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Actuarial Valuation of Unpaid Benefit Costs for Heart Disease, Lung Disease, Hepatitis, and Cancer Claims as of June 30, 2008

City of North Las Vegas

December 2008

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INTRODUCTION

Our Understanding of the Situation

Oliver Wyman Actuarial Consulting, Inc. (Oliver Wyman) has been engaged by the City of Las Vegas (the "City") to provide actuarial consulting services to the following municipal entities in the State of Nevada (hereafter referred to as "the Cities"):

- Las Vegas
- North Las Vegas
- Henderson
- Reno
- Sparks

The Cities require an actuarial estimate of their liability for the unpaid cost of indemnity (wage replacement) benefits and medical benefits for disability of public safety employees who develop heart disease, lung disease, hepatitis or cancer (HLHC). The liability is the sum of two components:

- The unpaid benefit costs due to reported claims for which the Cities are currently paying benefits; and
- The unpaid benefit costs for future claims expected to be reported by the Cities' current population of active and retired public safety employees who meet eligibility requirements for awards under Nevada statutes.

The specific statutes governing the award of benefits are:

- NRS 617.453 Cancer as an occupational disease of firefighters.
- NRS 617.455 Lung diseases as occupational diseases of firefighters and police officers.
- NRS 617.457 Heart diseases as occupational diseases of firefighters and police officers.

- NRS 617.485 Hepatitis as occupational disease of police officer, firefighters or emergency medical attendants.

Hereafter, the statutes cited above will be referred to as the "HLHC statutes."

Reports will be prepared for each of the individual cities, as well as for all cities combined. This is our report to the City of North Las Vegas, hereafter referred to as "North Las Vegas."

Considerations and Background

General Approach

This assignment is the second study of North Las Vegas' exposure to loss under the HLHC statutes. The first study was prepared by Oliver Wyman[1] based on data available during the later half of 2004. The current study is based on data available during the latter half of 2008. Over the course of the past four years, the statutes have been expanded to include cancer as a presumptive disability for firefighters. Additionally, there has been significant legal activity on the part of the Cities towards administering claims filed under the statutes.

The estimates presented in this report are actuarial central estimates.[2] An actuarial central estimate represents the expected, or average, value over a range of reasonably possible (as opposed to all conceivable) outcomes. The average estimate is toward the center of a range of reasonable estimates, with roughly a 50% probability that actual results will be greater, and a 50% probability that actual results will be lower.[3]

The estimates presented in this report are net of third party recoveries to extent that such recoveries are captured in the historical data and are applicable to this exposure. The estimates include the cost of medical benefits and indemnity (wage loss) benefits available under the applicable HLHC statutes. The estimates do not include the cost of allocated loss adjustment expense (ALAE)[4] or any other expenses associated with the management of this program. In particular, the estimates do not include legal expenses and other defense related costs. These costs are typically a significant component of a self-insurance program.

Estimates are presented on both a nominal dollar basis, undiscounted[5] for the time value of money, as well as on a basis that is discounted for the time value of money. Discounting reflects

[1] At that time our consulting group was known as "Mercer Oliver Wyman." This was a change in name only, with no changes to overall corporate structure or to our specific consulting business.

[2] Actuarial central estimates do not consider the impact of extreme events, such as immediate repeal of the HLHC statutes, which would materially reduce the estimated liabilities, or a material surge in claims by factors of two or three, which would materially increase the estimated liabilities.

[3] In actuality, the "average" or "mean" estimate, while toward the center of a range of reasonable estimates, generally is at what is termed a 55% (roughly) level of confidence. This means that there is a 45% likelihood that actual results will be greater than the average, and a 55% likelihood that actual results will be less. Individuals generally expect that the average will be in the center or a symmetric distribution, exactly at the 50% mark. The asymmetric distribution occurs because there is, in theory, no upper limit on costs (notwithstanding excess of loss protection), but there is, in theory, a lower limit (zero) on costs.

[4] ALAE generally includes expenses that may be allocated to individual claims; typically the costs of legal defense, surveillance, document production and other similar expenses.

[5] Discounting reflects the time value of money. Discounted estimates are equal to the undiscounted estimates reduced by the investment income that theoretically could be earned, using specified interest rates, between the reserve date of the study (June 30, 2008 in this report) and the dates benefit payments are actually made. An undiscounted estimate does not reflect the time value of money.

the reality that a dollar expected to be paid decades from the reserve date has significantly lower economic value than a dollar expected to be paid over the next year. The discounted projections are based on annual interest rates of 3.0%, 4.0%, 5.0%, 6.0%, and 7.0%.

Numerous considerations apply to the results of this study. These considerations are discussed in detail later in this report.

Components of Unpaid Benefit Costs

There are two general components of the unpaid benefit costs payable under the HLHC Statutes:

- The unpaid benefit costs due to reported claims for which the Cities are currently paying benefits; and
- The unpaid benefit costs for future claims expected to be reported by the Cities' current population of active and retired public safety employees who meet eligibility requirements for awards under Nevada statutes.

Each of these components is discussed individually below:

Unpaid Cost due to Reported Claims: The unpaid cost of HLHC claims that have been reported to the Cities. The unpaid cost of reported claims is composed of two elements:

Case Reserves: Case reserves are established individually for each claim. For each claim, the case reserve is the claim administrator's best estimate of unpaid cost based on the information available to the administrator at the time the case reserve is either established or adjusted. Case reserves may reflect the impact of excess insurance protection.[6, 7]

IBNR[8] Costs due to Reported Claims: As claims age into their life cycles, more information becomes available to the administrator regarding the expected future outcome of individual cases, and case reserves are adjusted accordingly. Inevitably, as claims age, costs will increase. This is not necessarily because the claim administrator is reserving inadequately, though this occasionally may be an issue. Usually, growth in expected cost on individual cases is due to case deterioration, which can only be reflected in case reserves after the fact, that is only after the additional information has become available. For example, claims initially expected to be medical only or permanent partial disabilities evolve into permanent

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[6] For example, assume the retention under an excess insurance policy is $1,000,000, and $400,000 has been paid to date on a specific claim. Even if the claim administrator expects an additional $850,000 to be paid on this specific claim before it is closed (total claim cost of $1,250,000 = $400,000 + $850,000), the posted reserve will be limited to $600,000, because that is the most that could be paid on this claim before excess insurance protection begins. Excess insurance will fund the remaining $250,000 of unpaid cost.

[7] We have assumed, based on information provided by the Cities, as well as our review of data, that case reserves on HLHC claims reflect the impact of excess insurance protection, as applicable.

[8] Incurred But Not Reported.

partial or permanent total disabilities. Claims that may have been slated to settle for lower amounts deteriorate, and higher settlements are necessary. Most importantly, as respects claims filed under the HLHC statutes, estimates of future medical costs are especially uncertain, and generally inadequate. For a case with lifetime medical exposure, it is possible to reserve for the future cost of annual, repetitive, medical services. But the claim administrator cannot know that a specific claimant will need heart surgery in three years, and therefore cannot reserve for that additional cost. Additionally, end of life medical care for cancer cases is generally extraordinarily expensive. Claim administrators generally do not reserve for these costs unless there is some certainty as to when the medical services will be provided. Furthermore, claim administrators typically do not provide for the impact of inflation on medical costs in case reserves. This is usual industry practice. As such, reserves for the future cost of annual, repetitive, medical services, even if based on life expectancy, are generally inadequate because of the impact of medical inflation on costs.[9]

For the purpose of this report, we have accepted case reserves established by the Cities as the estimates of unpaid costs for reported claims, and have assumed IBNR for reported claims to be zero. This is an extremely optimistic assumption, given that case development is expected and is the industry norm. As such, case reserves for reported claims are not discounted.

Unpaid Costs due to Unreported Claims: The expected cost of HLHC claims that have **not** been reported to the Cities. These are claims that are expected to be reported over the next 50 years by the *current* population of active employees and retired employees eligible for benefits under the HLHC statutes. This study does not address HLHC claims that may be filed by future public safety employees that are currently not active employees of the cities.

[9] The impact of unforeseeable medical costs not contemplated in case reserves is significant. Based on countrywide insurance industry workers compensation data, for groups of claims that are 8 years old, there can be $2.90 in unreported medical costs for every dollar of medical costs in case reserves. The implication is that for a claim that is 8 years old with $50,000 in case reserves for medical costs, actual medical costs, on average, may be expected to be $195,000. For comparison purposes, the comparable number for indemnity benefits is $0.60, so for the same claim with $50,000 in case reserves for indemnity costs, actual indemnity costs, on average, may be expected to be $80,000. Equally important is relative volatility of these measurements for medical benefits. The range in observed values for medical is 1.56 to 4.64. The range for indemnity benefits is significantly smaller, 0.41 to 0.85. These observations demonstrate the greater uncertainty associated with reserving for medical costs. Note that this example does not factor in the impact of unreported claims. However, after 8 years, the impact of unreported claims for typical workers compensation exposures is not expected to be material.

Historical Insurance Program

Currently, all the Cities are self-insured for their workers compensation exposure, including exposure under the HLHC Statutes. Prior to becoming self-insured, each city purchased insurance from either the State Industrial Insurance System (SIIS), or the Employers Insurance Company of Nevada (EICN).[10] The dates when each city became self-insured follow:

City	Effective Date of Self-Insurance
Las Vegas	January 1, 1986
North Las Vegas	January 1, 1994
Henderson	April 1, 1993
Reno	September 1, 1992
Sparks	February 1, 1993

Under self-insurance, the Cities have maintained individual excess insurance programs that provide insurance coverage for costs above specified amounts on a per claim basis. These amounts, generally referred to as retentions, are analogous to a deductible applied on a per claim[11] basis. For example, if the retention is $1,000,000 for a particular policy with an individual City, then that City is responsible for the first $1.0 million of claim costs on every claim. The insurance company providing the excess insurance coverage will reimburse the City for claim payments above $1.0 million.

Our understanding is that the excess insurance programs for the Cities have varied over time and, that for more recent program years, retentions, or the amount of each claim a City must pay before excess insurance protection begins, have increased dramatically.

For the purpose of this study, we have assumed that the effect of historical excess insurance protection is reflected in case reserves established by the Cities for reported claims. This is based on information provided by the Cities. We have also assumed that excess insurance programs will not materially impact unreported claims. This assumption is consistent with current insurance market conditions which demand relatively high retentions.

We have also assumed that the "trigger date" of insurance protection on HLHC claims is the last date of injurious exposure, e.g., the last day worked. This is significant in that the cost of HLHC claims filed by inactive employees whose last day worked was prior to the effective date of self-

[10] SIIS was replaced by EICN effective January 1, 2000.

[11] In this context, the term "claim" usually refers to all individual claims filed due to injuries that result from a single incident (occurrence or accident). The specified retention would be applied only once to the combined cost for all claims due to a single incident, not individually to each claim. For example, in the event of a scaffolding collapse that results in injuries to five municipal employees and subsequently five individual claims, the scaffolding collapse would be considered as a single incident. A City would be responsible for the combined cost on all five claims up to the stated retention. The retention would generally not be applied to each of the five claims individually. The exact application of the specified retention will depend on the contractual terms in the applicable excess insurance policy.

insurance will be funded through insurance policies purchased through SIIS-EICN. This assumption is based on discussions with the Cities. The impact of this assumption, as respects the results of this study, is somewhat minimized because we assume that the most costly HLHC claims, PTD claims, will be filed by active employees only. Another consideration that minimizes the impact of this assumption is that self-insurance incepted between 15 (North Las Vegas) and over 20 (Las Vegas) years ago. As such, the bulk of the exposure to loss is due to claims that will be covered by the various self-insurance programs.

Claim Types

This study addresses the component of the unpaid cost of indemnity and medical benefits payable under the HLHC Statutes (NRS 617.453, NRS 617.455, NRS 617.457, and NRS 617.485). Claims filed under other statutes are not addressed by this study. A significant change since our prior study is the inclusion of NRS 617.453, Cancer as an Occupational Disease of Firefighters, as a presumptive benefit. In Oliver Wyman's prior study, there were no PTD cases identified as cancer cases. In the current study, there are a significant number of cancer cases with material medical costs.

The study provides estimates separately for claims awarded permanent total disability benefits (PTD claims) and all other claims (non-PTD claims). Non-PTD claims are composed of claims that have not been awarded permanent total disability benefits. These claims include medical only cases filed by retired employees. The indemnity and medical components of each claim type are estimated individually.

Claim Adjustment and Administrative Expenses

The results of this study provide only for the cost of indemnity and medical benefits for HLHC claims. The results of this study do not include provisions for expected future allocated loss adjustment expense (ALAE) and program administrative expenses. ALAE is composed of expenses other than benefit costs that may be are attributed to individual claims and includes primarily the cost of defense and investigation. Program administrative expenses consist of salaries, office space, information technology, and other overhead costs. Our understanding is that the Cities do not reserve for either expense. Nevertheless, it is important to note that these expenses are not insignificant. We do not have any data from which to estimate defense and investigation costs for claims filed under HLHC Statutes. However, typical ratios of defense and investigation costs to benefit costs for workers compensation claims are 6% to 8%, or more, depending on the nature of the underlying exposure and the jurisdiction. Program administrative expenses are also significant, and have not been included in this study.

Other Considerations

This study addresses only the unpaid cost of indemnity and medical benefits for HLHC claims. No other expenses are considered, as discussed above. For the purpose of this report, the terms "unpaid liabilities," "unpaid cost," and "unpaid benefit costs" are synonymous and refer to the unpaid costs of indemnity and medical benefits of reported and unreported HLHC claims, as discussed previously.

The results of this study implicitly include the impact of future excess of loss protection, which is expected to be minimal in the context of this report. All results published in this study are therefore assumed to be on a retained basis, that is, represent the portion of the unpaid benefit costs for HLHC claims that the Cities will fund. Therefore, for the purpose of this report, the terms "unpaid liabilities," "unpaid cost," and "unpaid benefit costs" implicitly mean "unpaid retained liabilities," "unpaid retained cost," and "unpaid retained costs of indemnity and medical benefits," respectively.

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PRESENTATION OF RESULTS

Unpaid Benefit Costs as of June 30, 2008

Table 1A (below) displays Oliver Wyman's estimates of North Las Vegas' unpaid benefit costs for HLHC claims as of June 30, 2008. Estimates are provided on an undiscounted basis and on a basis discounted for the time value of money using interest rates of 3%, 4%, 5%, 6%, and 7%.

Table 1A Total Reserve for All Claims (in millions)
3.0% Annual Wage Inflation
7.0% Annual Medical Inflation

Claim Type	Nominal	Discounted at 3%	4%	5%	6%	7%
PTD	$177.2	$56.7	$40.7	$29.9	$22.4	$17.2
Non-PTD	27.1	11.6	9.1	7.3	5.9	4.8
Total	$204.3	$68.3	$49.8	$37.1	$28.3	$22.0

The following considerations apply to Table 1A:

1. The undiscounted values are the expected benefit costs, prior to consideration of investment income and the time value of money. The discounted values are the estimated principal amounts that must be placed on deposit June 30, 2008, such that the sum of principal plus investment income at the stated annual interest rate will be sufficient to fund benefit payments when due. Total unpaid benefit costs are the sum of case reserves for reported claims and forecasts of benefit costs for unreported claims. Case reserves are not discounted.

2. The values include a provision for reported and unreported claims, as described previously in the report.

3. The provision for claims reported to North Las Vegas as of June 30, 2008 is equal to case reserves as of that date. There is no provision for benefit costs not contemplated in case reserves.

4. The provision for unreported claims provides for the benefit costs of claims expected to be filed by active and retired employees as of June 30, 2008 who are eligible for benefits under the HLHC Statutes. The provision for unreported claims does not include claims that may be filed by future employees or employees currently not eligible for benefits.

5. The provision for reported claims reflects historical excess insurance protection. The provision for unreported claims assumes that the impact of future excess of loss insurance policies will be immaterial, as discussed earlier in this report.

6. There is no provision for costs other than indemnity and medical benefits.

Numerous other considerations apply to Table 1A. The considerations listed here and other considerations are discussed later in this report.

Table 1B displays Oliver Wyman's estimates of North Las Vegas' unpaid benefit costs for HLHC claims as of June 30, 2008, separately for case reserves and unreported costs. Estimates are provided on an undiscounted basis and on a basis discounted for the time value of money using interest rates of 3%, 4%, 5%, 6%, and 7%. Table 1B provides estimates separately for reported and unreported claims, and individually for PTD claims and non-PTD claims. The considerations that apply to Table 1A apply to Table 1B.

Table 1B Unpaid Benefit Costs as of June 30, 2008 (in millions)
Details by Reserve and Claim Type
3.0% Annual Wage Inflation
7.0% Annual Medical Inflation

Unreported Cost

Claim Type	Nominal	Discounted at 3%	4%	5%	6%	7%
PTD	$176.8	$56.2	$40.2	$29.4	$22.0	$16.7
Non-PTD	26.5	11.1	8.5	6.7	5.3	4.3
Total	$203.3	$67.3	$48.8	$36.1	$27.3	$21.0

Case Reserves

Claim Type	Nominal	Discounted at 3%	4%	5%	6%	7%
PTD	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5
Non-PTD	0.6	0.6	0.6	0.6	0.6	0.6
Total	$1.0	$1.0	$1.0	$1.0	$1.0	$1.0

Total Case Reserves and Unreported Cost

Claim Type	Nominal	Discounted at 3%	4%	5%	6%	7%
PTD	$177.2	$56.7	$40.7	$29.9	$22.4	$17.2
Non-PTD	27.1	11.6	9.1	7.3	5.9	4.8
Total	$204.3	$68.3	$49.8	$37.1	$28.3	$22.0

Sensitivity to Underlying Parameters

Numerous judgments and assumptions underlie the results of this study. However, key parameters are wage inflation, medical inflation, and the annual interest rate used for discounting. Results will vary materially with these key assumptions. Tables 2A through 2E present the results of this study under various combinations of these parameters. Each Table presents the total unpaid benefit costs for five different values of annual medical inflation (5%, 6%, 7%, 8%, and 9%) and five different values of annual wage inflation (2.0%, 2.5%, 3.0%, 3.5%, and 4.0%). Table 2A presents the results discounted using an annual interest rate of 3.0%. Tables 2B, 2C, 2D, and 2E present the results discounted using annual interest rates of 4.0%, 5.0%, 6.0% and 7.0%, respectively. The sensitivity to underlying parameters is discussed in the considerations section of this report. The tables follow below and on the following page. The same considerations that apply to Table 1A apply to Tables 2A through 2E.

Table 2A **Total Upaid Benefit Costs as of June 30, 2008 (in millions)**
Annual Wage Inflation from 2.0% to 4.0%
Medical Inflation from 5.0% to 9.0%
3.0% Annual Interest Rate

Annual Medical Inflation	Annual Wage Inflation				
	2.0%	2.5%	3.0%	3.5%	4.0%
5%	$45.6	$47.1	$48.8	$50.7	$52.8
6%	53.6	55.1	56.8	58.7	60.8
7%	65.0	66.6	68.3	70.2	72.3
8%	81.7	83.3	85.0	86.9	89.0
9%	106.3	107.9	109.6	111.5	113.6

Table 2B **Total Upaid Benefit Costs as of June 30, 2008 (in millions)**
Annual Wage Inflation from 2.0% to 4.0%
Medical Inflation from 5.0% to 9.0%
4.0% Annual Interest Rate

Annual Medical Inflation	Annual Wage Inflation				
	2.0%	2.5%	3.0%	3.5%	4.0%
5%	$34.2	$35.4	$36.6	$38.0	$39.5
6%	39.7	40.8	42.1	43.4	44.9
7%	47.4	48.5	49.8	51.1	52.6
8%	58.5	59.6	60.8	62.2	63.7
9%	74.5	75.6	76.9	78.2	79.7

Table 2C **Total Upaid Benefit Costs as of June 30, 2008 (in millions)**
Annual Wage Inflation from 2.0% to 4.0%
Medical Inflation from 5.0% to 9.0%
5.0% Annual Interest Rate

Annual Medical Inflation	Annual Wage Inflation				
	2.0%	2.5%	3.0%	3.5%	4.0%
5%	$26.3	$27.1	$28.0	$29.0	$30.1
6%	30.1	30.9	31.8	32.8	33.9
7%	35.4	36.2	37.1	38.1	39.2
8%	42.8	43.7	44.6	45.6	46.7
9%	53.5	54.3	55.2	56.2	57.3

Table 2D **Total Upaid Benefit Costs as of June 30, 2008 (in millions)**
Annual Wage Inflation from 2.0% to 4.0%
Medical Inflation from 5.0% to 9.0%
6.0% Annual Interest Rate

Annual Medical Inflation	Annual Wage Inflation				
	2.0%	2.5%	3.0%	3.5%	4.0%
5%	$20.6	$21.2	$21.9	$22.6	$23.5
6%	23.3	23.9	24.6	25.3	26.1
7%	27.0	27.6	28.3	29.0	29.8
8%	32.1	32.7	33.4	34.1	35.0
9%	39.3	39.9	40.6	41.4	42.2

Table 2E **Total Upaid Benefit Costs as of June 30, 2008 (in millions)**
Annual Wage Inflation from 2.0% to 4.0%
Medical Inflation from 5.0% to 9.0%
7.0% Annual Interest Rate

Annual Medical Inflation	Annual Wage Inflation				
	2.0%	2.5%	3.0%	3.5%	4.0%
5%	$16.5	$16.9	$17.4	$18.0	$18.6
6%	18.4	18.9	19.4	19.9	20.6
7%	21.0	21.5	22.0	22.6	23.2
8%	24.6	25.1	25.6	26.2	26.8
9%	29.6	30.1	30.6	31.1	31.7

Observations

Introduction

The actuarial methodology underlying this study is as follows. As respects reported HLHC claims, we accept case reserves on an undiscounted basis. For unreported HLHC claims, we forecast the number of unreported HLHC claims and multiply each unreported claim by the expected cost of each claim. The number of unreported HLHC claims is determined by the frequency of claims expected per employee and by employee age. The expected cost of each claim (claim severity) is determined, in the case of PTD claims, by the age of claimant and when the claim is reported. The expected cost of non-PTD claims is determined by when the claim is expected to be reported, but is assumed, for the purpose of this analysis, to be independent of claimant age.

Frequency Assumptions

The actuarial forecast of the number of unreported HLHC claims is based on an expected frequency of HLHC claims by age. The frequency underlying this study is based on data supplied by the Cities combined. Tables 3A through 3D (following) display the frequency of expected PTD and non-PTD claims by age, separately for both firefighters and police officers, for North Las Vegas.

Table 3A Frequency of PTD Claims by Age - Fire

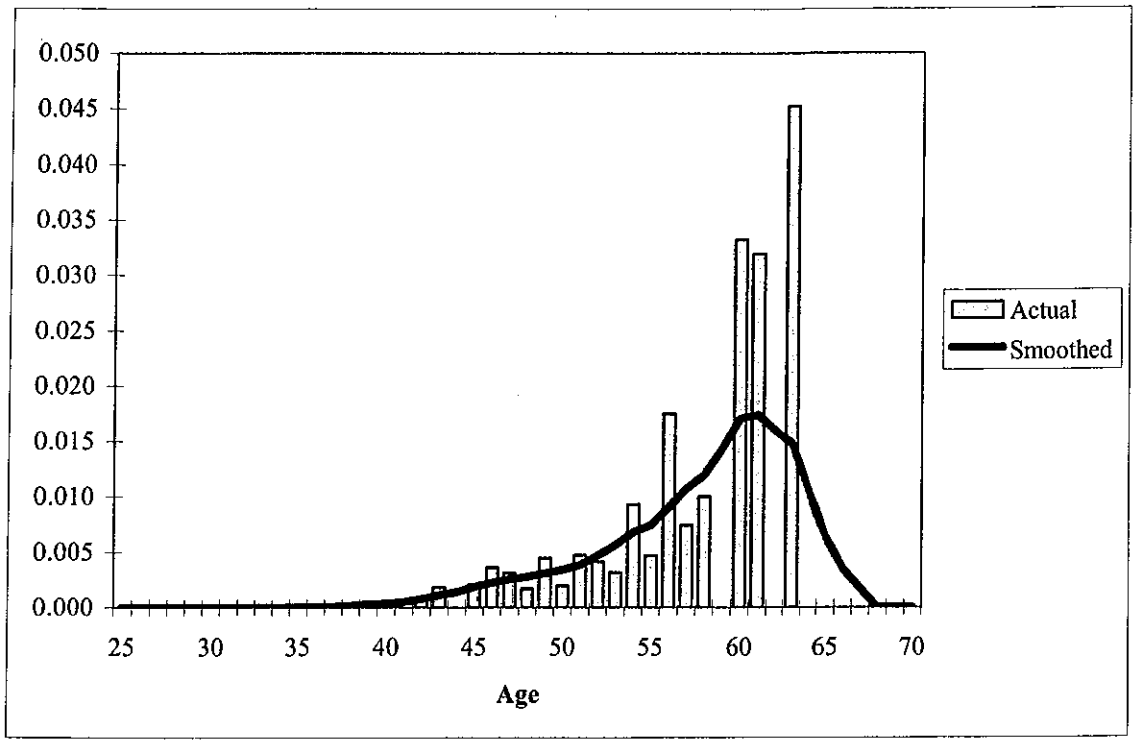


Table 3B Frequency of PTD Claims by Age - Police

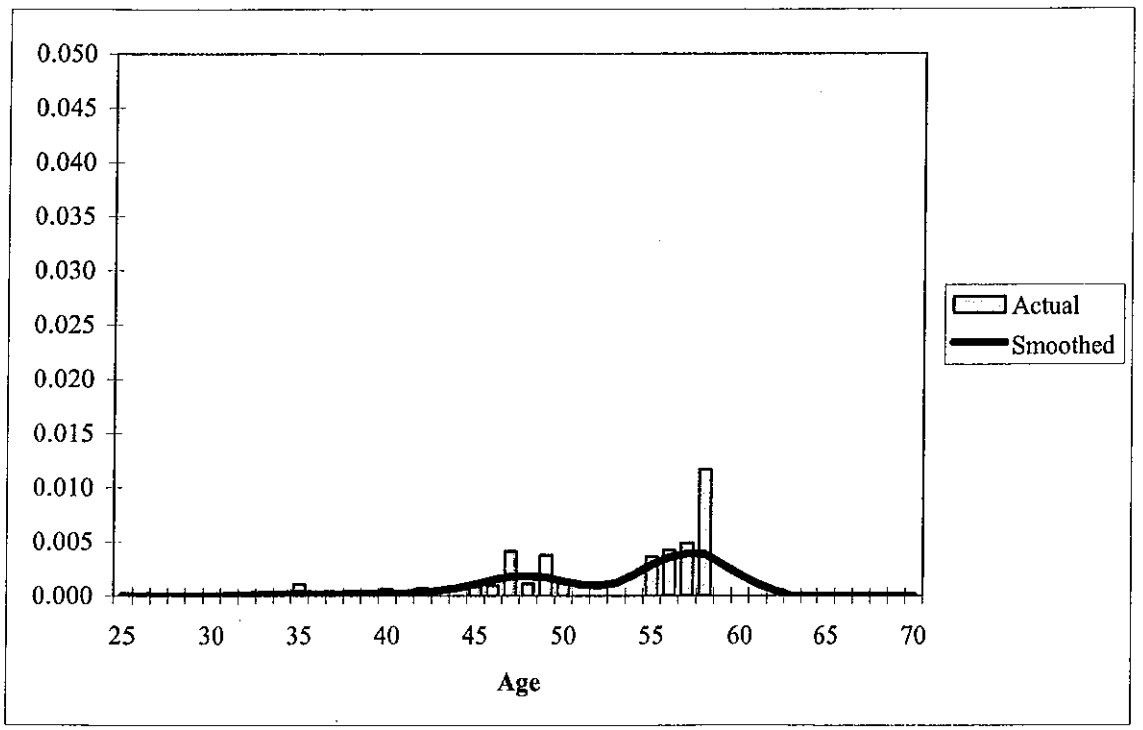


Table 3C Frequency of Non-PTD Claims by Age - Fire

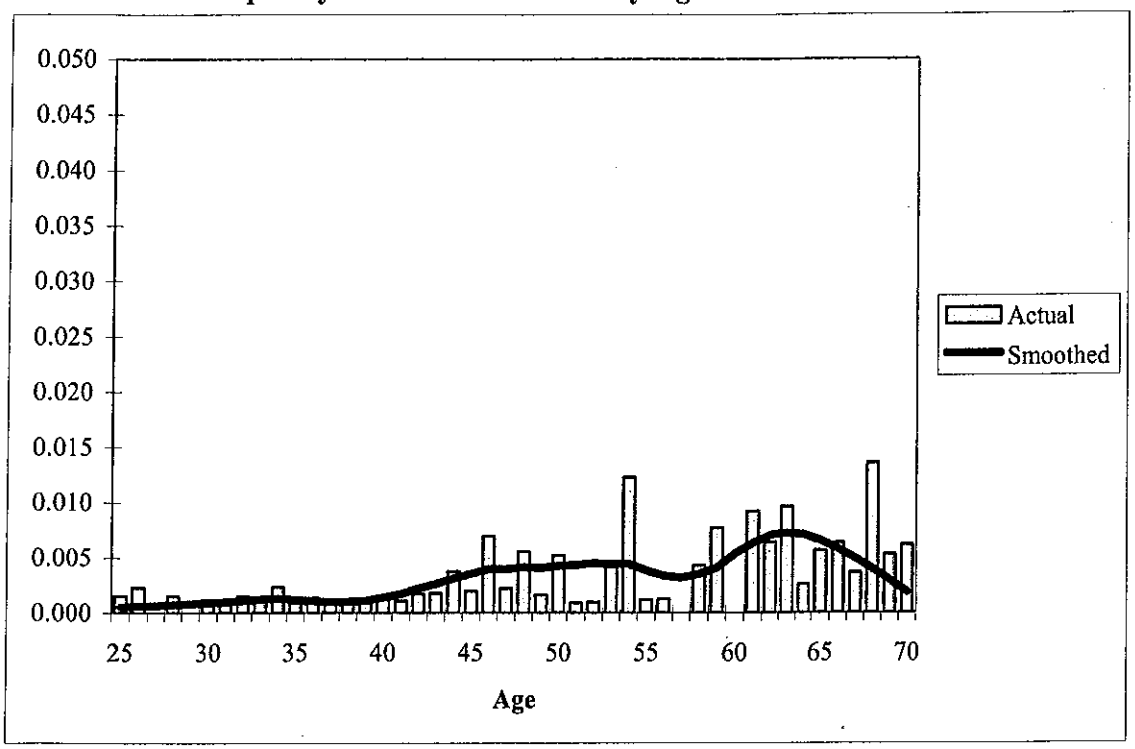
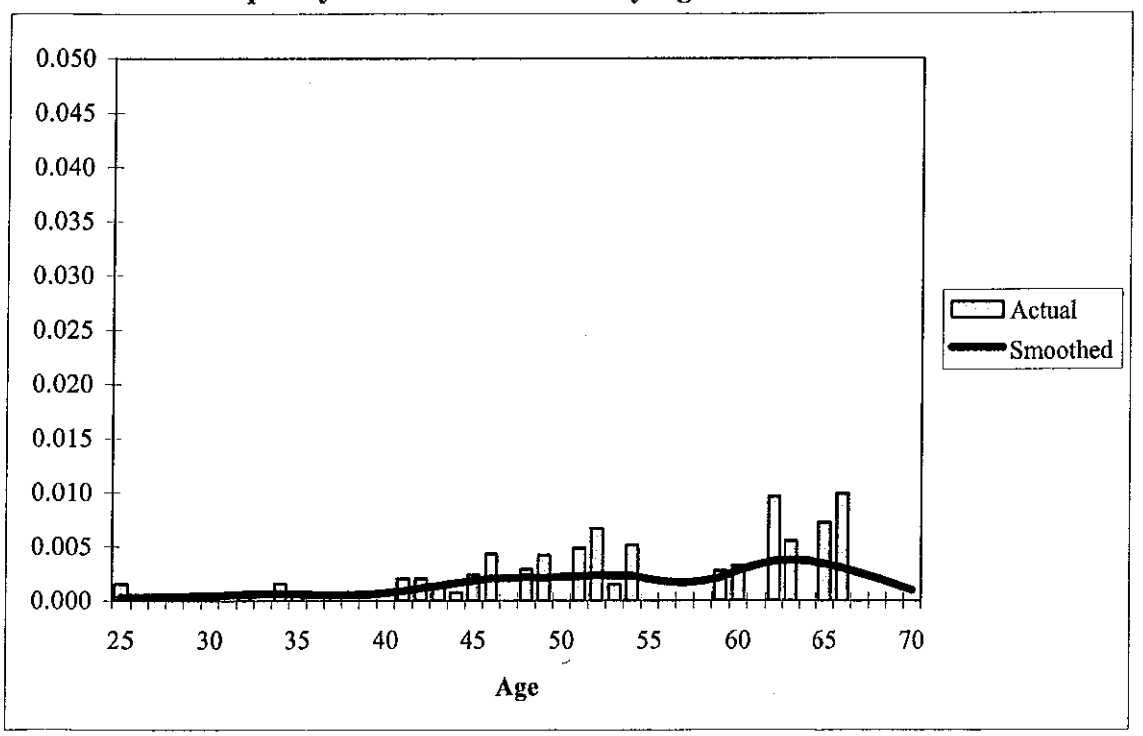


Table 3D Frequency of Non-PTD Claims by Age - Police



The frequency of PTD claims in Tables 3A and 3B is a function of active employees only because our analysis assumes that PTD claims will be generated only by active employees. This assumption is supported by qualitative and quantitative data supplied by the cities, and is discussed in greater detail later in this report in the considerations and methodology section.

The frequency of non-PTD claims in Tables 3C and 3D is a function of both active and retired employees. Our analysis assumes that non-PTD claims will be generated by both active and retired employees. This assumption is supported by qualitative and quantitative data supplied by the cities. Data as well as conversations with North Las Vegas supports the likelihood of multiple non-PTD claims filed by the same employee. Additionally, it is possible for an employee awarded permanent total disability for one condition to file one or more non-PTD claims for other conditions.[12]

Tables 3A through 3D present separate frequencies for firefighters and police officers. Frequencies were calculated by age separately for each group. This is a change from our prior analysis where all PTD claims were combined together, and relativities were calculated by employee type. Given that the number of reported PTD claims since our prior analysis has more than doubled, data was sufficient at this time to group the employees separately. However, actual PTD claim volume is still relatively low (only 79 claims reported to date).

Relativities specific to each city are calculated based on the relative distribution of claims per exposure to determine an overall frequency adjustment factor. Tables 3A through 3D reflect application of this factor. The adjustment factors by city are provided below in Table 3E:

Table 3E: Frequency Relativities by City

City	Relativity
Las Vegas	1.39
North Las Vegas	0.54
Henderson	0.68
Reno	1.06
Sparks	0.67

The relativities in Table 3E can be viewed as the relative claim potential, for each individual city, when compared to the results for all cities grouped together.

[12] It is not possible for a claimant to be awarded to two PTD disabilities. It is possible, however, for a claimant to be awarded multiple non-PTD awards.

Forecasts of Claim Emergence

Table 4A (below) presents our forecasts of total expected HLHC claims. Claim counts are partitioned into reported to date and unreported, by claim type, PTD and non-PTD.

Table 4A Total Expected HLH Claims

	Reported Claims	Unreported Claims	Total Claims
PTD	1	24	25
Non-PTD	11	122	133
Total	12	146	158

The number of reported claims in Table 4A is based on data provided by North Las Vegas and is the number of HLHC claims reported as of June 30, 2008. The number of unreported claims is the actuarial forecast of HLHC claims that are expected to be reported by the current workforce and the current population of retired employees, as reported by North Las Vegas.

Of note is the expected emergence of the unreported HLHC claims over time. Tables 4B and 4C (following page) display our forecast of the number of PTD claims and non-PTD claims we expect will be reported to North Las Vegas by year for the next 50 years. In these charts, the year labeled 2008 means the 12 month period beginning July 1, 2008 and ending June 30, 2009. This is the case for all charts presented in this report, unless stated otherwise.

Table 4B Emergence of Unreported PTD Claims by Year

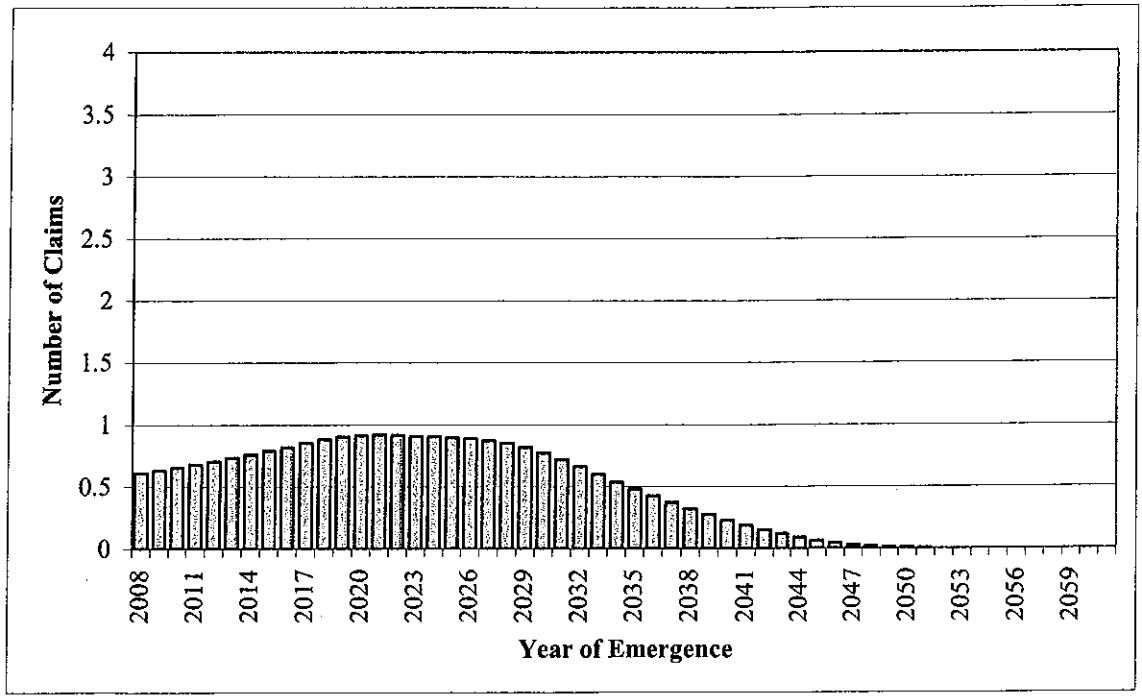
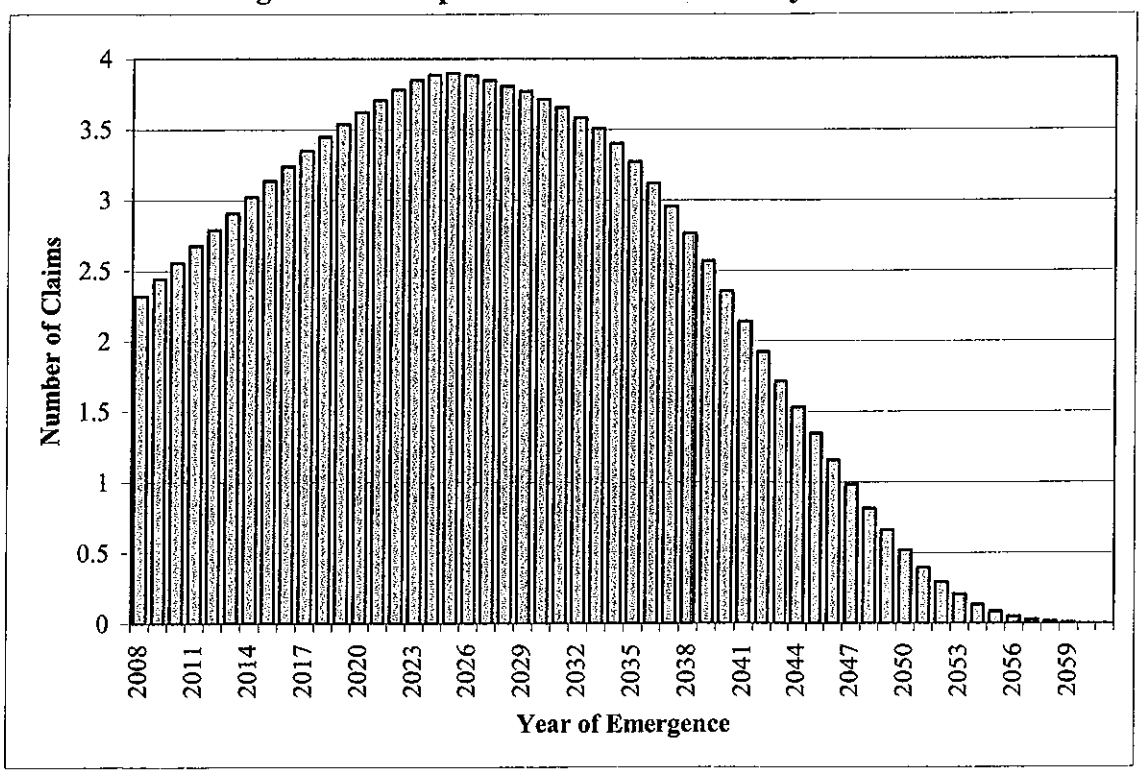


Table 4C Emergence of Unreported Non-PTD Claims by Year



Average Claim Severity Assumptions: July 1, 2008 – June 30, 2009

PTD Claim Severity Assumptions

The expected average cost of a PTD claim depends on the age at which the benefits are awarded, expected future wage inflation, assumptions regarding associated medical costs, and expected future medical inflation. We have assumed that in the case of PTD awards, the maximum weekly benefit will be paid, with a 2.3% annual cost of living adjustment, as per Nevada statute. We also assume that the maximum weekly benefit will increase annually at a rate of 3.0%. As noted earlier, various scenarios regarding inflation rates are presented. Associated medical costs are based on historical data. Medical costs are assumed to inflate at an average annual rate of 7.0%. As noted earlier, various scenarios regarding medical inflation are presented. Additional details regarding expected average cost of PTD claims are discussed later in this report. Tables 5A and 5B (following page) display the total (indemnity and medical) expected PTD claim cost, by age, for PTD claims awarded between July 1, 2008 and June 30, 2009. Indemnity and medical components are displayed in "stacked bar" fashion. Table 5A is on an undiscounted basis and does not consider the impact of investment income. Table 5B provides the same information, but considers the impact of investment income using an annual interest rate of 5.0%. The information in Table 5A and 5B represents the same common underlying assumptions for all the Cities.

Table 5A Severity of PTD Claims by Age
July 1, 2008 Benefit Level; 7% Medical Inflation
Undiscounted for Investment Income

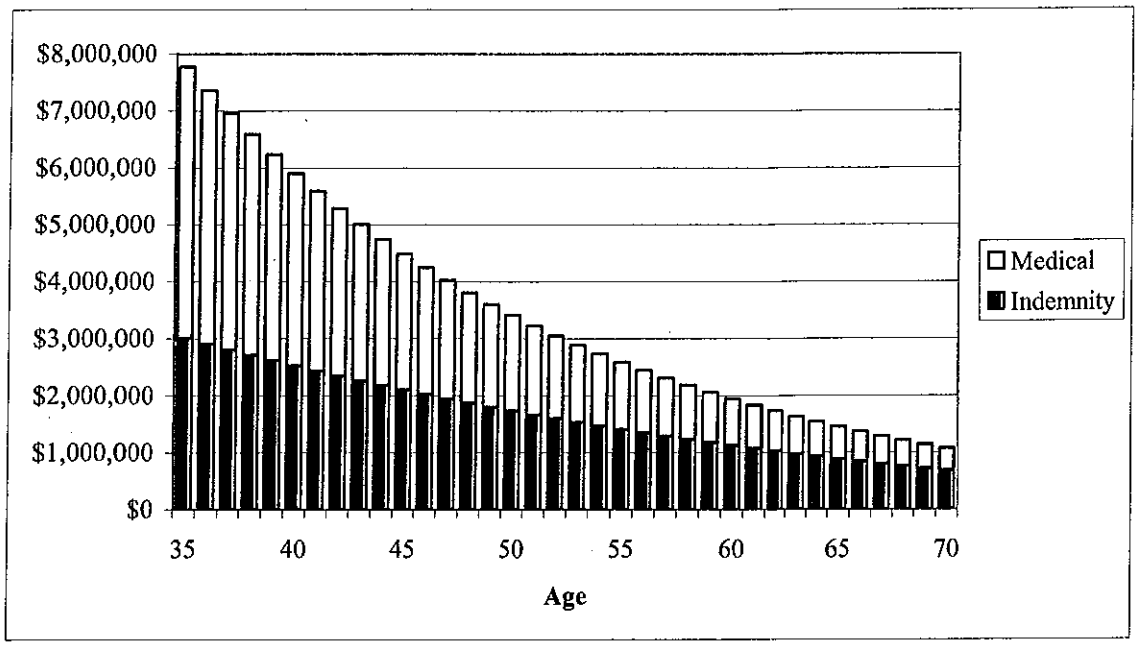
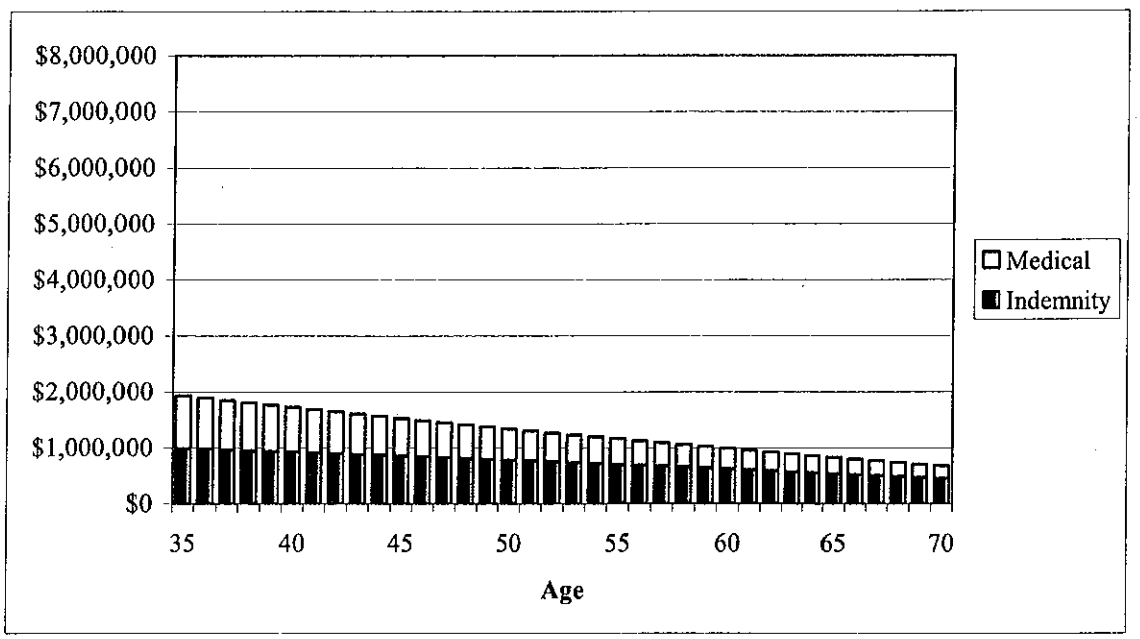


Table 5B Severity of PTD Claims by Age
July 1, 2008 Benefit Level; 7% Medical Inflation
Annual Interest Rate of 5.0%



Non-PTD Claim Severity Assumptions

The expected average cost of a non-PTD claim is assumed to be independent of age. For the purpose of this study, we assume that the total (indemnity and medical) average cost of a non-PTD claim awarded between July 1, 2008 and June 30, 2009, undiscounted for the impact of investment income, is $106,500, composed of $33,000 for indemnity benefits and $73,500 for medical benefits. This is based on an examination of underlying reported data.

While independent of age, the expected average cost of non-PTD claims does depend on expected future wage inflation, assumptions regarding associated medical costs, and expected future medical inflation. The average cost of non-PTD claims awarded between July 1, 2008 and June 30, 2009 are provided above. For claims awarded on future dates, we assume that the indemnity benefit will increase annually at a rate of 3.0% and medical costs will inflate at an annual rate of 7.0%. As noted earlier, various scenarios are presented.

Of note is that non-PTD claims filed by retired employees are generally medical only in nature. In this analysis, we calculated an average indemnity cost for all non-PTD claims combined and did not differentiate between active and retired employees. In our opinion, explicit adjustments for this item would have increased the precision of the underlying calculations, but not necessarily the accuracy. As additional data emerges in the future, it is possible that explicit adjustments for this item can be made.

Claim Severity Forecasts

Forecasts of PTD Claim Severity

Tables 6A and 6B (following page) display the forecasts of the average cost of PTD claims, by year of emergence, undiscounted and discounted for the impact of investment income, respectively. Tables 6A and 6B reflect specific employee characteristics of North Las Vegas. Key assumptions underlying Table 6A are as follows:

- Claimants, at time of claim filing, will receive the maximum workers compensation indemnity benefit.
- The maximum workers compensation indemnity benefit will increase at the rate of 3.0% annually.
- Cost of living adjustments for awarded claims will be 2.3% annually, as per statute.
- Medical costs will inflate at the rate of 7.0% annually.

Table 6B reflects the impact of investment income using a 5.0% annual rate of interest, discounted to June 30, 2008. Therefore, Table 6B provides the amount required as of June 30, 2008, to fund claims expected to emerge over the next 50 years, assuming an annual interest rate of 5%. The present value cost of claims decreases due to the impact of discount at 5.0% interest on indemnity costs, which inflate at only 3.0%, as well as the impact of age on award, which will be greatest for the last claims filed for employees eligible for PTD benefits today. The older the employee, the lower the overall benefit cost.

Table 6A Average Claim Cost of Unreported PTD Claims by Year of Emergence Undiscounted for Investment Income

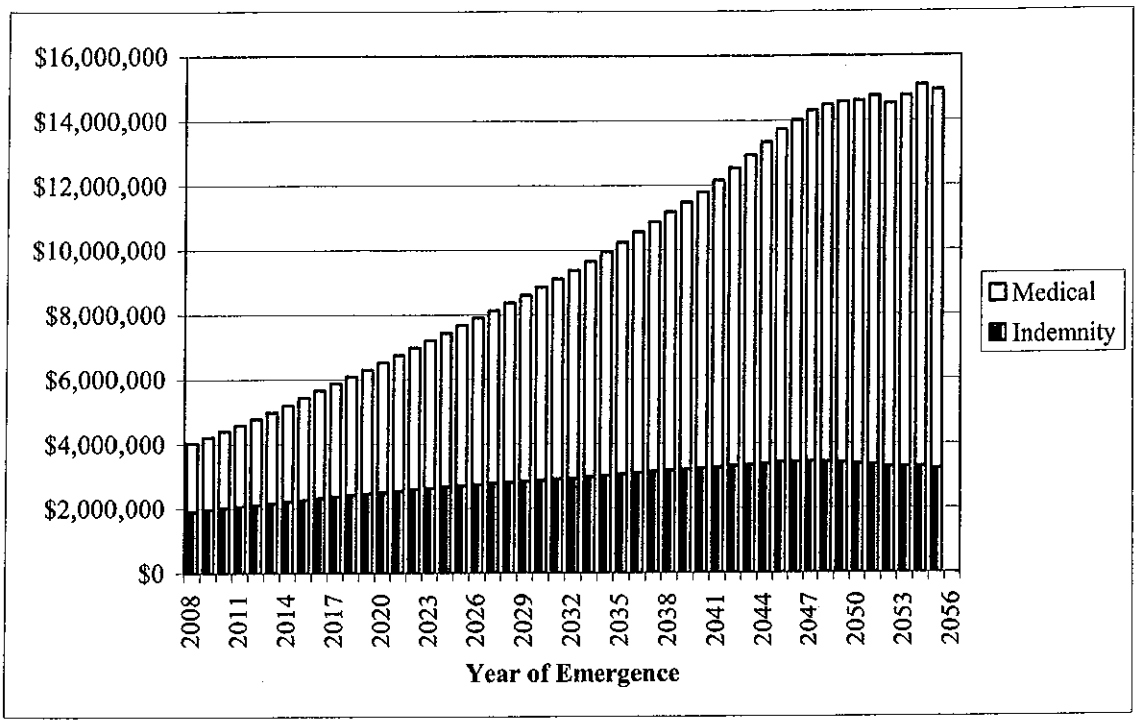
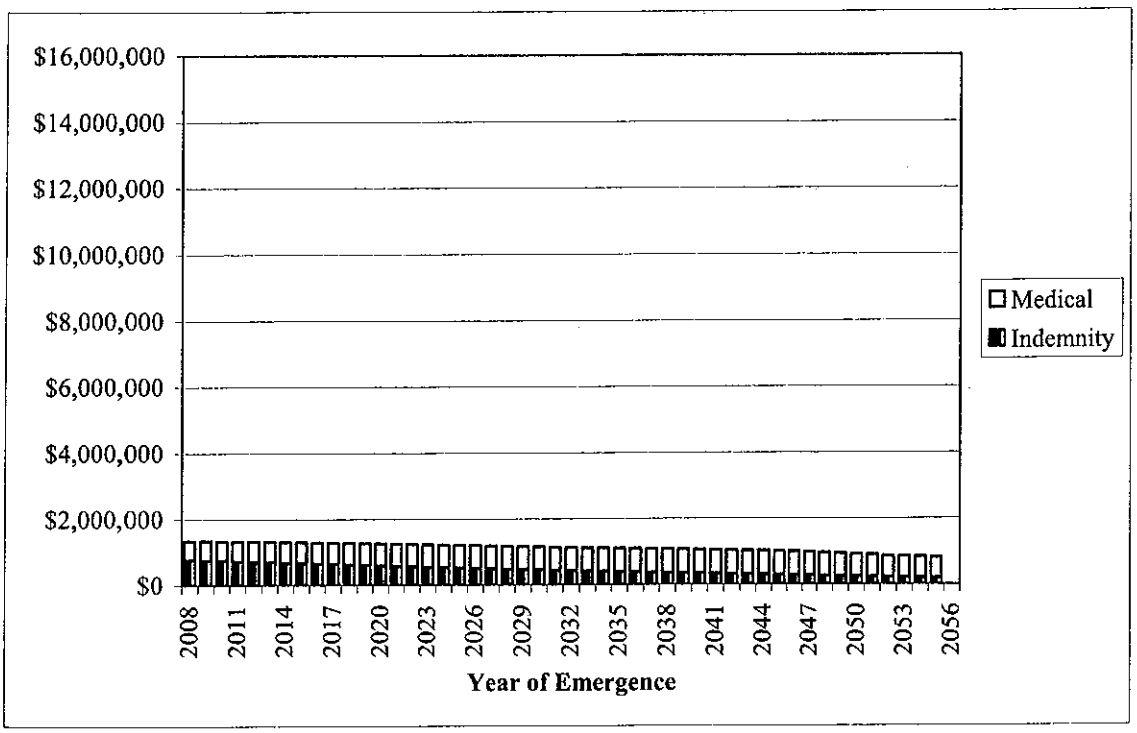


Table 6B Average Claim Cost of Unreported PTD Claims by Year of Emergence 5.0% Annual Interest Rate Discounted to June 30, 2008



Forecasts of non-PTD Claim Severity

Tables 7A and 7B (following page) display the forecasts of the average cost of non-PTD claims, by year of emergence, undiscounted and discounted for the impact of investment income, respectively. Tables 7A and 7B reflect specific employee characteristics of North Las Vegas. Key assumptions underlying Table 7A are as follows:

- The cost of the indemnity benefit portion of these claims will increase at the rate of 3.0% annually.
- Medical costs will inflate at the rate of 7.0% annually.

Table 7B reflects the impact of investment income using a 5.0% annual rate of interest, discounted to June 30, 2008. Therefore, Table 7B provides the amount required as of June 30, 2008, to fund claims expected to emerge over the next 50 years, assuming an annual interest rate of 5%.

Table 7A Average Claim Cost of Unreported Non-PTD Claims by Year of Emergence Undiscounted for Investment Income

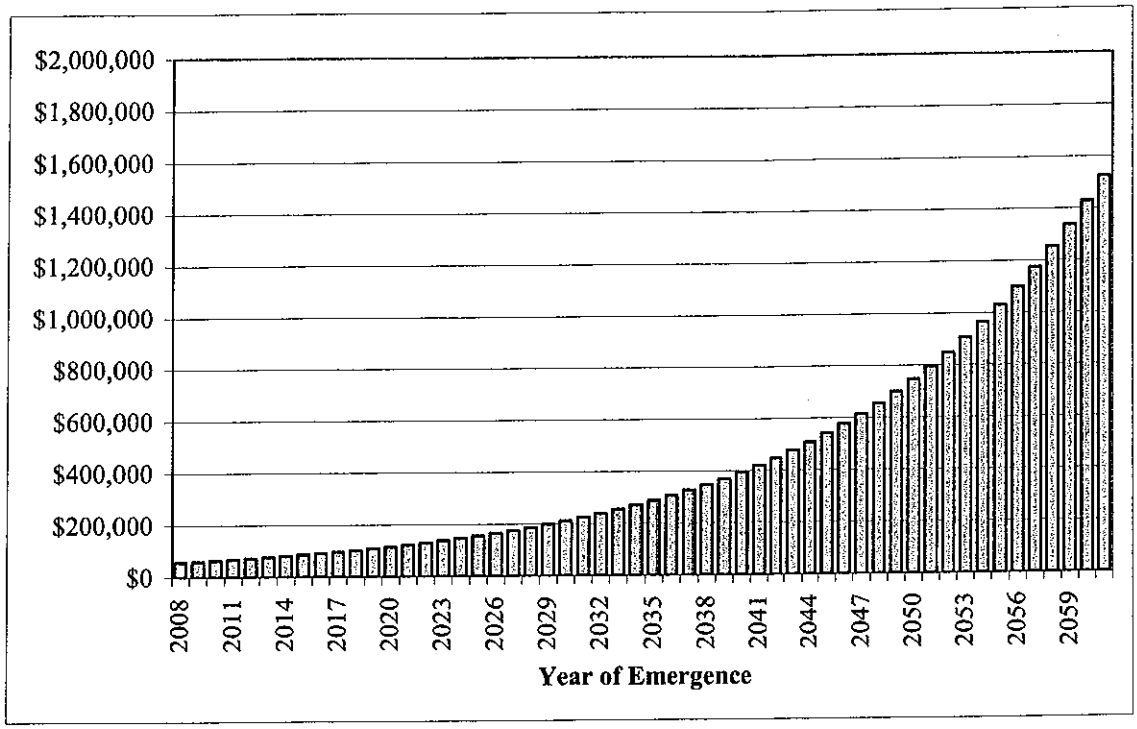
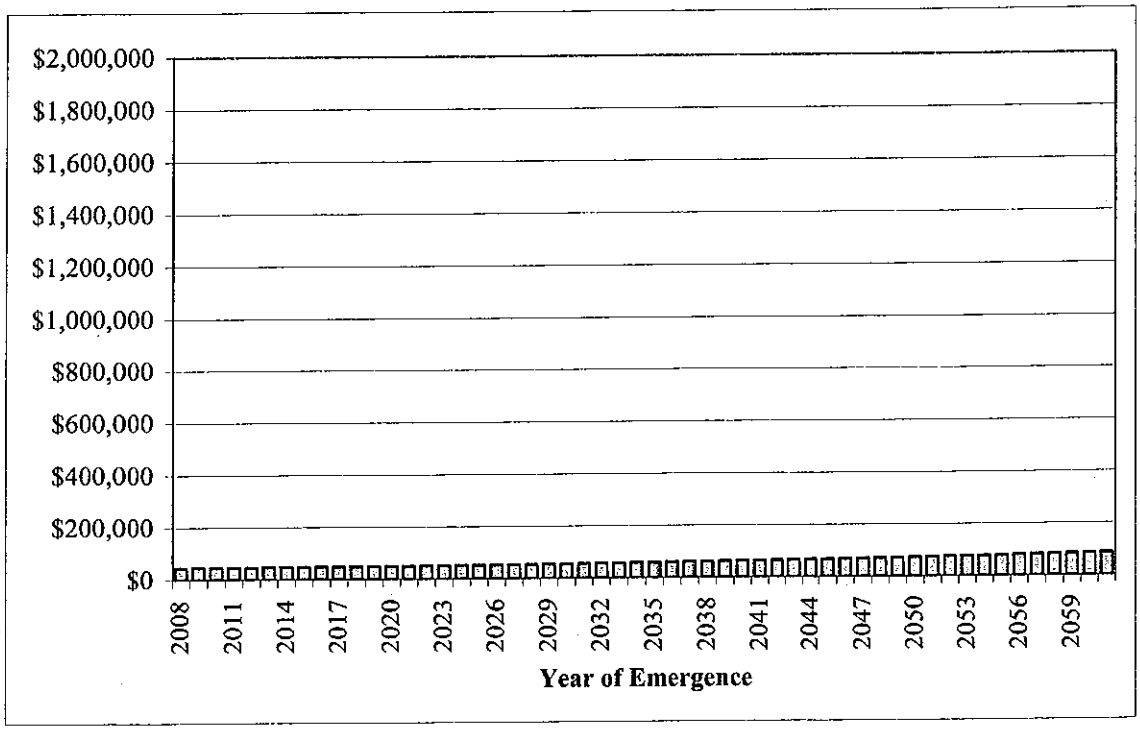


Table 7B Average Claim Cost of Unreported Non-PTD Claims by Year of Emergence 5.0% Annual Interest Rate from June 30, 2008



Forecasts of Total Annual Cost

Tables 8A and 8B (following page) display by year of emergence, estimates of the total cost of HLHC claims, undiscounted for the impact of investment income, and discounted for the impact of investment income assuming a 5% annual interest rate, respectively. Each graph displays, in stacked-bar fashion, costs associated with PTD claims and costs associated with non-PTD claims. When considering the impact of investment income, costs are discounted to June 30, 2008. For example, if the expected cost of HLHC claims expected to emerge in 2030 is ~$10.5 million, as recorded in Table 8A, then the amount recorded in Table 8B, ~$2.0 million, is the amount required to placed on deposit June 30, 2008 such that the sum of principal plus investment income at the stated annual interest rate of 5% will be sufficient to fund benefit payments associated with these claims, when due.

Table 8A Total Claim Cost of Unreported Claims by Year of Emergence Undiscounted for Investment Income

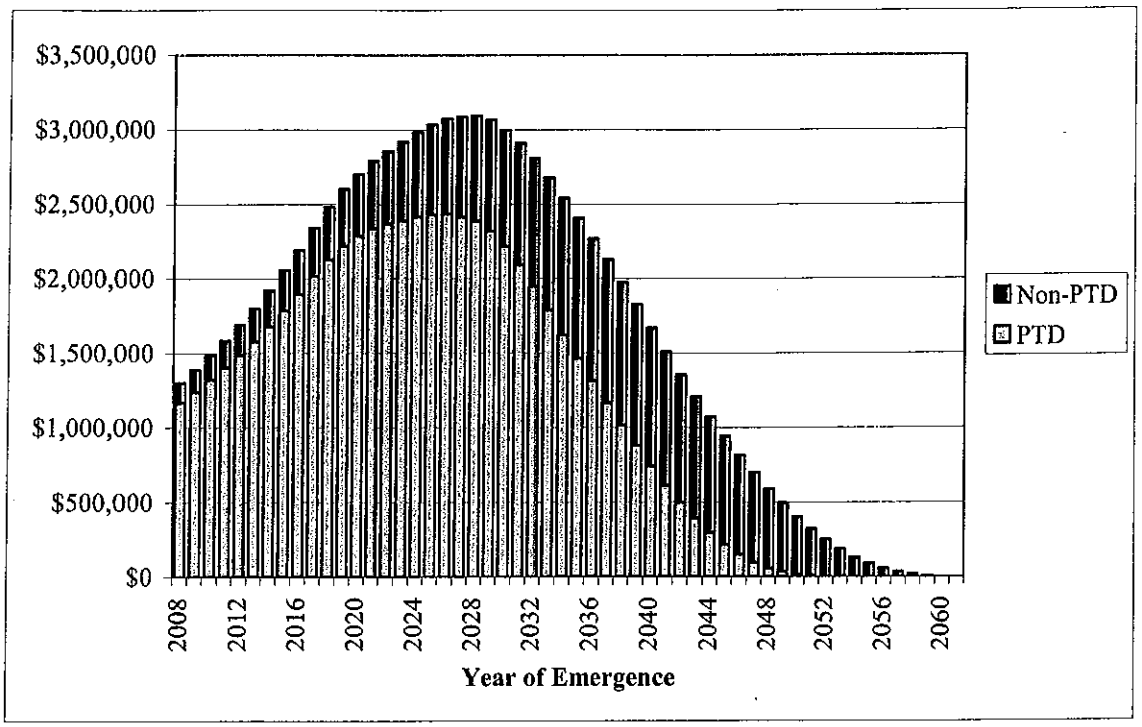
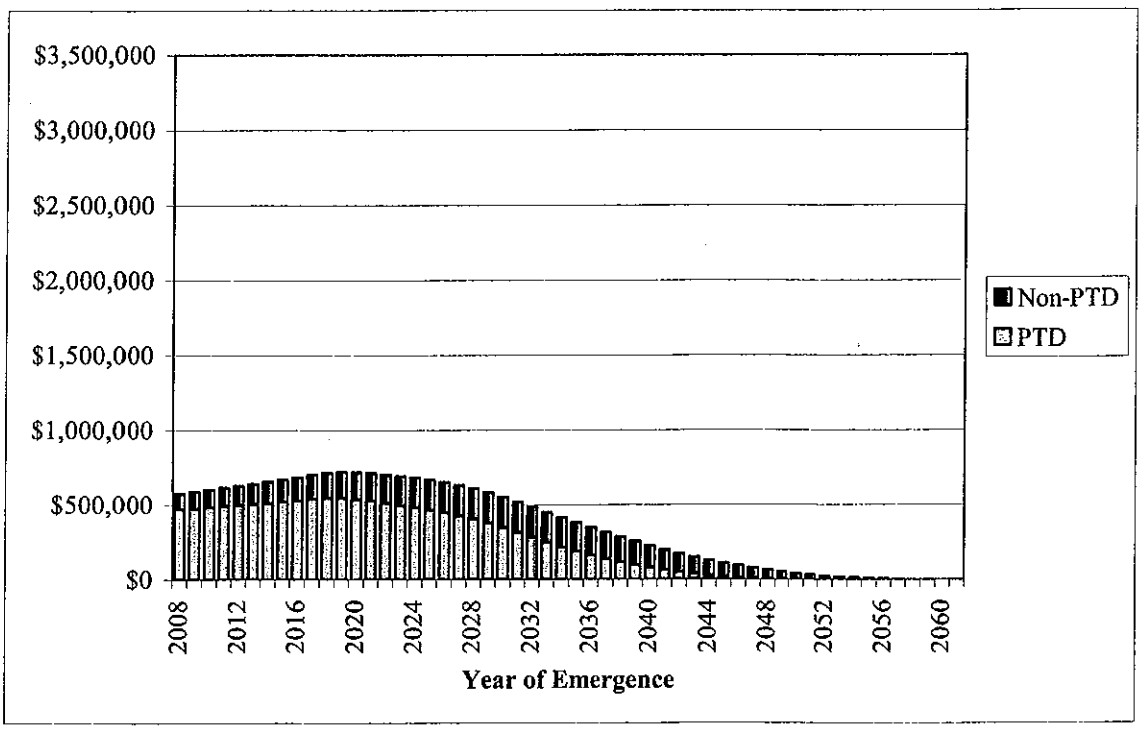


Table 8B Total Claim Cost of Unreported Claims by Year of Emergence 5.0% Annual Interest Rate Discounted to June 30, 2008



Considerations

Frequency of PTD Claims

Active Employees Only: We have assumed that only active employees will generate PTD claims. This is based on data and conversations with the Cities.

Impact of Occupation: There is a material difference between the expected frequency of PTD claims filed by firefighters as compared to police officers. As such, expected frequencies for each group of employees were calculated individually. It is not clear as to whether this is due to differences in claims consciousness, occupational hazards, or a combination of both. For the purpose of this study, we have assumed that the frequency measurements for each group of employees will continue into the future.

Severity of PTD Claims

Indemnity Component

Average PTD claim cost is composed of an indemnity component and a medical component. As respects the indemnity component, the following considerations apply:

Unpaid Indemnity Costs for Reported Claims

For the purpose of this report, we assume that current case reserves for indemnity benefits on reported PTD claims are adequate estimates of expected future costs for reported cases, and that IBNR is zero. It is not clear as to what impact this assumption has on unpaid costs for reported claims, as we do not have details regarding case reserving philosophy for each of the cities. We have also assumed no discount for investment income for reported cases. All else being equal, this assumption will increase unpaid costs. However, as discussed earlier, there is significant uncertainty regarding the case reserve adequacy of medical benefits.

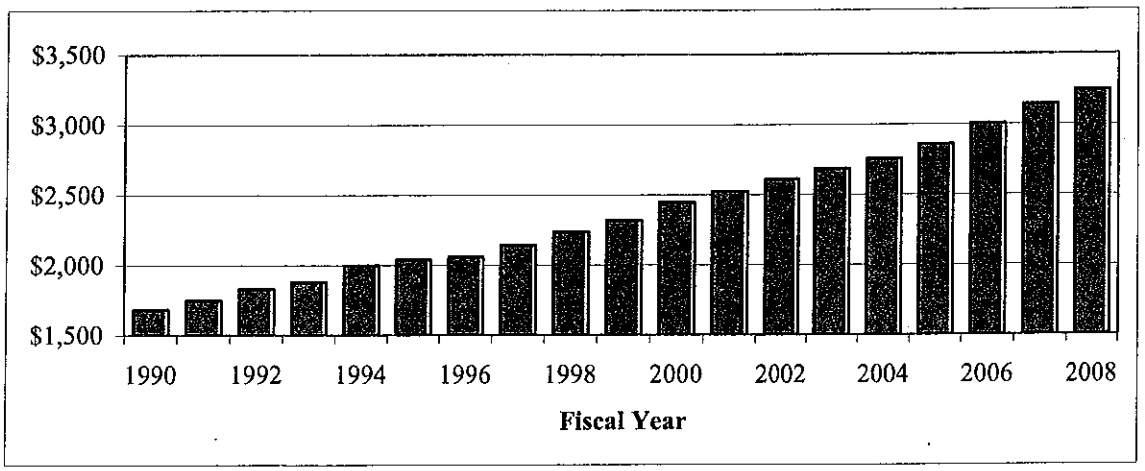
Unpaid Indemnity Costs for Unreported Clams

Wage Inflation: We have assumed, on the advice of the Cities, that PTD awards for public safety employees will be based on the maximum benefit for total disability benefits.[13] For the one year period beginning July 1, 2008, the maximum annual benefit is $38,901. The maximum benefit

[13] This is equivalent to assuming public safety employees, at the time they file for a PTD claim under the HLHC statutes, will have earned at least the maximum wage allowed to calculate disability benefits. Effective July 1, 2008, this wage is $58,352 annually. Any employee in the state earning this wage or higher will receive total disability benefits limited to the maximum allowable benefit, currently $3,242 per month, or $38,901 per year. The maximum allowable benefit is 66.67% of the maximum allowable wage. Underlying data supports this assumption.

in Nevada is increased based on changes in the statewide average wage. Therefore, to forecast the cost of first year of benefits of future PTD claims, a wage inflation assumption is necessary. We have assumed that wages in Nevada, and therefore the maximum benefit, will increase at an annual rate of 3.0%.[14,15] Actual wage inflation in Nevada has been somewhat higher, over the longer term. Table 9 displays the maximum monthly total disability benefit in Nevada since 1990. We note that the five year average annual change is approximately 4.3%, and longer term trends are around 3.6%. The ten year average annual trend is 3.7%, while the 15 year average annual trend is 3.6%. The impact of even a half percentage point to wage inflation assumptions is significant, as illustrated in the prior section.

Table 9 Maximum Monthly Compensation



Female Employees / Survivor Benefits: To determine the cost of future PTD claims, we assumed that the gender of future claimants will be exclusively male. This assumption was made because male gender results in lower life expectancy, and therefore lower overall cost. Additionally, we have not considered the impact of widow benefits, that is, that the claimant's spouse will be entitled to survivor benefits if the claimant dies of the condition that generated the PTD claim. [16]

[14] Therefore, the maximum annual benefit will increase at 3.0% annually. Employees who file for and receive PTD claims under the HLHC statutes during the one year period beginning July 1, 2009 will receive, their first year, an annual benefit of $40,068 (= $38,901 x 1.03).

[15] It is important not to confuse the 3.0% annual wage inflation assumption with subsequent cost of living adjustments. The annual 3.0% wage inflation assumption permits a forecast of first year indemnity disability benefits for PTD claims filed in future years. Once a claim is filed and awarded, annual benefits for that claim are increased annually by a 2.3% cost of living adjustment, as per Nevada statute.

[16] This calculation assumes that the duration of the employee/surviving spouse claim will be equal to that of the life expectancy of the employee. This assumption assumes that, in cases where the employee dies prematurely, the spouse will continue to receive the same benefit and future COLA as the employee. Nevada statute specifically states permanent total disability recipients are entitled to COLA benefits. However, we have presumed, based on conversations with the Cities that COLA benefits will continue into survivorship. This may or may not necessarily be the case. Discussions with the Division of Industrial Relations, State of Nevada, indicated that if a PTD claimant dies from injuries, it is likely the surviving spouse will receive the cost adjusted benefits at the time of death, but will not receive any additional COLA benefits. The actual statute is silent on this matter.

On the other hand, we have not considered the impact of the conditions leading to HLHC claims on life expectancy. In some instances, with treatment, life expectancies are not materially altered. In others, such as cancer cases, the impact is material.

Impact of Improving Life Expectancy: Life expectancies used in this study are based on general population tables published by the United States Center for Disease Control.[17] This is the same source for life tables used for unit statistical reporting purposes in states where the National Council on Compensation Insurance[18] (NCCI) is the licensed/approved rating organization. The life tables used in this report are published for 2004, and represent a "snapshot" of current death rates by age. They do not consider expected improvement to life expectancies.

Medical Component

Unpaid Medical Costs for Reported Claims

For the purpose of this report, we assume that current case reserves for medical benefits on PTD claims are adequate estimates of expected future cost for reported cases, and that IBNR is zero. Therefore, we have based our estimates of the average medical cost per PTD case on reported medical losses (paid costs plus case reserves) as of June 30, 2008. This assumption is extremely optimistic, especially as respects medical costs. As claims age into their life cycles, more information becomes available to the administrator regarding the expected future outcome of individual cases, and case reserves are adjusted accordingly. Inevitably, as claims age, costs will increase. This is not necessarily because the claim administrator is reserving inadequately, though this occasionally may be an issue. Usually, growth in expected cost on individual cases is due to case deterioration, which can only be reflected in case reserves after the fact, that is only after the additional information has become available. As discussed earlier, case estimates of future medical costs are especially uncertain. For a case with lifetime medical exposure, it is possible to reserve for the future cost of annual, repetitive, medical services. But the claim administrator cannot know that a specific claimant will need heart surgery in three years, and therefore cannot reserve for that additional cost. Furthermore, claim administrators typically do not provide for the impact of inflation on medical costs in case reserves. This is usual industry practice. As such, reserves for the future cost of annual, repetitive, medical services, even if based on life expectancy, are generally inadequate because of the impact of medical inflation on costs.

Unpaid Medical Costs for Unreported Claims:

Annual Medical Payment: We assume, based on an examination of underlying data, an average annual medical cost of $12,600 for PTD claims at current cost level. This is based on an

[17] United States Life Tables, 2004. NVSR Volume 56, Number 9.

[18] NCCI collects workers compensation data and files, on behalf of members and subscribers, loss cost and rate recommendations in the states where NCCI is licensed to do so. Currently, NCCI provides advisory ratemaking and statistical services in 34 jurisdictions, including Nevada.

examination of underlying claim data. We note that all claim data was combined, and we did not differentiate between type of claim (cancer, heart, etc.) or occupation.

Medical Inflation: An assumption regarding medical inflation is required to forecast the cost of unreported PTD claims by year of emergence. We have assumed long term medical inflation of 7.0% per year. For non-PTD claims, this assumption is reasonable, or perhaps conservative. However, for intensive medical costs associated with the most severe conditions, this is a possibly optimistic assumption based on our experience. Long term annual medical inflation rates between 8% and 9% have been measured for the most severe PTD cases.

Frequency of Non-PTD Claims

Active and Retired Employees: We have assumed that both active and retired employees, as well as employees with PTD awards, may generate non-PTD claims. This is based on data and conversations with the Cities.

Impact of Occupation: We have determined frequency separately for firefighters and police officers.

Severity of Non-PTD Claims

Indemnity Component

Average non-PTD claim cost is composed of an indemnity component and a medical component. As respects the indemnity component, the following considerations apply:

Unpaid Indemnity Costs for Reported Claims

For the purpose of this report, we assume that current case reserves for indemnity benefits on reported non-PTD claims are adequate estimates of expected future costs for reported cases, and that IBNR is zero. It is not clear as to what impact this assumption has on unpaid costs, as we do not have details regarding case reserving philosophy for each of the cities. We have also assumed no discount for investment income for reported cases. All else being equal, this assumption will increase unpaid costs. However, the impact on total unpaid costs is minimal, given the very small percentage that case reserves for reported claims bear to total unpaid benefit costs.

Unpaid Indemnity Costs for Unreported Claims

Severity: An average indemnity cost of $33,000 was selected based on average reported claim costs to date.

Impact of Investment Income: We assume a 5 year payout of indemnity losses for the purpose of discounting.

Reno Large Claims: Current non-PTD reported claim data showed 14 extraordinarily large reported non-PTD claims. These claims are tabulated below:

Name	Occupation	Indemnity Reserve	Medical Reserve
KINGSTON, CHARLES	FIRE	530,000	47,656
MORSS, RUSSELL	FIRE	713,556	78,171
KENDIG, MICHAEL	POLICE	719,306	114,688
FREELOVE, JEFF	POLICE	957,600	113,490
MATTHAI, BRUCE	POLICE	1,058,500	88,918
EVANS, ROBERT	POLICE	1,085,280	65,182
ROBLES, LEON	**FIRE**	**1,119,600**	**82,417**
DONNELLY, RONALD	**POLICE**	**1,211,160**	**68,585**
HOLLADAY, RONALD	**POLICE**	**1,163,160**	**137,996**
YTURBIDE, THOMAS	**POLICE**	**1,131,023**	**221,514**
HAWKINS, JEROME	**POLICE**	**1,099,130**	**172,989**
CALLAHAN, TROY	**POLICE**	**1,238,400**	**93,984**
WEISS, NICHOLAS	**FIRE**	**1,428,480**	**169,548**

According to information provided by Reno, these claims are reserved for PTD status, even though they are currently non-PTD claims. Reno expects that half these claims will eventually be awarded PTD benefits. As such, we assumed that the seven highlighted claims are PTD, and that the remaining claims will remain non-PTD, with significantly lower benefit costs. For these claims, we assumed indemnity benefits equal to 5% of posted reserves. For medical, we accept the posted reserve values, as medical benefits will be paid regardless as to reserve status. These assumptions increased the reported PTD claim count from 72 claims to 79 claims, and reduced the reported number of non-PTD claims by 7.

Wage Inflation: The same assumption regarding wage inflation for PTD claims was made for non-PTD claims as well.

Medical Component

Unpaid Medical Costs for Reported Claims

For the purpose of this report, we assume that current case reserves for medical benefits on non-PTD claims are adequate estimates of expected future cost for reported cases, and that IBNR is zero. The same issues regarding this assumption as respects PTD claims apply to non-PTD claims as well.

Unpaid Medical Costs for Unreported Claims

Severity: An average medical cost of $73,500 was selected based on average reported claim costs to date.

Impact of Investment Income: We assume a 12.6 year payout of medical losses for the purpose of discounting.

Medical Inflation: As discussed for PTD claims, we have assumed long term medical inflation of 7.0% per year.

Interest Expense and Discounting

On an annual basis, there is an interest expense associated with discounting. The interest expense is due to the "unwinding" of the discount as the time between the valuation date of unpaid losses and the expected date of payment of losses decreases. For example, assume that there is a $1,000 payment due in ten years. The discounted value of that amount today, ten years from the expected date of payment, is $613.91 using an interest rate of 5.0% to discount. Next year, the discounted value of the same payment, but only nine years from the expected date of payment, is $644.61, again using an interest rate of 5% to discount. This represents an interest expense of $30.70. The accrual of interest expenses over time with respect to discounted unpaid losses is expected and is equivalent to the investment income that would have been earned (or is earned, if there are real assets generating investment income) at the interest rate used to discount. That is, $30.70 = 5% x $613.91. Alternatively, interest expense may be viewed as the incremental annual increase to the value of discounted unpaid losses due to the passage of time. That is, as the expected date of payment draws closer, the value of the payment due, expressed in current dollars, increases.

The impact of interest expense on discounted unpaid losses for payments expected to be made over a long term time horizon, such as HLHC claims, is significant. For example, assume the discounted unpaid benefit cost as of 6/30/08 is estimated to be approximately $100 million dollars, using an interest rate of 5%. As of 6/30/09, assuming $1 million paid over the prior year, the value of the liability will be $104 million, an increase of $4 million over the prior year period. The $104 million is calculated as follows:[19]

	$100 million	Liability as of 6/30/08
+	$5 million	Interest earned at 5.0% from 6/30/08 to 6/30/09.
-	$1 million	Payments during 6/30/08 to 6/30/09
	$104 million	Liability as of 6/30/09

North Las Vegas should be aware that while discounting reflects the economic reality that losses paid years from now are not worth the same as losses paid today, discounted liabilities will increase as the valuation date of the liability approaches the dates losses are eventually paid. The increase in liabilities is the interest expense. The impact of interest expense is magnified by the nature of the HLHC liabilities, given that the payments are expected to be made over a long term time horizon. Additionally, the impact of interest expense increases significantly with the interest rate used to discount. All else being equal, the interest expense associated with an interest rate of 6% is twice the interest expense associated with an interest rate of 3%.

[19] The calculation is simplified in the sense that it assumes payment at the end of the year. Actual payments are generally made continuously throughout the year.

Changes from Prior Analysis

The following charts show changes in data and unpaid benefit cost estimates since Oliver Wyman's prior analysis.

EMPLOYEE DATA

	Valued at 6/30/04	Valued at 6/30/08	Change
Active Employees	484	900	416
Retired Employees	10	50	40
Total	494	950	456

CLAIM COUNTS: DATA AND FORECASTS

Reported Claim Counts: Data

	Valued at 6/30/04	Valued at 6/30/08	Change
Non-PTD	8	11	3
PTD	1	1	-
Total	9	12	3

Unreported Claim Counts: Actuarial Forecast

	Valued at 6/30/04	Valued at 6/30/08	Change
Non-PTD	25	122	97
PTD	102	24	(78)
Total	127	146	19

Total Claim Counts: Reported Data Plus Unreported Actuarial Forecast

	Valued at 6/30/04	Valued at 6/30/08	Change
Non-PTD	33	133	100
PTD	103	25	(78)
Total	136	158	22

UNPAID COSTS: DATA AND FORECASTS

Reported Case Reserves: Data

	Valued at 6/30/04		Valued at 6/30/08		Change	
	Nominal	Discounted	Nominal	Discounted	Nominal	Discounted
PTD	0.6	0.6	0.5	0.5	(0.1)	(0.1)
Non-PTD	1.4	1.4	0.6	0.6	(0.8)	(0.8)
Total	2.0	2.0	1.1	1.1	(0.9)	(0.9)

Unreported Costs: Actuarial Forecast

	Valued at 6/30/04		Valued at 6/30/08		Change	
	Nominal	Discounted	Nominal	Discounted	Nominal	Discounted
PTD	273.5	52.2	176.8	29.4	(96.7)	(22.8)
Non-PTD	18.9	3.7	26.5	6.7	7.6	3.0
Total	292.4	55.9	203.3	36.1	(89.1)	(19.8)

Total Unpaid Costs: Reported Data Plus Unreported Actuarial Forecast

	Valued at 6/30/04		Valued at 6/30/08		Change	
	Nominal	Discounted	Nominal	Discounted	Nominal	Discounted
PTD	274.1	52.8	177.3	29.9	(96.8)	(22.9)
Non-PTD	20.3	5.1	27.1	7.3	6.8	2.2
Total	**294.4**	**57.9**	**204.4**	**37.2**	**(90.0)**	**(20.7)**

Numbers shown above are in millions.

Overall forecasts have decreased, primarily because PTD claim emergence was materially less than forecast in the prior study. This is simply a matter of observed data to date. Additionally, non-PTD claim emergence and costs are greater than expected in the prior analysis. This is a matter of observed data to date as well as incorporating information that individuals can file multiple non-PTD claims, and that individuals with PTD awards can also file non-PTD claims for different diseases. We note:

1. Overall data volume was significantly greater for this study:
   a. Number of reported claim counts for all cities combined increased:
      Reported PTD claim counts increased from 52 to 79.
      Reported NON-PTD claim counts increased from 75 to 185.
   b. Case Reserves for all cities combined increased:
      Case Reserves for PTD claims increased from $20.9 million to $53.1 million
      Case Reserves for non-PTD claims (excluding Reno) increased from $2.8 million to $4.0 million[20]

   The increase in data volume allowed for an increase to accuracy of forecasts. Case reserves at North Las Vegas have actually decreased. Additionally, the number of reported PTD

[20] This change excludes a $5.0 million decrease to case reserves for Reno non-PTD claims. The decrease is related to reclassification of 7 non-PTD claims as PTD, rather than a true decrease to case reserves to claims expected to remain non-PTD. Reno reserves cases somewhat conservatively, which tends to distort this type of measurement.

claims is unchanged. Non-PTD claims have increased only by three. This behavior is materially different from the all cities combined, and is reflected in the results of study. Notably, North Las Vegas has the lowest claim relatively to the average of all the cities. Data to date indicates that North Las Vegas will have roughly half the number of claims relative to the average.

As respects exposure, we note that the number of active employees has almost doubled from roughly 500 to 900. The number of retired employees increased from 10 to 50.

2. In the current report, claim frequencies are calculated directly for each occupation individually. In the prior report, all claims were combined and relativities by occupation were calculated. This change was made as a direct result of more available data to work with. This was a change to the general methodology and is expected to result in a more accurate assessment of overall exposure. This approach will decrease variability of results over time as more data emerges and becomes available for study.

3. A common claim severity was used for all cities in this analysis. In the prior analysis, claim severities were adjusted by city. This approach will also decrease variability of results over time as more data emerges and becomes available for study.

Accrual

This section addresses the question as to how North Las Vegas could accrue for the estimated unpaid cost of HLHC benefits. Oliver Wyman is not aware, at this time, of what, if any, accrual has been established for the unpaid costs of HLHC benefits by North Las Vegas. Ultimately, the issue of how to establish the accrual would need to be discussed with North Las Vegas' auditors. This section discusses the merits of spreading recognition of the estimated unpaid cost of HLHC benefits for accrual purposes across an extended time horizon.

In the extreme, North Las Vegas could simply record the total estimated unpaid cost of HLHC benefits at once. Notwithstanding the financial impact of this approach (presuming North Las Vegas has not already done so), the overall uncertainty of estimates at this point in time (discussed in detail earlier in this report) suggests that an accrual over a longer time horizon could be more appropriate. An accrual to the value of the estimated value of unpaid costs of HLHC benefits over an extended time horizon would:

- *Mitigate the financial impact of an immediate recognition.*
  This item is self-explanatory.

- *Avoid large swings to a fully recognized liability that would result from updated estimates as additional data emerges.*
  As additional data emerges over time, future actuarial studies will generate revised estimates of the liability. It is expected that, at least initially, as new data emerges there will continue to be relatively large changes to the estimate of the liability. If North Las Vegas were to fully recognize the liability immediately, there could be large swings to the recognized liability, and therefore correspondingly large financial impacts, as the liability is re-estimated incorporating newly emerged data. Spreading recognition of the liability across a long term time horizon will also spread, across the same time horizon, the financial impact of "true-ups" to the liability target.

At North Las Vegas' request, we could provide examples of the unpaid costs of HLHC benefits could be recognized across a multiple year time horizon.

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DATA UTILIZED FOR THIS STUDY

Data Provided by the Cities

Note: The following list is not exhaustive, and not all Cities provided all data elements.

For Active Employees, the following key data items were provided:

- Name (or other identifier)
- Gender
- Occupation
- Date of Birth
- Date of Hire

For Terminated Employees, the following key data items were provided:

- Name (or other identifier)
- Gender
- Occupation
- Date of Birth
- Date of Hire
- Date of Termination

For Claimants, the following key data items were provided:

- Name (or other identifier)
- Gender
- Occupation
- Date of Birth
- Date of Hire
- Date of Injury
- Indemnity Payments to Date
- Medical Payments to Date
- Indemnity Case Reserves

Medical Case Reserves
Claim Status (Open/Closed)
Employee Status at Filing

Date of Self-Insurance

Oliver Wyman supplemented the data supplied by the Cities with the National Vital Statistics Report, Volume 56, Number 9: United States Life Tables, 2004.

Additionally, we relied on data provided for our prior study, as applicable.

Other Data Utilized for This Study

Oliver Wyman supplemented the data supplied by the Cities with the following:

Information from the most recently available Annual Statistical Bulletin published by the National Council on Compensation Insurance, Inc. This information included:

- Current workers compensation benefits in Nevada.
- Information on loss development.
- Information state average weekly wages.

Information from the most recently available Analysis of Workers' Compensation Laws published by the U.S. Chamber of Commerce, Statistics and Research Center.

National Vital Statistics Report, Volume 56, Number 9: United States Life Tables, 2004.

Information from the Division of Industrial Relations.

- http://dirweb.state.nv.us/
- Telephone Contacts

Miscellaneous internal and external information.

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METHODOLOGY AND ANALYSIS

Unpaid Cost for Reported Claims

As explained in the text of the report, we accepted case reserves for reported claims as estimates of unpaid cost for PTD and non-PTD claims. No discounting was applied.

Unpaid Cost for Unreported PTD Claims

The basic methodology is a claim count / claim cost approach. The methodology consists of the following steps:

1. Determine Expected Claim Frequency by Age
2. Determine Expected Claims by Employee by Year
3. Determine Expected Indemnity Cost by Employee by Year
4. Determine Expected Medical Cost by Employee by Year
5. Determine Total Expected Cost by Employee by Year
6. Consideration of Investment Income

Each step is discussed individually below:

1. Determine Expected Claim Frequency by Age

We assume that all PTD claims are generated only by active employees. This assumption is supported by data supplied by the Cities, and by conversations with the Cities. Frequency is measured as claims reported against exposure to loss. For the purpose of this analysis, exposure to

2. Determine Expected Claims by Employee by Year

Using the frequency distribution determined in Step 1 and current mortality tables, the expected number of claims for each employee at each age over the next 50 years is determined.

3. Determine Expected Indemnity Cost by Employee by Year

The indemnity cost of a PTD claim is determined by the age of employee at the time the claim is filed, and the year that the claim is filed. The first year benefit is equal to the first year benefit for claims filed between July 1, 2008 and June 30, 2009, $38,901, inflated to the year of filing. For example, the first year benefit for a claim filed between July 1, 2018 and June 30, 2019 is equal to $38,901 multiplied by 1.03^{10}, if we assume 3.0% inflation per year. The indemnity claim cost is equal to the calculated first year claim cost multiplied by a life annuity based on the employee's age at filing, incorporating a 2.3% COLA, as per Nevada statute. The expected indemnity cost for a specific employee in a specific year is equal to the expected frequency of a PTD claim from an employee at that age multiplied by the indemnity claim cost.

4. Determine Expected Medical Cost by Employee by Year

The medical cost of a PTD claim is determined by the age of employee at the time the claim is filed, and the year that the claim is filed. The first year benefit is equal to the first year benefit for claims filed between July 1, 2008 and June 30, 2009, $13,600, inflated to the year of filing. For example, the first year benefit for a claim filed between July 1, 2018 and June 30, 2019 is equal to $13,600 multiplied by 1.07^{10}, if we assume 7.0% inflation per year. The $13,600 is based on an examination of average annual medical cost data per PTD claim. The medical claim cost is equal to the calculated first year claim cost multiplied by a life annuity based on the employee's age at filing. The expected medical cost for a specific employee in a specific year is equal to the expected frequency of a PTD claim from an employee at that age multiplied by the medical claim cost.

5. Determine Total Expected Cost by Employee by Year

The total expected cost by employee is the expected claim frequency for that employee multiplied by the sum of the expected indemnity cost and the expected medical cost. This process is calculated for every active employee, for every future year, beginning with the 12 month period beginning July 1, 2008, until the expected claim frequency reaches zero.

6. Consideration of Investment Income

Investment income is incorporated in a two step process for every claim. The first step is to discount claim costs to the December 31 of the year of occurrence. This is accomplished through the annuity calculation process. The second step is to discount the results of step one to June 30, 2008. So, for example, if the expected claim cost for the 12 month period beginning July 1, 2018 is $1,000,000, discounted to December 31, 2018, step two applies an additional discount representing 10.5 years of investment income from June 30, 2008 to December 31, 2018.

Unpaid Cost for Unreported Non-PTD Claims

The basic methodology is a claim count / claim cost approach. The methodology consists of the following steps:

1. Determine Expected Claim Frequency by Age
2. Determine Expected Claims by Employee by Year
3. Determine Expected Indemnity Cost by Employee by Year
4. Determine Expected Medical Cost by Employee by Year
5. Determine Total Expected Cost by Employee by Year
6. Consideration of Investment Income

Each step is discussed individually below:

1. Determine Expected Claim Frequency by Age

We assume that non-PTD claims are generated by active and retired employees. This assumption is supported by data supplied by the Cities, and by conversations with the Cities. Frequency is measured as claims reported against exposure to loss. For the purpose of this analysis, exposure to loss is measured as the years lived since eligibility, until death. Employees are assumed to be eligible for benefits under the HLHC statute after working two years.[22] Data for all cities combined is used. The process is analogous to that used for PTD claims.

2. Determine Expected Claims by Employee by Year

Using the frequency distribution determined in Step 1 and current mortality tables, the expected number of claims for each employee at each age over next 50 years is determined.

3. Determine Expected Indemnity Cost by Employee by Year
   (Discussed in combination with Step 4.)

4. Determine Expected Medical Cost by Employee by Year

The indemnity cost and medical cost of a non-PTD claim is based on an analysis of average non-PTD reported claim costs. Data for non-PTD claims was provided by the Cities. Claims were adjusted to current cost levels by trending claim costs from date of loss. The selected average indemnity and medical claim costs at current cost level are $33,000 and $73,500, respectively. Unlike the prior study, where claims of low value were excluded from the analysis, all claims were included in the calculation of frequency and severity.

[22] This is somewhat conservative, in the low-end sense, because the eligibility requirement is 2 years of continuous service for lung claims, but 5 years of continuous service for heart and hepatitis claims. The impact of this assumption is not material.

In order to give credit to payout of claim costs over time, we assume a payout over five years for indemnity benefits and a payout over approximately 13 years for medical benefits. The payout period for indemnity benefits is an assumption. The payout period for medical benefits is based on an examination of underlying claim data.

5. Determine Total Expected Cost by Employee by Year

The total expected cost by employee is the expected claim frequency for that employee multiplied by the sum of the expected indemnity cost and the expected medical cost. This process is calculated for every active and retired employee eligible for benefits under the HLHC Statutes, for every future year, beginning with the 12 month period beginning July 1, 2008.

6. Consideration of Investment Income

Investment income is incorporated in a two step process for every claim. The first step is to discount claim costs to the December 31 of the year of occurrence using the payout periods discussed previously. The second step is to discount the results of step one to June 30, 2008. So, for example, if the expected claim cost for the 12 month period beginning July 1, 2014 is $1,000,000, discounted to December 31, 2014, step two applies an additional discount representing 10.5 years of investment income from June 30, 2008 to December 31, 2014.

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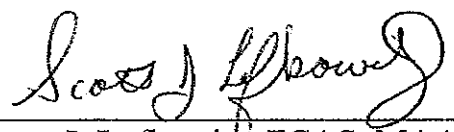
ACKNOWLEDGEMENT

I, Scott J. Lefkowitz, am a Director for Oliver Wyman Actuarial Consulting Inc. I am a member of the American Academy of Actuaries, a Fellow of the Casualty Actuarial Society, 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.



Scott J. Lefkowitz, FCAS, MAAA, FCA

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CAVEATS AND LIMITATIONS

1. The study conclusions are developed in the accompanying text and tables, which together comprise the report.

2. The context of this study is to develop a range of reasonable estimates of unpaid benefit costs due to claims filed under the HLHC Statutes. Given the relatively low volume of claim experience to date, numerous actuarial judgments and assumptions in this study were made. The potential for actual results to vary from forecasts is significant.

3. The valuation dates of the data provided by the Cities are at different dates during 2008. For the purpose of this analysis, we have assumed a constant valuation date of June 30, 2008. Our expectation is that this assumption will not materially impact results.

4. The conclusions are predicated on the assumptions that the selected reporting, reserving and payment patterns, frequency assumptions, severity assumptions, mortality assumptions, trends and claims distributions apply and will continue to apply to the program, within the context of this study. The risk exposure covered by the self-insured group for workers' compensation, as well as the claim reserving, management, and settlement practices, are assumed to be consistent over time, except as noted. It is important to note that the volume of claims data is relatively small. As is typical of low frequency, high severity exposures, the potential for actual results to vary from expected is significant.

5. All excess insurance purchased to date was considered to be valid and fully collectible. We made no assessment, and do not express any opinion, concerning the appropriateness of this assertion. Additionally, we have assumed that data provided by the Cities reflects the impact of excess insurance, based on discussions with the Cities. Data provided supports this assertion, but we have not verified it. Within the context of this study, we have assumed that the impact of excess insurance on future claims will be immaterial.

6. All information concerning the program structure, risk exposure, including historical exposures and claims data, was provided by the Cities. In this study, Oliver Wyman relied on the accuracy

14. These caveats and limitations notwithstanding, the conclusions represent Oliver Wyman's estimate of the actuarial status and funding requirements of the program as of the date of this report.