

December 2018

2018 Public Transit Benchmark Report

Aon Public Transit Liability Benchmark Analysis

[Executive Summary](#)

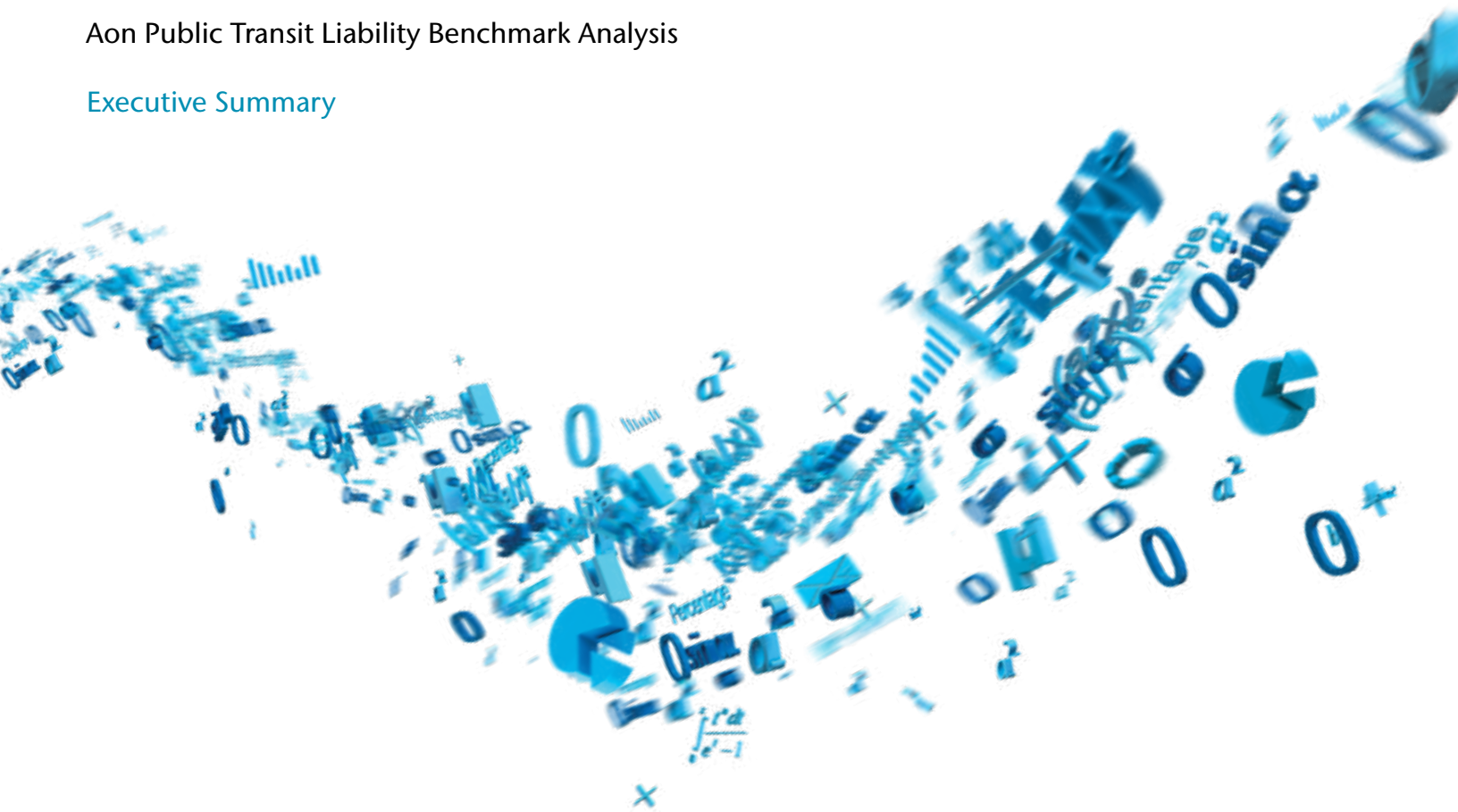


Table of Contents

Introduction1

Executive Summary.....3

Introduction

Aon's Actuarial and Analytics professionals are pleased to present the second edition of the Aon Public Transit Liability Benchmark Analysis.

This benchmark study is produced under a co-marketing agreement between Aon and the American Public Transportation Association (APTA). Participation in this edition of the benchmark study was open to all public transit organizations.

This study is designed with public transit risk managers in mind, to enable them to measure, maintain, and reduce their liability exposure. It will allow them to “measure” themselves against their peers, “maintain” standards of practice and safety levels, and “reduce” their overall cost of risk. Because of the uniqueness of their risks, a benchmark that enables risk managers to compare their organization to their transit peers is valuable for controlling the probability and/or impact of unfortunate events.

All participants were asked to complete a survey with two main sections. The first section consisted of questions about the organization's risk management structure and practices. The second section presented a list of thirty risks and asked the participants to choose and rank the top ten risks they thought posed the greatest threat to their organization. After completing the survey, participants were asked to provide their loss runs valued between 6/30/2017 and 3/31/2018. Thirty-eight organizations responded, representing one hundred sixteen individual transits across sixteen states, Washington DC and Canada. Approximately 1.8 billion rider trips are taken on these organizations each year.

The database of public transit liability claims underlying the industry benchmarks contains approximately 70,000 non-zero claims from both auto liability and general liability lines, representing over \$1.0 billion of incurred losses. The database contains historical claim information for eleven accident years, 2007 to 2017. To preserve the confidentiality of the participants, all results are presented on an aggregated basis.

The benchmark statistics in this study are grouped on an accident year basis, based on the date of the incident that led to the claim. The study provides actuarial analysis and projections for public transit liability costs from varying perspectives, including:

- Countrywide benchmark statistics based on the entire database of transit systems
- Benchmark statistics by bus and rail operations separately based on ridership exposure
- Benchmark statistics for bus operations based on bus count and mileage exposures
- Benchmark statistics at various per occurrence limits from \$100,000 to \$5,000,000
- Statistics based on severity
- Statistics based on report lag
- Survey results
- Claims categorized and summarized

Introduction

The study examines trends in frequency, severity, and overall loss rates related to public transit liability. With the exception of incident-only statistics, claims with zero dollar value are excluded from our analysis. Unless otherwise noted, these statistics can be defined as follows:

- Frequency – the number of occurrences per a unit of exposure measurement. Frequency for bus operations and rail operations are both measured based on annual ridership. Bus operations frequency is also measured based on bus count and annual miles driven.
- Severity – the average loss per occurrence, where the loss includes indemnity and allocated loss adjustment expense (ALAE).
- Loss Rate – the annual incurred loss dollars per the same unit of exposure measurement by which the frequency was measured, which for bus and rail operations is annual ridership. Bus operations loss rate is also measured based on bus count and annual miles driven.

The loss rate is the product of the frequency and the severity, and it is a major component of the total cost of risk for a public transit entity.

The participation of APTA in the Benchmark Analysis is limited to providing promotion and distribution support. Aon is solely responsible for the design, conduct, and interpretation of the Benchmark Analysis and holds the copyright thereto.

Executive Summary

Key Findings

Nationwide, public transit liability claim severity is up 2 percent annually and claim frequency showed an increase of 1 percent annually. The report breaks down the data, finding that the frequency of bus claims is higher than that rail claims, while the severity of rail claims is higher than that of bus claims. The study also found that vehicle on pedestrian claims account for three percent of claims, but nearly 30 percent of incurred loss dollars.

In addition, with regard to frequency, we've noted that approximately 68 percent of all claims arose from automobile accidents, with 92 percent of those claims stemming from vehicle on vehicle accidents. Of the claims that did not arise from automobile accidents, approximately 46 percent arose from passengers falling and approximately 21 percent arose from entry and exit issues.

New to the report this year are survey questions and findings related to:

- Limits of liability insurance that are maintained
- Fitness requirements and sleep apnea testing
- Surveillance and security cameras
- Passenger screening
- Cyber incidents

Findings related to both rail and bus activity are included with loss rates stated in dollars per rider and per miles driven where appropriate.

Executive Summary

Key Findings

Based on our analysis of public transit liability limited to \$1 million per occurrence, we have found the following:

Overall Results and Trends

Frequency

- Overall public transit liability claim frequency is increasing at a 1% annual rate.
- The forecasted 2018 accident year frequency for bus and rail operations combined is 0.35% per 1,000 riders. In other words, this implies one occurrence per 286,711 riders.
- The forecasted 2018 accident year frequency for incident-only/\$0 claims is 0.49% per 1,000 riders. This implies one incident-only report per 202,925 riders.

Severity

- Overall public transit liability claim severity is increasing at a 2% annual rate.
- The severity forecast for accident year 2018 is \$14,786.

Loss Rate

- Overall public transit liability loss rates are increasing by an average of 3% annually.
- The forecasted 2018 accident year loss rate for bus and rail operations combined is \$51.57 per 1,000 riders, or approximately 5.2 cents per rider.

Public Transit Liability Benchmark

Advisory Benchmarks	Projected Accident Year 2018	Selected Annual Trend
\$0 Claim Frequency*	0.49%	
Frequency*	0.35%	1.0%
Severity	\$14,786	2.0%
Loss Rate*	\$51.57	3.0%

**per 1,000 riders*

Executive Summary

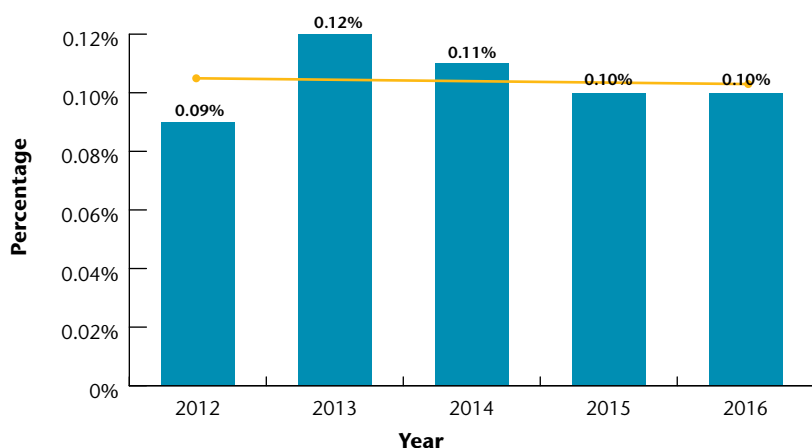
Results and Trends by Rail and Bus Operations (ridership)

Frequency

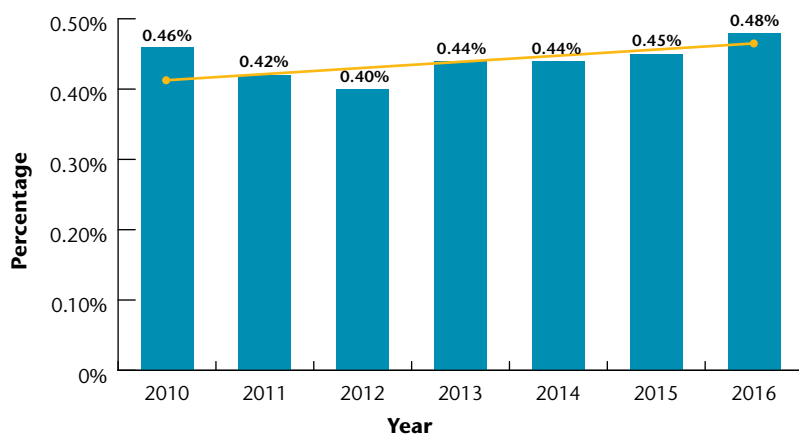
The frequency rate for bus operations is significantly higher than that of rail operations. The forecasted 2018 accident year frequency for bus is 0.48% per 1,000 riders, which implies one occurrence per 209,796 riders, while the forecasted 2018 accident year frequency for rail is 0.12% per 1,000 riders, which implies one occurrence per 868,956 riders. Additionally, the frequency rate for bus operations is increasing at a 1.5% annual rate while the frequency rate for rail operations is decreasing at a 0.5% annual rate.

For incident-only/\$0 claims, the frequency rate for bus operations is also higher than that of rail operations. The forecasted 2018 accident year frequency for bus is 0.65% per 1,000 riders, which implies one incident-only report per 153,519 riders, while the forecasted 2018 accident year frequency for rail is 0.22% per 1,000 riders, which implies one incident-only report per 455,340 riders.

Benchmark Claim Frequency - Rail



Benchmark Claim Frequency - Bus

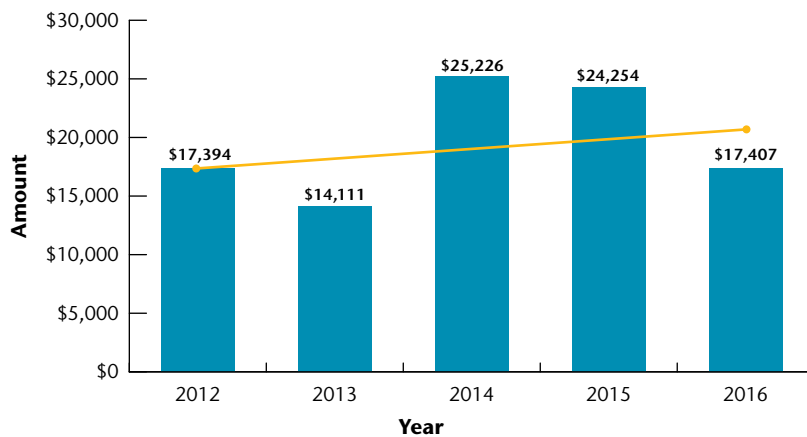


Executive Summary

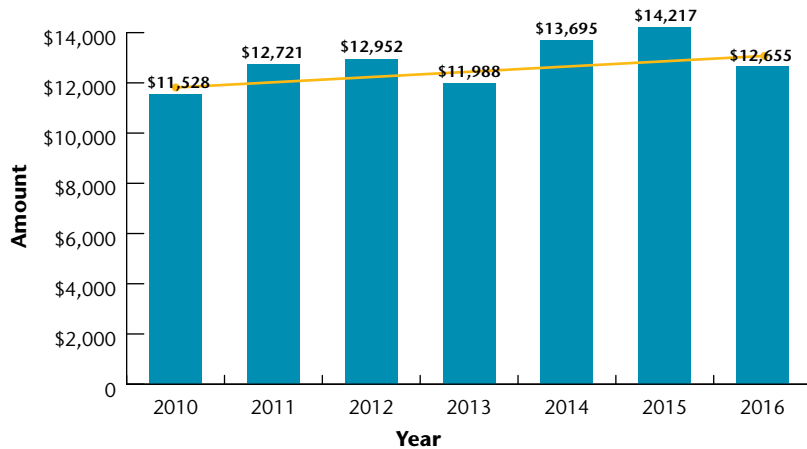
Severity

The severity rate for bus operations is lower than that of rail operations. The forecasted 2018 accident year severity is \$14,214 for bus operations and \$17,979 for rail operations. The severity for bus operations is increasing at a 2% annual rate while the severity for rail operations is increasing at a 5.5% annual rate.

Benchmark Claim Severity - Rail



Benchmark Claim Severity - Bus

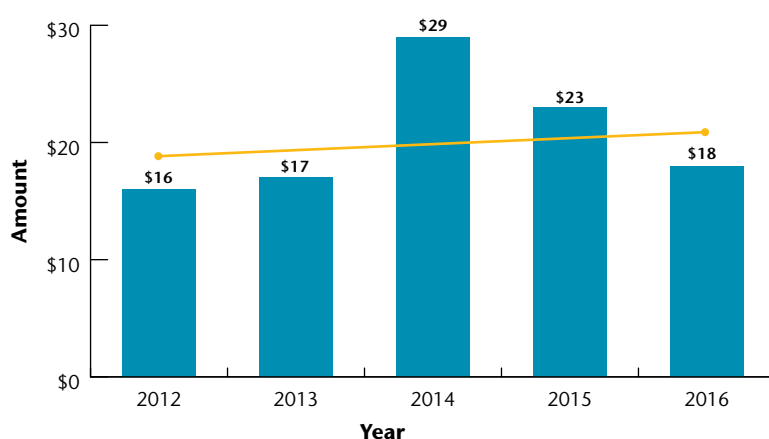


Executive Summary

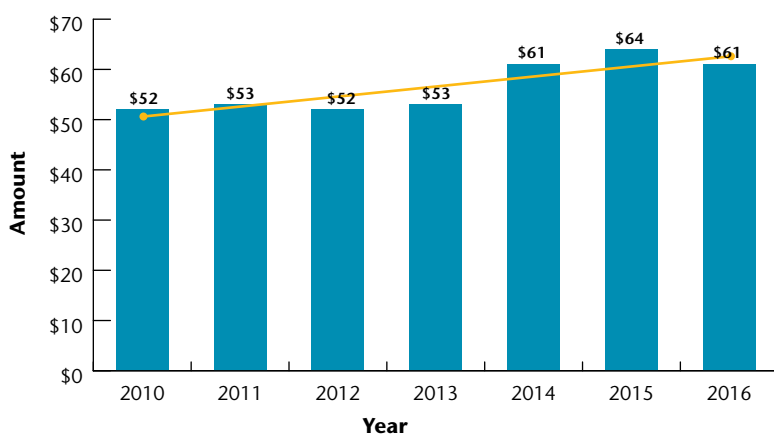
Loss Rate

The loss rate for bus operations is significantly higher than that of rail operations. The forecasted 2018 accident year loss rate for bus operations is \$67.75 per 1,000 riders, or approximately 6.8 cents per rider, while the forecasted 2018 accident year loss rate for rail operations is \$20.69 per 1,000 riders, or approximately 2.1 cents per rider. The loss rate for bus operations is increasing at a 3.5% annual rate while the loss rate for rail operations is increasing at a 5% annual rate.

Benchmark Loss Rate - Rail



Benchmark Loss Rate - Bus



As this study indicates, the frequency of bus claims is higher than that of rail claims, while the severity of rail claims is higher than that of bus claims. As buses interact with pedestrians and other road traffic, there is a greater potential for incidents leading to liability claims. While these claims can sometimes be very severe and expensive, many others are related to minor “fender-bender” incidents, which drive down the overall average bus liability claim severity. On the other hand, rail operations have relatively little intended interaction with pedestrians and vehicular traffic. While there are sometimes very severe rail occurrences (e.g. derailments or other train malfunctions), these are relatively rare, but do drive up the average claim cost of rail occurrences. It is important to note that our current study includes only two such events.

Executive Summary

Rail Operations

Public Transit Liability Benchmark - Rail

Advisory Benchmarks	Projected Accident Year 2018	Selected Annual Trend
\$0 Claim Frequency*	0.22%	
Frequency*	0.12%	-0.5%
Severity	\$17,979	5.5%
Loss Rate*	\$20.69	5.0%

*per 1,000 riders

Public Transit Liability Benchmark - Bus

Advisory Benchmarks	Exposure: Ridership*	Exposure: Bus Count	Exposure: Miles**	Selected Annual Trend
\$0 Claim Frequency	0.65%	47.70%	1.04%	
Frequency	0.48%	34.90%	0.76%	1.5%
Severity	\$14,214	\$14,214	\$14,214	2.0%
Loss Rate	\$67.75	\$4,960.98	\$107.77	3.5%

*per 1,000 riders ** per 1,000 miles

Results and Trends by Bus Operations (bus count)

Frequency

- The forecasted 2018 accident year frequency for bus operations using bus count as an exposure basis is 34.9% per vehicle, which implies one occurrence per three vehicles every year.

Severity

- The forecasted 2018 accident year severity is the same over all exposure bases – \$14,214.

Loss Rate

- The forecasted 2018 accident year loss rate for bus operations using bus count as an exposure basis is \$4,961 per vehicle.

\$0 Claim Frequency

- The forecasted 2018 accident year frequency for incident-only/\$0 claims for bus operations using bus count as an exposure basis is 47.7% per vehicle, which implies one incident-only report per two vehicles every year.

Results and Trends by Bus Operations (HUB mileage)

Frequency

- The forecasted 2018 accident year frequency for bus operations using mileage as an exposure basis is 0.76% per 1,000 miles, which implies one occurrence per every 131,891 miles.

Severity

- The forecasted 2018 accident year severity is the same over all exposure bases – \$14,214.

Loss Rate

- The forecasted 2018 accident year loss rate for bus operations using mileage as an exposure basis is \$107.77 per 1,000 miles, or approximately 10.8 cents per mile.

\$0 Claim Frequency

- The forecasted 2018 accident year frequency for incident-only/\$0 claims for bus operations using mileage as an exposure basis is 1.04% per 1,000 miles, which implies one incident-only report per every 96,512 miles.

Executive Summary

Additional Statistical Detail

- Approximately 75% of claims had a total incurred value of under \$5,000; however, this accounts for only approximately 7% of the total incurred dollars. By contrast, only 0.17% of claims had a total incurred of \$1,000,000 or higher, but these claims accounted for approximately 35% of the total incurred dollars.
- Over a third of all claims for both bus and rail were reported the day on which the occurrence that led to the claim occurred. For bus, over 90% of the claims were reported within a month of their occurrence, while only 85% of the rail claims were reported within a month.
- Increased Limit Factors are presented for various per occurrence limits from \$100,000 to \$5,000,000 with the base limit of \$100,000 per occurrence.
- Approximately 22% of the total loss dollars were comprised of expense payments.
- Approximately 11% of claims were litigated; however, these claims accounted for 60% of the total loss dollars. Litigated claims were, on average, 12 times more expensive than claims that were not litigated.
- Nineteen questions were asked of participants in the survey. Four of them – closed vs open system, sovereign immunity status, police force, and urban vs rural – were further subdivided into frequency, severity, and loss rate analysis. Additionally, the top ten risks participants ranked as the greatest threats to their organization are presented.
- Approximately 68% of the claims arose from automobile accidents, with 92% of those claims stemming from vehicle on vehicle accidents. Within this category, rear-end collisions were the most common type of accident. Of the claims that did not arise from automobile accidents, approximately 46% arose from passengers falling and approximately 21% arose from entry and exit issues.

We would like to thank the public transit participants for submitting their data for this study. We hope that you find this benchmark study useful for comparing your loss rates to those indicated by the benchmark.

Should there be any questions regarding this analysis, we are available to discuss them with you.

Respectfully submitted,

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About Aon

Aon plc (NYSE:AON) is a leading global professional services firm providing a broad range of risk, retirement and health solutions. Our 50,000 colleagues in 120 countries empower results for clients by using proprietary data and analytics to deliver insights that reduce volatility and improve performance.

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