St. Michael's Fire & Rescue	25	4,744,043	2,647,290
Stamford Fire Department	4	759,047	423,566
Starksboro Fire Department	16	3,036,187	1,694,266
Stockbridge Fire Department	2	379,523	211,783
Stowe Fire Department	27	5,123,566	2,859,073
Strafford Volunteer Fire Department	5	948,809	529,458
Stratton Mountain Fire Department	6	1,138,570	635,350
Sutton Fire Department	10	1,897,617	1,058,916
Swanton Fire Department	31	5,882,613	3,282,639
Thetford Fire Department	9	1,707,855	953,024
Tinmouth Fire Department	6	1,138,570	635,350
Townshend Fire Department	11	2,087,379	1,164,808
Tri-Village/Topsham Fire Department	9	1,707,855	953,024
Troy Fire Department	12	2,277,141	1,270,699
Tunbridge Fire Department	15	2,846,426	1,588,374
Underhill/Jericho Fire Department	14	2,656,664	1,482,482
Vergennes Fire Department	35	6,641,660	3,706,206
Vernon Fire Department	17	3,225,949	1,800,157

Organization Name	Number of Members	Allocation of: Undiscounted Liability	Allocation of: Discounted Liability
Vershire Fire & Rescue Department	7	$1,328,332	$741,241
Waitsfield/Fayston Fire Department	17	3,225,949	1,800,157
Walden Fire Department	9	1,707,855	953,024
Wallingford Fire Department	13	2,466,902	1,376,591
Wardsboro Fire Department	14	2,656,664	1,482,482
Warren Fire Department	30	5,692,852	3,176,748
Washington Fire Department	8	1,518,094	847,133
Waterbury Fire Department	38	7,210,945	4,023,881
Waterford Fire Department	15	2,846,426	1,588,374
Wells Fire Department	7	1,328,332	741,241
Wells River Fire Department	9	1,707,855	953,024
West Burke Fire Department	10	1,897,617	1,058,916
West Dover Fire Department	20	3,795,234	2,117,832
West Dummerston Fire Department	24	4,554,281	2,541,398
West Fairlee Fire Department	10	1,897,617	1,058,916
West Haven Fire Department	4	759,047	423,566
West Newbury Fire Department	9	1,707,855	953,024
West Pawlet Fire Department	18	3,415,711	1,906,049
West Rutland Fire Department	15	2,846,426	1,588,374
West Weathersfield Fire Department	24	4,554,281	2,541,398
West Windsor Fire Department	15	2,846,426	1,588,374
Westford Fire Department	7	1,328,332	741,241
Westminster Fire Department	28	5,313,328	2,964,965
Westmore Fire & Rescue	3	569,285	317,675
Weston Fire Department	12	2,277,141	1,270,699
Weybridge Fire Department	16	3,036,187	1,694,266
Whiting Fire Department	12	2,277,141	1,270,699
Whitingham Fire Department	2	379,523	211,783
Williamstown Fire Department	9	1,707,855	953,024
Williston Fire Department	48	9,108,562	5,082,797
Wilmington Fire Department	32	6,072,375	3,388,531
Windham Fire Department	14	2,656,664	1,482,482
Windsor Fire Department	15	2,846,426	1,588,374
Winhall Fire Department	17	3,225,949	1,800,157
Winooski Fire Department	23	4,364,520	2,435,507
Wolcott Fire Department	6	1,138,570	635,350
Woodbury Fire Department	19	3,605,473	2,011,940
Woodstock Fire Department	27	5,123,566	2,859,073
Worcester Fire Department	14	2,656,664	1,482,482
Total	**3,819**	**$724,700,000**	**$404,400,000**

Impact on Overall Vermont Workers Compensation Costs

Given the significance of the liability estimates in this study, it is expected that workers compensation premiums will require an additional provision to fund these costs. All else being equal, this would result in an increase in workers compensation premium rates for employers of firefighters.

Furthermore, it is possible that the impact of this benefit increase could result in higher premiums for all employers in Vermont, not just those that employ firefighters. Benefits associated with cancer claims filed by firefighters under presumptive benefit statutes are funded by the wider workers compensation system. Workers compensation ratemaking is done on a statewide basis. Statewide results are distributed to industry groups and classifications via a set of credibility-weighting procedures that is intended to balance responsiveness to state/classification experience as well as stability (based on countrywide experience and limiting large swings). Additionally, rates for the assigned risk market are calculated based (in part) on the relationship between assigned risk experience and voluntary market experience.

Estimating the magnitude of the impact is outside the scope of this analysis.

It should also be noted that once a firefighter attains age 65, Medicare would pick up the medical cost of cancer treatment, absent a workers compensation claim. Coverage may also be available from other health insurance provided by volunteer firefighters' primary employer. As such, the expansion of presumptive benefits would likely result in a shifting of cost from other health insurance providers to the workers compensation system, possibly resulting in overall higher consumer cost.

Comparative Work in Nevada

Given the lack of data available on cancer claims filed by firefighters in Vermont, Oliver Wyman is using proprietary information obtained from various municipalities in Nevada to assist in selecting parameters.

Oliver Wyman has been valuing the cost of presumptive benefit liabilities for police officers and firefighters in multiple municipalities in Nevada since 2004. A portion of presumptive benefit liabilities in Nevada include firefighters that are diagnosed with several types of cancer. The Nevada municipalities we perform work for are able to provide us with detailed demographic information, along with detailed claim information. Specifically, we receive the following:

Active Employees

- Name
- Date of birth
- Gender
- Date of hire

Inactive Employees

- Name
- Date of birth
- Gender
- Date of hire
- Date inactive

Loss run listing all cancer claims (open and closed), including the following information:

- Name
- Date of injury (or date of filing)
- Date of birth
- Date of hire
- Gender
- Status (active or retired) at time claim was filed
- Date terminated/retired (if applicable)
- Claim type (Permanent Partial, Permanent Total, Medical Only, Other)
- Claim Status (Open/Closed)
- Occupation (Police, Fire)
- Total indemnity paid to date
- Indemnity payments broken out by calendar year of payment
- Current reserves for indemnity benefits
- Total Medical Paid to Date
- Medical payments broken out by calendar year of payment
- Current reserves for medical benefits
- Total expenses paid to date
- Expense payments broken out by calendar year of payment
- Current reserves for expenses

It should be noted however that firefighters in Nevada are mainly career firefighters. While information on cancer claims filed by volunteer firefighters is maintained, full demographic data is not readily available.

The most recent actuarial study performed was based on claims data valued as of June 30, 2023. The table below outlines the total average cost, per cancer claim, based on known cancer claims filed by firefighters in Nevada. Loss data was provided separately for indemnity, medical, and ALAE.

Component	All Claims	Claims with Trended Cost > $2,500	Claims with Trended Cost > $5,000
Claim Count	128	94	66
Average Indemnity	$116,283	$158,335	$225,332
Average Medical	78,103	105,970	149,648
Average ALAE	8,607	11,689	16,546
Total Average Cost	$202,993	$275,995	$391,526

Outlined below are a few important notes for the figures shown above:

1. Estimates are for known claims.
    a. Some of these claims are still open and may settle for more than currently reserved for.
    b. Incurred but not reported claims (IBNR) are unknown and therefore by definition not included in the estimates above.
2. Indemnity losses and ALAE are trended to a 2024 cost level at an annual rate of 3.14%, and medical losses are trended at an annual rate of 2.9%. These inflation rates are based on historical industry data.

This sets the approximate relativity of each component to the total as follows:

Component	Percent of Total Loss
Indemnity	57.4%
Medical	38.4%
ALAE	4.2%

The load for both the indemnity and ALAE components in this study is based on these ratios.

Reasonability Check

Given the magnitude of the estimated liability which in turn is based on a very limited amount of Vermont specific demographic data and historical cancer claim information, information specific to known Nevada presumptive benefit liability cancer claims have been adjusted to a Vermont cost basis to gauge the reasonability of results.

Information from the National Library of Medicine[5] on both average state-level costs (severity) and prevalence rates (frequency) for Nevada and Vermont are outlined below.

- Average annual state-level cancer cost per person from 2004 to 2008 is:
  - Nevada: $11,030
  - Vermont: $10,610
    - Vermont cancer costs are 3.8% less than Nevada
- Average annual state-level cancer prevalence rates from 2004 to 2008 is:
  - Nevada: 3.9
  - Vermont: 4.7
    - Vermont prevalence rates are 20.5% greater than Nevada

All else being equal, higher/lower severity and/or frequency rates will serve to increase/decrease estimated liabilities on a comparative basis. The combination of these two factors equates to overall costs in Vermont being ~16% greater than overall costs in Nevada ([(1 – 3.8%) * (1 + 20.5%)]).

The table below shows average costs per cancer claim in Nevada, as provided in the prior section of the report, adjusted to be on a Vermont costs basis based on the factors mentioned above.

Component	All Claims	Claims with Trended Cost > $2,500	Claims with Trended Cost > $5,000
Nevada Average Cost Per Cancer Claim	$202,993	$275,995	$391,526
Relativity of Vermont Cost to Nevada Cost	116%	116%	116%
Vermont Adjusted Average Cost Per Cancer Claim	$235,318	$319,944	$453,872

There are 3,819 firefighters in Vermont, and total undiscounted liability is estimated to be $724,700,000 after application of all changes to eligibility criteria. Unfortunately, it is unknown how many firefighters will be diagnosed with cancer and be eligible to file for presumptive benefits. As such, an average claim severity is difficult to quantify.

[5] Figures taken from this website include residents covered by Medicare, Medicaid, and private insurance.

The table below outlines average severity of cancer claims filed under presumptive benefit statutes, at various levels of assumed diagnosis.

Percentage of Firefighters	Number of Firefighters	Calculated Average Severity
40%	1,528	$474,288
50%	1,910	379,430
60%	2,291	316,330
70%	2,673	271,123

Given the amount of unknown variables, these estimates appear to be in line with average severities based on known Nevada presumptive benefit liability cancer claims.

In addition to the notes already mentioned in the section entitled “Comparative Work in Nevada,” a few other important items to note:

1. Based on information received for this study, there are currently 3,819 firefighters in 227 departments in Vermont.

2. Given demographic data on firefighters in Vermont is scarce, there are likely retired firefighters that are eligible to file for cancer claims under presumptive benefit statutes, resulting in average severities in the table above appearing higher than they otherwise should be.

3. With minimal cancer claims filings under presumptive benefit statutes, it is possible a change in the Statute will result in additional cancer claim filings that should otherwise have been filed in the past.

4. Additional types of cancers could be covered by presumptive benefit statutes in different states, and every type of cancer has a unique prevalence rate and treatment cost. We are making a simplifying assumption that cancer claims filed in Nevada are similar to cancer claims that could be filed in Vermont.

5. According to the American Cancer Society, 40% of the general population will be diagnosed with cancer at some point in their life.

6. According to the CDC/National Institute for Occupational Safety and Health (NIOSH), firefighters have both a 9% higher risk of being diagnosed with cancer and a 14% higher risk of dying from cancer than the general population.

Consideration of Uncertainty

A considerable amount of information is unknown, adding significantly to the uncertainty inherent in the results.

The following information is not available:

- Active firefighter demographics such as:
  - Age
  - Gender
  - Years of service
  - Tobacco use
  - Employment position/rank/level
  - Mix of volunteer vs. career firefighters
- Terminated firefighter information such as:
  - Terminated firefighters still eligible for presumptive benefits
  - Demographic information associated with those terminated firefighters (similar to demographic data needed for active firefighters)
- Incidence regarding prior filed cancer claims (such as claim counts, claim amounts, demographic information regarding claimants, etc.)
- The percentage of eligible claimants that currently file claims through the workers compensation system, and how this percentage is expected to change as a result of the possible changes to the Statute and word-of-mouth discussions among the firefighter community
- Vermont specific statistics regarding some of the external assumptions (e.g., tobacco use).

These data limitations result in significant uncertainty around the estimates presented in this report. Specifically:

- The demographic attributes listed above are all important predictors. For example, variations in claimant age will lead to different assumptions regarding:
  - future years of exposure
  - incidence rates of various cancers by age
  - mortality assumptions by age

  In the absence of claimant age information, we have modeled costs based on an "average" age of 48. However, it is important to note that the financial exposure associated with two 48-year-olds would not necessarily equal the financial exposure associated with one 18-year-old and one 78-year-old (even though the average of 18 and 78 is 48).

- Since we do not have a count of terminated firefighters, we did not incorporate an estimate for any costs associated with this population. Our estimates are based only on expected claim filing rates and expected claim costs associated with the known population of (current) firefighters as provided by Vermont. To the extent that terminated firefighters also have potential to file claims, their liabilities are not reflected in these estimates.

- Since we do not have information regarding claims that have already been filed in Vermont under the current Statute, we cannot perform reasonability checks of our cost estimates per unreported claim to financial activity on prior or active claims.

- Since we do not have information about position/rank/level, our analysis is unable to reflect the difference in exposure. For example, Oliver Wyman has been informed that fire police generally have the most severe exposure to carcinogens the first 96 hours after a fire.

- Since we do not have information regarding the mix of volunteer and career firefighters, our analysis is unable to reflect differences in level of exposure (such as the ability to sufficiently decontaminate after responding to a fire, or full-time vs. part-time status).

- We are not accounting for liability associated with volunteer firefighters who work past the age of 65. However, we are aware that there are volunteers that work well beyond the age of 65.

- The level of indemnity benefits is highly uncertain for volunteer firefighters.

Relevant Comments

The estimates are actuarial central estimates, and do not include a margin for risk. For the purpose of this study, the actuarial central estimate should be considered a mean estimate.

The results of this analysis are directly dependent on underlying claim frequency assumptions. Frequency is based on industry information regarding cancer incidence rates.

The estimates of future costs presented in this report are based on information received by Oliver Wyman on or before January 5, 2024 (review date).

Estimates are presented on an undiscounted basis, and on a basis discounted for the time value of money, at the stated interest rate. In estimating discounted unpaid losses, we have assumed investment income will be earned at the rate of 4% per year, net of investment expenses and of income taxes. The interest rate of 4% was provided by Vermont. Based on the expected timing of future payments on the estimated unpaid claims, Oliver Wyman has reviewed the selected interest rate in the context of historical 10-year US Treasury yields. Over the past several years, the 10-year US Treasury yield has ranged from a low below 1% to a high of almost 5%. Our review considered the historic volatility of the market and the wide range of factors, both internal and external, that could potentially influence future investment yields. We find the discount rate selected by the client to be reasonable and appropriate for estimating the present value of the undiscounted unpaid claim estimate presented in this report.

There are no aspects of Oliver Wyman's relationship with Vermont that would impair or appear to impair the objectivity of our work. A complete list of caveats and limitations is provided later in this report.

Background

General Background

Overall, firefighters who develop cancer specified by the Statute and have worked as a firefighter in Vermont for five years are presumed to have developed the disease due to their employment as a firefighter and are therefore entitled to workers compensation benefits under Vermont law. This employment requirement is referred to as the vesting period. The cancer Statute states that diagnosis must be made within ten years of termination to achieve presumption.[6] The nature of these statutes creates a long-term latent exposure for workers compensation claims.

Insurance Program History

It is likely that any benefit from insurance protection would be paid in the form of premium. As such, no insurance protection is assumed.

The Vermont League of Cities and Towns has informed us that there has been a change in the voluntary market, and as such, fire departments are finding it more and more difficult to obtain workers compensation insurance coverage outside of the assigned risk or residual market. Insurance companies do not want the risk of insuring volunteer firefighters partially due to the difficulty of calculating unknown compensation costs for these volunteers' primary employment.

[6] Limitations established by Statute do not preclude the filing of claims (and therefore a potential for an award of benefits) subsequent to the statutory limits. However, claims filed subsequent to statutory limits are not subject to the statutory presumption.

Data

The following information was provided for the study:

- Total number of members, by Department
- Current Statute
- Possible changes to the Statute

Miscellaneous internal and external information were utilized as well from the following sources:

- American Cancer Society
- National Cancer Institute
- State of Vermont, Department of Labor
- National Council on Compensation Insurance, Inc.
- U.S. Chamber of Commerce, Statistics and Research Center
- Zippia

Methodology

The approach is a frequency-severity method where the number of unreported claims is estimated and multiplied by an expected cost per claim.

Medical Cost

Information obtained on the average medical treatment cost, by cancer type, was utilized to measure average medical severity. Average future medical claim costs were forecasted based on a 2.9% annual trend. Information obtained on average incidence rates, by cancer type, by gender, was utilized to measure anticipated frequency, by age.

Indemnity Cost

The indemnity component was calculated by applying a flat load to the medical component. The load selected (150%) is based on the relationship of underlying indemnity and medical losses from reported cancer claims filed by firefighters in Nevada who have filed for presumptive benefits.

ALAE

A flat load of 4.5% was added to estimates of medical and indemnity liabilities to account for anticipated expenses. The load selected (4.5%) is based on the relationship of underlying ALAE to indemnity and medical losses from reported cancer claims filed by firefighters in Nevada who have filed for presumptive benefits.

Forecasting Potential Future Claims from Active Firefighters

The population of active firefighters as of the valuation date of the study has been provided, but demographic information specific to these firefighters is unknown. It is assumed that on average, a firefighter is 48 years old.

Discounting

Cancer claims generally have a greater incidence rate as a person ages. As such, discounting has a significant impact on unpaid loss estimates.

Mortality

General population mortality published by the Center for Disease Control (National Vital Statistics Reports) was utilized for the purpose of this study.

Distribution and Use

- **Usage and Responsibility of Client** – Oliver Wyman prepared this report for the sole use of the client named herein for the stated purpose. This report includes important considerations, assumptions, and limitations and, as a result, is intended to be read and used only as a whole. This report may not be separated into, or distributed, in parts other than by the client to whom this report was issued, as needed, in the case of distribution to such client's directors, officers, or employees. All decisions in connection with the implementation or use of advice or recommendations contained in this report are the sole responsibility of the client named herein.

- **Third Party Reliance and Due Diligence** – Oliver Wyman's consent to any distribution of this report (whether herein or in the written agreement pursuant to which we issued this report) to parties other than of the client named herein does not constitute advice by Oliver Wyman to any such third parties. Any distribution to third parties shall be solely for informational purposes and not for purposes of reliance by any such parties. Oliver Wyman assumes no liability related to third party use of this report or any actions taken or decisions made as a consequence of the results, advice or recommendations set forth herein. This report should not replace the due diligence on behalf of any such third party.

Considerations and Limitations

- **Data Verification** – For our analysis, we relied on data and information provided by the client named herein without independent audit. Though we have reviewed the data for reasonableness and consistency, we have not audited or otherwise verified this data. Our review of data may not always reveal imperfections. We have assumed that the data provided is both accurate and complete. The results of our analysis are dependent on this assumption. If this data or information is inaccurate or incomplete, our findings and conclusions might therefore be unreliable.

- **Estimates** – The estimates developed in this analysis are based on estimated costs and the projected exposures. Where data appeared to be incomplete, reasonable estimates were utilized. It should be noted that the estimates are directly related to the projected exposures. Therefore, if actual exposures, that is, actual employee data are materially different from what was provided, estimates will need to be adjusted accordingly.

- **Supplemental Data** – Where historical data of the client named herein was either (i) not available, (ii) not appropriate or (iii) not sufficiently credible to develop our actuarial assumptions, we supplemented it with external information, as we deemed appropriate. Although we believe these external sources may be more predictive of future experience of the client named herein than any other data of which we are aware, the use of external data adds to the uncertainty associated with our projections.

- **Exclusion of Other Program Costs** – The scope of the project does not include the estimation of any costs other than those described herein. Such ancillary costs may include unallocated loss adjustment expenses (ULAE); excess insurance premiums; the costs of trustee, legal, administrative, risk management and actuarial services; fees and assessments; and costs for surety bonds or letters of credit pertaining to claim liabilities.

- **Assumption of Valid Insurance** – We assumed that all insurance is valid and viable. We made no assessment, and do not express any opinion, concerning the viability of any insurance. We have not evaluated the financial strength, claims-paying ability or any other factors with regard to the past, current, and prospective insurers of the client named herein.

- **Supporting Assets** – We have not examined, nor do we express any opinion regarding, the assets, if any, that are used to provide for the payment obligations associated with the estimates of unpaid costs presented in this report.

- **Rounding and Accuracy** – Our models may retain more digits than those displayed. Also, the results of certain calculations may be presented in the exhibits with more or fewer digits than would be considered significant. As a result, there may be rounding differences between the results of calculations presented in the exhibits and replications of those calculations based on displayed underlying amounts. Also, calculation results may not have been adjusted to reflect the precision of the calculation.

- **Discounting** – In addition to the risk of underestimating or overestimating the overall amount of the undiscounted unpaid loss and ALAE, discounted estimates are subject to additional uncertainty that results from the following:
  1. the additional risk that the timing of the future payments will differ from the expected payout.
  2. the risk the actual future yield on the underlying assets (if any) will differ from the assumed yield rate used for determining present value factors.

  We have not included a risk margin for this additional risk.

- **Unanticipated Changes** – We developed our conclusions based on an analysis of the data of the client named herein and on the estimation of the outcome of many contingent events. We developed our estimates from the historical claim experience and covered exposure, with adjustments for anticipated changes. Our estimates make no provision for extraordinary future emergence of new types of losses not sufficiently represented in historical databases or which are not yet quantifiable. Also, we assumed that the client named herein will remain a going concern, and we have not anticipated any impacts of potential insolvency, bankruptcy, or any similar event.

- **Uncertainty Inherent in Projections** – While this analysis complies with applicable Actuarial Standards of Practice, users of this analysis should recognize that our projections involve estimates of future events and are subject to economic and statistical variations from expected values. We have not anticipated any extraordinary changes to the legal, social, or economic environment that might affect the frequency or severity of claims. For these reasons, we do not guarantee that the emergence of actual losses will correspond to the projections in this analysis.

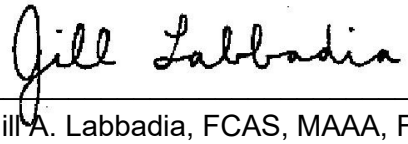
- **Internal / External Changes** – The sources of uncertainty affecting our estimates are numerous and include factors internal and external to the client named herein. Internal factors include items such as changes in claim reserving or settlement practices. The most significant external influences include, but are not limited to, changes in the legal, social, or regulatory environment surrounding the claims process. Uncontrollable factors such as general economic conditions also contribute to the variability.

- **COVID-19 Pandemic** – It should be noted the long-term impact of this event on loss experience is highly uncertain at this time.

Acknowledgement of Qualifications

I, Jill A. Labbadia, am a Principal for Oliver Wyman Actuarial Consulting Inc. I am a Fellow of the Casualty Actuarial Society, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries.

I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.



Jill A. Labbadia, FCAS, MAAA, FCA
Principal

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Statute

No. 26. An act relating to workers' compensation coverage for firefighters with cancer.

(S.73)

It is hereby enacted by the General Assembly of the State of Vermont: Sec. 1. 21 V.S.A. § 601 is amended to read:

§ 601. DEFINITIONS

~~Unless the context otherwise requires, words and phrases used in this chapter shall be construed as follows~~ As used in this chapter:

* * *

(11) "Personal injury by accident arising out of and in the course of employment" includes an injury caused by the willful act of a third person directed against an employee because of that employment.

* * *

(E) In the case of a firefighter, as defined in 20 V.S.A. § 3151(3) and (4), who dies or has a disability from a cancer listed in subdivision (iii) of this subdivision (E), the firefighter shall be presumed to have had the cancer as a result of exposure to conditions in the line of duty, unless it is shown by a preponderance of the evidence that the cancer was caused by nonservice-connected risk factors or nonservice-connected exposure, provided:

(i) (I) the firefighter completed an initial and any subsequent cancer screening evaluations as recommended by the American Cancer Society based on the age and sex of the firefighter prior to becoming a firefighter or ~~within two years of July 1, 2007~~ while serving as a firefighter, and the evaluation indicated no evidence of cancer;

(II) the firefighter was engaged in firefighting duties or other hazardous activities over a period of at least five years in Vermont prior to the diagnosis; and

(III) the firefighter is under 65 years of age.

(ii) The presumption shall not apply to any firefighter who has used tobacco products at any time within 10 years of the date of diagnosis.

(iii) The disabling cancer shall be limited to leukemia, lymphoma, or multiple myeloma, and cancers originating in the bladder, brain, breast, colon, gastrointestinal tract, kidney, liver, lung, pancreas, reproductive system, skin, or ~~testicles~~ thyroid.

(F) A firefighter who is diagnosed with cancer within 10 years of the last active date of employment as a firefighter shall be eligible for benefits under this subdivision. The date of injury shall be the date of the last injurious exposure as a firefighter.

(G) It is recommended that fire departments:

(i) maintain incident report records for at least 10 years; and

(ii) offer or provide annual cancer screenings to all firefighters who are employed by or who volunteer for the department.

* * *

Sec. 2. ANNUAL CANCER SCREENINGS; PERSONAL PROTECTIVE EQUIPMENT UPGRADES; REPORT

(a) On or before January 15, 2024, the Director of the Division of Fire Safety shall submit a written report to the House Committees on Appropriations, on Commerce and Economic Development, and on Government Operations and Military Affairs and the Senate Committees on Appropriations; on Economic Development, Housing and General Affairs; and on Government Operations regarding the following topics:

(1) the projected cost for the State to fund annual or biennial cancer screenings for all career and volunteer firefighters in Vermont;
(2) the projected cost for the State to fund cancer screenings for all enrollees in the Vermont Fire Academy Firefighter I certification program prior to the commencement of training;
(3) potential opportunities for the State to reduce the cost for fire departments to provide annual cancer screenings for their firefighters;
(4) the projected cost for the State to fund the replacement of personal protective equipment for all volunteer and career firefighters on a rolling basis so that all personal protective equipment is replaced within 10 years after being acquired; and
(5) potential opportunities for the State to reduce the cost to fire departments for the replacement of personal protective equipment.

(b) The report may include recommendations for legislative action to facilitate:

(1) the early identification of cancer in firefighters;
(2) the acquisition of personal protective equipment by fire departments; and
(3) the elimination of PFAS and other carcinogens in firefighting equipment.

Sec. 3. WORKERS' COMPENSATION FOR FIREFIGHTERS WITH CANCER; ELIGIBILITY; REPORT

(a) On or before January 15, 2024, the Commissioners of Labor and of Financial Regulation, in consultation with the Director of the Division of Fire Safety, shall submit a written report to the House Committee on Commerce and Economic Development and the Senate Committee on Economic Development, Housing and General Affairs regarding the following topics:

(1) the potential impacts on workers' compensation claims, premiums, and loss costs of amending or repealing the provisions of 21 V.S.A. § 601(11)(E) that bar a firefighter from the presumption that the firefighter's cancer resulted from work-related exposure if the firefighter:

(A) is over 65 years of age; or
(B) has used tobacco products within the last 10 years;

(2) the potential impacts on workers' compensation claims, premiums, and loss costs of amending 21 V.S.A. § 601(11)(E)(iii) to expand the list of cancers presumed to have been caused by exposure to working conditions as a firefighter, including:
(A) additional types of cancer:

(i) that occur more frequently in firefighters than the general public;
(ii) that are caused by carcinogens to which firefighters are exposed in the line of duty; or
(iii) both; or

(B) all forms of cancer; and

(2) potential methods for allocating liability for workers' compensation in instances where a firefighter has been employed by more than one fire department, including when a firefighter is employed as a career firefighter by one department and a volunteer firefighter by another department.

(b) The report may include recommendations for legislative action to:

(1) amend or repeal the provisions of 21 V.S.A. § 601(11)(E) that bar a firefighter from the presumption that the firefighter's cancer resulted from work-related exposure if the firefighter is over 65 years of age or has used tobacco products within the last 10 years; and

(2) amend 21 V.S.A. § 601(11)(E)(iii) to expand the list of cancers presumed to have been caused by exposure to working conditions as a firefighter to include either:

(A) additional types of cancer:

(i) that occur more frequently in firefighters than the general public;
(ii) that are caused by carcinogens to which firefighters are exposed in the line of duty; or
(iii) both; or

(B) all forms of cancer.

Sec. 4. EFFECTIVE DATE

This act shall take effect on July 1, 2023.

Date Governor signed bill: May 30, 2023

Oliver Wyman
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