Transit Forward

# The Costs of Motor Vehicle Crashes to Austin Taxpayers

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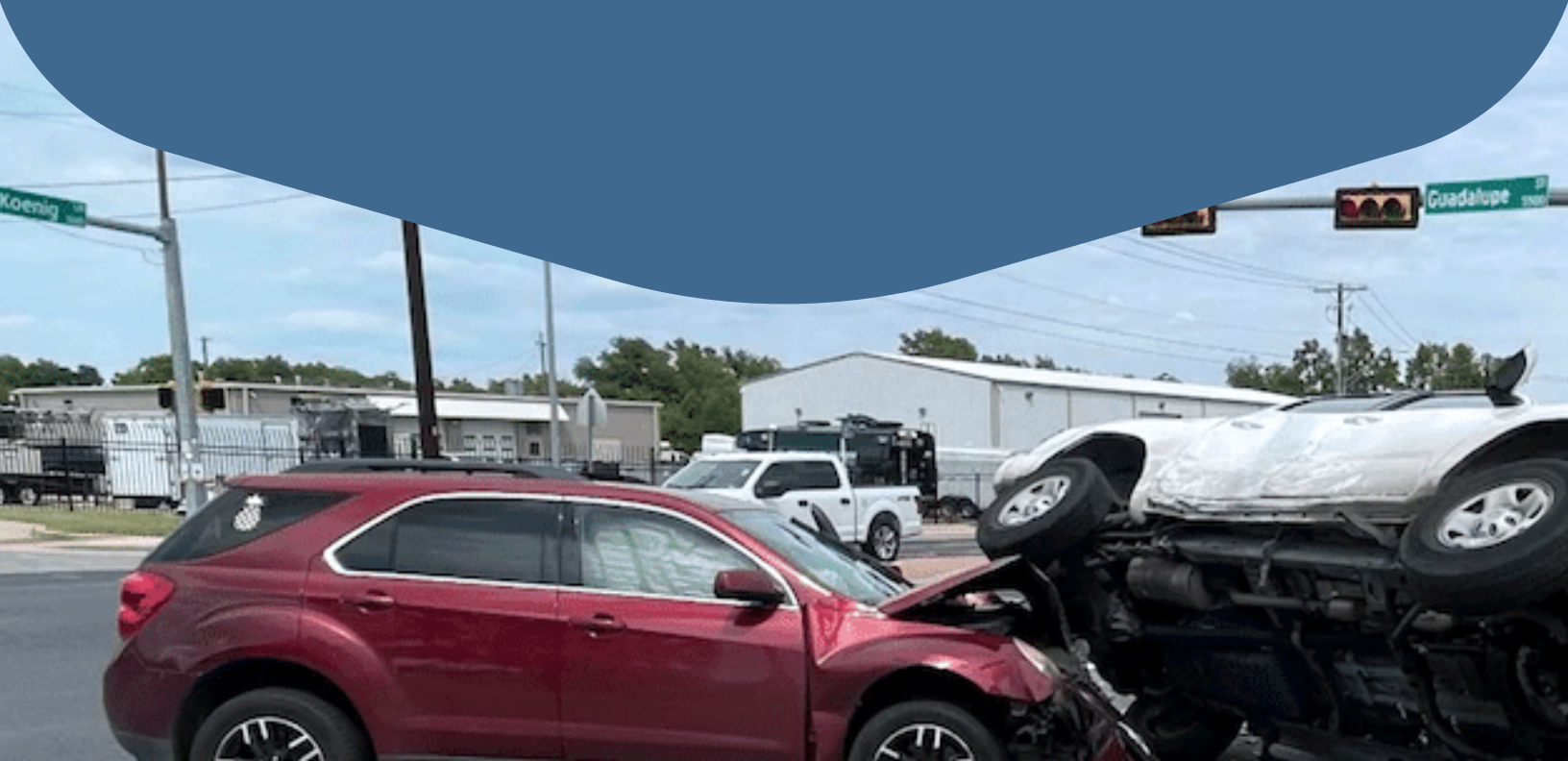
May 2024



# EXECUTIVE SUMMARY

In 2019, Austin's Strategic Mobility Plan (ASMP) sought to expand transit usage in order to address multiple challenges facing the city, including the high societal and economic costs of motor vehicle crashes. At the time, motor vehicle crashes (MVC) were a leading cause of death in Travis County and were estimated to cost the local economy between $350 million to $500 million annually according to the ASMP. The National Highway Safety Traffic Administration estimates that three quarters of the economic costs of MVC are borne by taxpayers.

This study investigated the economic costs of MVC to Austin taxpayers in order to understand how much money may be saved by the public once transit expansion results in fewer cars on the road and thus fewer crashes. Here it is estimated that, from 2019 to 2022, MVC in Austin cost between $705 to $890 million each year. Two of the most significant costs of MVC to State and Local government are medical care and EMS, with either workplace costs or damage to physical, roadside public property (e.g. traffic poles) as a result of MVC as the third most expensive cost category in each year. Austin MVC costs paid by state and local government ranged from $29 to $35 million from 2019 to 2022. According to the assumptions and estimates discussed here, **by reaching 50/50 mode share, Austin stands to reduce crash costs between $7 to $8 million dollars per year.** This is the equivalent of $17 to $22 (2022 dollars) in annual taxes to each Austin household.

# Contents

## Introduction

In 2019, the Austin City Council unanimously approved the Austin Strategic Mobility Plan (ASMP) to make Austin safer, more accessible, and more inclusive. The ASMP set a 20-year goal of achieving "50/50 Mode Share," meaning that by 2039, it envisioned at least 50% of Austinites would commute by a mode of transportation other than driving alone in private vehicles, including bike, walking, and public transit. At the time, only 26% of Austin commuters used alternative modes of transportation, and a key priority of the plan was the advancement of Project Connect, the expansion of Austin's transit network (Austin Strategic Mobility Plan 2024).

In addition to the accessibility, inclusivity, and sustainability goals motivating the transit expansion called for in the ASMP, safety was a top priority. Research supported this approach to expanding transit in order to increase safety, including a 2018 report by the American Public Transportation Association showing that cities with public transit usage equivalent to just two additional trips per month was associated with half as many traffic fatalities compared to cities with lower transit use (Matthew Dickens and Leah Shaum 2018). In 2019, according to the ASMP, motor vehicle crashes were a leading cause of death among Travis County residents aged 1 to 25, and on top of these social costs, motor vehicle crashes were estimated to cost the local economy between $350 million to $500 million annually. According to research by the National Highway Traffic Safety Administration (NHTSA) conducted by Blincoe et al., on average around three quarters of these economic costs are borne by society (e.g. taxpayers) nationwide (Blincoe 2023).

In order to fully understand the benefits of transit expansion, Austin taxpayers must be aware of not only the safety impacts but also the financial costs of crashes. Motor vehicle crash costs are understood to include calculable economic or financial costs, such as lost wages, property damage, and salaries for emergency responders, as well as valuation from lost quality of life or QUALY (Quality of Life Adjusted Years) (Blincoe 2023). Costs which include both these calculable economic costs and quality of life costs are referred to as comprehensive costs. The City of Austin's Vision Zero team uses a comprehensive cost scale, including quality-of-life measures, as a high-level planning tool to understand the benefits of prioritizing specific safety improvement projects. However, it is not recommended that Austin's costs scale be used to understand the pure economic costs of crashes, and from tools such as this one it is also not clear

what share of costs are borne by society (taxpayers) vs. the individuals directly involved in crashes (Comprehensive Crash Costs | AustinTexas.gov). This means that Austinites do not have access to the information required to understand the current taxpayer costs of crashes, as well as the savings possible if and when expanding public transit indeed leads to reduced crashes.

## Research Question and Process

This paper investigates the economic costs of motor vehicle crashes to Austin taxpayers in order to understand the following research question: How much money may be saved by the public once transit expands to reach Austin's 50/50 mode share goal in 2040, resulting in fewer cars on the road and thus fewer crashes? To answer this question, this paper first reviews existing literature on estimating crash costs and provides an overview of three methodological approaches to crash cost reporting. The most appropriate estimation method is applied to the local Austin context to estimate how much money taxpayers spent as a result of vehicle crashes in 2019 to 2022. These estimates, and estimated savings should Austin see reduced crashes due to expanded transit usage, are used to project taxpayer savings in 2040. The methods outlined here are replicated in an attached excel spreadsheet which can be used to update estimates each year. These results are followed by a discussion of issues with crash cost analysis, including the lack of reliable data on costs incurred by local governments, and the importance of considering hidden costs to society, such as increased insurance premiums. Finally, the conclusion offers recommendations for agencies applying these estimates and updating them for the future, as well as recommendations to the City of Austin for increasing awareness of taxpayer costs of motor vehicle crashes.

## Background on Crash Cost Reporting: Three methods

This literature review covers three publications on crash cost estimation and analysis which serve as a foundation for most academic research and public reporting on this topic. The most important resource to crash cost analysis is the National Highway Traffic Administration's (NHTSA) report, "The Economic and Societal Impact of Motor Vehicle Crashes, 2019." The USDOT's "Crash Costs for Highway Safety Analysis" uses this report as a foundation and discusses techniques for adapting its findings to different state contexts. The National Safety

Council (NSC) research on estimating crash costs refers to the NHTSA report among others but does not provide as much detail on the specific methods employed to estimate crash costs.

## Method 1: "The Economic and Societal Impact of Motor Vehicle Crashes, 2019," NHTSA

"The Economic and Societal Impact of Motor Vehicle Crashes, 2019," released in 2023, is the latest edition of a NHTSA report authored by Blincoe et al. which was first published in 1983 by and has periodically been revised and reissued about every five to ten years since then. This report calculates the number of crashes in the U.S. by severity and the nationwide average costs per crash, and then multiplies those figures for total crash costs by specific category and overall total costs for the U.S. In 2019, it was estimated that taxpayers paid $230 per household due to motor vehicle crashes (MVC) and that ¾ of the cost of MVC are borne by society, referring to costs borne taxpayers and by insurance, compared to ¼ borne by individuals involved in MVC (Blincoe 2023).

The first step in crash cost estimation is understanding count, or "incidence," of crashes. The NHTSA does so by referring to their own database of police-reported crashes. Police-reported crashes are categorized by the reporting officer by the severity of injury on a scale known as KABCO. KABCO stands for: K-killed, A-disabling injury, B-evident non-disabling injury, C-possible injury, or O-no apparent injury (Blincoe 2023). It is important to note that the NHTSA estimates that 60% of all property-damage-only (no injury) crashes and 40% of non-fatal injury crashes were not reported to police. Police reported crashes were estimated to account for 83% of all economic crash costs but there is likely a significant cost tied to unreported crashes.

After determining incidence of crashes by injury severity, costs per individual crash must be estimated. Blincoe et al. distinguish between calculable economic or financial costs and costs attributed to valuation from lost quality of life, otherwise known as societal costs, because those involved may become less productive members of society from a market perspective due to their injuries. Economic costs include "the costs for goods and services that are required to treat injury, repair damage, or address the legal or administrative consequences of the crash, as well as productive opportunities such as lost wages or other productive activities that are forgone due to injury or delay that results from the crash" (Blincoe 2023, 48). These costs correspond to

category breakdowns such as medical costs, legal costs, EMS, Police and Fire, property damage and more. These costs are discussed in terms of "unit costs," or the costs per person by injury severity (e.g. minor injury vs. fatality), and total costs, or the costs of all injuries or crashes in one category (e.g. the costs of medical care for all minor injuries, compare this to the unit cost for medical care for each individual minor injury).

The methods used to estimate unit costs for each cost category are either not explained and are simply "carried forward" and adjusted for inflation from the prior report or are recalculated based on innovations or newly available data in each new edition. Individual unit costs for each category can be seen on the "Unit Costs" tab of the attached spreadsheet. Some of the most important costs for taxpayers include medical care, emergency services, lost productivity, and workplace costs. Another cost which is included almost as an afterthought in the "miscellaneous costs" section of the study is damage to physical, roadside property such as medians, lampposts, and traffic poles as a result of MVC. The costs are entirely paid for by state and local government, with the exception of costs charged to individuals involved in crashes submitting claims to insurance.

It's important to note that unit costs are not provided according to the KABCO scale, but instead according to a globally accepted scale for classifying trauma injuries known as MAIS, or Maximum Abbreviated Injury Scale, which ranges from MAIS0 to MAIS6, superficial laceration to fatality (MAIS(05/08) Injury Probability Curves as Functions of Delta V 2022; Zaloshnja et al. 2004). MAIS is a more accurate basis for calculating unit costs because it is applied by trained health care professionals in a hospital setting rather than by officers on the scene. KABCO counts are translated to MAIS counts using a mathematical formula.

These unit costs are multiplied by the nationwide incidence (counts) of crashes by severity for total costs per category and a total nationwide cost. In 2019, the economic costs of MVC in the U.S. was estimated to be $340 billion, while the comprehensive costs, taking into account economic and quality-of-life costs, were estimated to be $1.37 trillion.

Finally, this report breaks down total costs by payer, called "source of payment." This refers to what percentage of each cost category was covered by various payers, including federal, state, insurance companies, individuals, and employers. As with estimation of unit costs, where there is new data available, the authors recalculate how much was paid by each entity, but in many cases, they just carry forward estimates from previous versions of the report.

Unfortunately, due to a lack of available and reliable data, as with unit costs, it is not feasible to calculate exact costs for each payer. This is why certain figures must be carried forward from prior reports. Also, actual crash costs differ even for similar injury types. For all of these reasons, it is not only necessary but also most accurate to estimate costs and not take them to mean exact costs. Ultimately this report finds that public expenditures for economic costs of MVC were the equivalent of $230 in added taxes for every U.S. household in 2019.

## Method 2: "Crash Costs for Highway Safety Analysis," USDOT

The 2018 report, "Crash Costs for Highway Safety Analysis," by USDOT FHWA sought to review recent and authoritative literature on estimating crash costs, understand how states are calculating their costs in practice, and also provide guidance on how to apply best practices from the literature in the context of specific states (Harmon, Bahar, and Gross 2018). It also recommends how these costs can be used to complete the FHWA Safety Benefit-Cost-Analysis Guide and Tool, which is meant for engineers and planners determining potential return on investment when evaluating possible highway projects.

This report found that most states use figures from the American Association of State Highway and Transportation Officials' "Highway Safety Manual," the National Safety Council's *Estimating the Costs of Unintentional Injuries* briefs, USDOT guidance on calculating the value of a statistical life (quality-of-life measures), and the NHTSA study discussed above. It notes that the NHTSA report is the most recent and comprehensive work on crash costs to data and that it is recommended that it serve as the basis for crash cost analysis. Importantly, the NHTSA study is the only one which discusses the share of crash costs paid by state and local government. The only other report mentioned which does so is Bahar's 2011 "Estimating the Costs to State Governments Due to Highway-Related Fatal and Non-Fatal Injury Crashes," however this author was unfortunately not able to access that report.

USDOT recommends following the procedure outlined in the NHTSA report but with additional recommendations to go from national averages to crash costs customized to the local economy of each state. This is done by creating a Per Capita Income (PCI) Index, which is just the PCI of a state in a given year divided by the average PCI for the U.S. in that year. The choice of average PCI is not explained, but it's likely that is chosen to remain consistent with the use of averages in calculating all unit costs elsewhere in the process.

This guide highlights that while crash costs should be estimated with as many measurable economic components as possible, there are typically not enough resources, capability, or data for states to create accurate crash cost unit estimates specific to state, practical to use average crash unit costs (Blincoe 2023). For this reason, it is recommended to use NHTSA estimates and adjust for local economic conditions to understand unit costs and multiply those by crash counts by severity.

### Method 3: Estimating the Costs of Unintentional Injuries, National Safety Council

The National Safety Council (NSC) publishes an annual brief titled *Estimating the Costs of Unintentional Injuries*. These briefs calculate total costs per crash severity, but do not provide breakdowns of unit costs across categories, for example the costs of wage and productivity losses specifically vs. the total cost (*Costs of Motor-Vehicle Crashes)*. Crashes are categorized on the KABCO scale, and this factor in combination with the relative simplicity of these estimates compared with the NHTSA report make it easy to calculate total costs of MVC each year, which may explain why NSC estimates are commonly used by state and local governments and local organizations. For example, NSC estimates provide the basis for the City of Austin's comprehensive cost scale.

## Methodology

The first step in analyzing Austin taxpayer costs of MVC was to understand the recommended method of estimating costs from existing researchers. The literature review above was used to create the following methodology, used here to estimate annual motor vehicle crash costs for Austin from 2019-2022.

1. Understand incidence (count) of either 1) crashes by most severe injury type (e.g. crashes that resulted in at least one death are considered a fatal crash 2) number of injuries by type, depending on what unit costs will be used. This means if unit costs are based on costs per crash, count of crashes should be used. If unit costs are based on costs per injury, then the count of injuries resulting from MVC should be used. In Texas, this is done using the Texas Department of Transportation's Crash Records Information System (CRIS).

2. Understand unit costs, ideally based on the most recently updated and reliable data. In this case, the best available data on unit costs comes from the 2023 NHTSA report, "The Economic and Societal Impact of Motor Vehicle Crashes, 2019."
3. Adjust unit costs for current year and local context by adjusting for inflation and Per Capita Income (PCI) index. The Consumer Price Index (CPI) February value for Houston-The Woodlands-Sugarland was used to adjust for inflation (CPI summaries do not include an annual Austin summary), and medical costs used the specific Medical Care index provided by the Bureau of Labor Statistics. The PCI index is created using Austin's PCI in a given year divided by the average PCI for the U.S. in that year.
4. Multiply adjusted unit costs by total incidence to get total costs for each category. In addition to the primary cost components considered by the NHTSA, this step also included determining total costs for damage to physical, roadside property such as medians, lampposts, and traffic poles as a result of MVC.
5. Next, shares of total costs were allocated to payers according to NHTSA "source of payment" breakdowns. For example, this means property damage costs for the vehicle itself are allocated to insurance companies and individuals, while property damage for medians, lampposts, and traffic poles as a result of MVC are allocated entirely to state and local governments.
6. Finally, the total costs paid by state and local governments are divided by count of households in a given year in order to determine the equivalent added taxes per household as a result of MVC.

This methodology can be seen in action in the accompanying spreadsheet, which is inspired by the 2017 crash cost calculator created by Farm&City (Vision Zero Texas – Farm&City 2024).

## Results of Taxpayer Costs Analysis

Table 1 shows the results of MVC cost estimation for Austin from 2019-2022. This table includes costs for all payers, including the Federal, State and Local governments, individuals, employers, and insurance companies. Costs were highest in 2019, nearly $890 million, the highest year for crashes and injuries out of the period from 2019-2022. Costs were lowest in 2020, $705 million, perhaps due to lower numbers of cars on the roads during the pandemic.

Table 1:

| Austin MVC Total Costs, all crashes and all severities, 2022 Dollars | | | | |
|---|---|---|---|---|
| | 2019 | 2020 | 2021 | 2022 |
| **Medical (care and vocational rehab)** | $100,522,150.23 | $75,178,498.27 | $85,070,084.36 | $91,813,148.66 |
| **Emergency Services** | $3,235,116.22 | $2,351,004.67 | $2,646,986.46 | $2,814,376.87 |
| **Market productivity** | $250,091,759.85 | $221,243,505.92 | $266,919,187.25 | $281,316,458.98 |
| **Household productivity** | $99,250,034.39 | $86,530,892.95 | $103,831,754.63 | $109,606,079.08 |
| **Insurance administration** | $70,780,691.12 | $52,740,205.10 | $59,859,299.92 | $63,959,293.66 |
| **Workplace costs** | $8,384,005.30 | $6,521,171.82 | $7,503,981.38 | $7,945,609.50 |
| **Legal costs** | $54,918,985.99 | $45,627,482.11 | $53,820,509.04 | $57,198,918.02 |
| **Congestion costs** | $64,528,019.26 | $45,318,360.22 | $50,211,468.68 | $53,045,141.61 |
| **Property damage (roadside and vehicle)** | $237,502,580.51 | $169,490,136.26 | $189,784,757.02 | $201,652,575.69 |
| **Roadside Public Property Damage** | $1,024,949.46 | $720,078.40 | $798,913.93 | $845,372.09 |
| **Total** | $889,213,342.86 | $705,001,257.32 | $819,648,028.74 | $869,351,602.07 |

Table 2 shows Austin's MVC costs paid by State and Local government. The NHTSA report gave no advice on costs allocated to State vs. Local governments, so in all tables they are combined. However, many cost components, such as EMS and damage to physical, roadside property such as medians, lampposts, and traffic poles as a result of MVC, might be entirely paid for out of Austin's general fund. For this reason, these figures are considered an adequate estimate for the equivalent added costs to Austin taxpayers for each year.

Table 2:

| Austin MVC Costs paid by State/Local Government, 2022 Dollars | | | | |
|---|---|---|---|---|
| | 2019 | 2020 | 2021 | 2022 |
| **Medical (care and vocational rehab)** | $9,700,387.50 | $7,254,725.08 | $8,209,263.14 | $8,859,968.85 |
| **Emergency Services** | $3,235,116.22 | $2,351,004.67 | $2,646,986.46 | $2,814,376.87 |
| **Market productivity** | $19,907,304.08 | $17,610,983.07 | $21,246,767.31 | $22,392,790.13 |
| **Household productivity** | $0.00 | $0.00 | $0.00 | $0.00 |
| **Insurance administration** | $360,981.52 | $268,975.05 | $305,282.43 | $326,192.40 |
| **Workplace costs** | $1,013,626.24 | $788,409.67 | $907,231.35 | $960,624.19 |
| **Legal costs** | $0.00 | $0.00 | $0.00 | $0.00 |
| **Congestion costs** | $0.00 | $0.00 | $0.00 | $0.00 |
| **Property damage (roadside and vehicle)** | $0.00 | $0.00 | $0.00 | $0.00 |
| **Roadside Public Property Damage** | $1,024,949.46 | $720,078.40 | $798,913.93 | $845,372.09 |
| **Total** | $35,242,365.03 | $28,994,175.95 | $34,114,444.61 | $36,199,324.52 |

Table 3 directly answers the research question posed here: How much money may be saved by the public once transit expands to reach Austin's 50/50 mode share goal in 2040, resulting in fewer cars on the road and thus fewer crashes? Austin's 2019 Strategic Mobility Plan estimated that 26% of Austin commuters used alternative modes of transportation. That means an additional 24% of commuters would need to stop commuting by private vehicle in order to reach 50/50 mode share, which may be possible through the expansion of public transit. In order to estimate what share of the total costs to State and Local government may be saved in a scenario where Austin has reached 50/50 mode share, the column titled "Total Savings at 50/50 mode share" is equal to 24% of the total cost, representing possible savings. This simplification of possible savings is based on APTA estimates mentioned above that crashes decrease as public transit usage increases. Both the total cost per Austin household and the total savings per Austin household are calculated by dividing those figures by the number of Austin households present in the given year. Counts of Austin households come from the American Community Survey 5-year estimates, which are available up to 2022.

| Austin MVC State/Local costs, and costs per Household, 2022 Dollars | | | | |
|---|---|---|---|---|
| Year | Total State/Local Cost of Austin Crashes | Cost per Austin HH | Total savings at 50/50 mode share | Total savings per Austin HH |
| **2019** | $35,242,365.03 | $92.65 | $8,458,167.61 | $22.24 |
| **2020** | $28,994,175.95 | $73.35 | $6,958,602.23 | $17.60 |
| **2021** | $34,114,444.61 | $84.42 | $8,187,466.71 | $20.26 |
| **2022** | $36,199,324.52 | $85.56 | $8,687,837.89 | $20.53 |

## Discussion of Results

This study estimates that MVC in Austin cost between $705 to $890 million each year from 2019 to 2022. The ASMP estimates the 2019 cost of MVC to the local Austin economy as $350 to $500 million. This study estimates that the total cost of Austin's MVC in 2019 was nearly $890 million. While the ASMP does not describe the method used to calculate this figure, the difference between that estimate and the estimate found here may be due to the fact that multiple payers are considered in this study. This means that $890 million is the estimated cost to not only the local economy, but also insurance companies and the Federal government in that year. It would be helpful to investigate how the ASMP figure was reached in order to compare both methods. Members of Austin's Vision Zero team, discussing the basis for Austin's Comprehensive Cost scale, advised that developing these costs require both art and science to adapt available data to the Austin context, align with agency priorities, and also extrapolate from incomplete or imperfect data available on estimating crash costs industry wide. For example, Vision Zero aims to reduce fatalities and serious injuries, so they are more closely weighted than they may be in the NHTSA or NSC methods.

After market productivity losses, discussed below, the two most significant costs of MVC to State and Local government are medical care and EMS, with either workplace costs or damage to physical, roadside property such as medians, lampposts, and traffic poles as a result of MVC as the third most expensive cost category in each year. Austin MVC costs paid by state and local government ranged from $29 to $35 million from 2019 to 2022. As mentioned above, the NHTSA gives no advice on the share of these costs allocated to State vs. Local governments, but many cost components, such as EMS and damage to roadside public property as a result of MVC, might be entirely paid for out of Austin's general fund. This means that the costs of MVC

reduce the availability of tax revenues which may be used to support other investments and services by the city.

The previously mentioned discussion with Austin's Vision Zero team, as well as data provided by Austin's EMS Union and Public Works Department provide context for the estimates above and their likely accuracy for the Austin context. First, this estimate shows damage to public property such as medians and guardrails in 2022 cost around $845,372.09. Vision Zero team members shared that, in 2023, Austin spent $470,000 on repairs to knockdowns of traffic poles from MVC alone. Considering these two figures, it is possible that the costs of damage to roadside public property may be underestimated. Second, this study used NHTSA unit costs and local Austin adjustments to estimate that the cost of EMS related to MVC was about $3 million to state and local government in 2021. Austin's EMS Union estimated that Austin Fire Department, EMS, and Austin Police Department standby costs result in about $1,827 on average per the 15,460 crashes that year. That comes out to about $28 million, which is far larger than this study's estimate. It's important to note that concrete data on the costs of MVC in Austin beyond these examples was not available. These estimates must be considered as having a large margin of error due to this lack of available data which could be used to finetune costs per crash or injury type.

Based APTA's findings of an inverse relationship between increasing transit and decreasing crashes, this study makes the simplified assumption that a 24% increase in transit usage will result in a 24% decrease in MVC and therefore a 24% decrease in MVC costs annually. If this assumption holds true, at 50/50 mode share, Austin stands to reduce crash costs between $7 to $8 million dollars per year. This is the equivalent of $17 to $22 in annual taxes to each Austin household.

## Considerations for Interpreting Results: Limitations and Hidden Costs

In addition to a lack of Austin-specific data, in discussing these figures in an Austin context, it is important to mention several other limitations of these estimates. First, the NHTSA report represents national averages, and certain shares by payer would be different in Texas compared to other states, such as income tax, which makes up the market productivity category in that report. States collecting income tax will see losses when employees are out of work due to accidents or lose time stuck in traffic, but that is not the case in Texas and therefore the market

productivity cost is likely overestimated. Additionally, estimates of damage to roadside public property may change based on the policies of local agencies, which may charge costs directly to insurance companies for involved individuals. A spokesperson for Austin Energy shared that the agency "[follows] up with insurance companies regarding automobile crashes into [their] infrastructure to make sure that they are recovering costs. Both the City of Austin and Austin Energy submit an invoice to recover the damages to [their] property."

Second, crash cost estimation is a complex topic with many challenges, such as a lack of available or reliable data. Governments face a significant burden attempting to report on this data, and studies often have to rely on the accuracy of past estimates adjusted for inflation in order to make up for missing data. In particular, the NHTSA report highlights issues with calculating the cost of damage to physical, roadside property such as medians, lampposts, and traffic poles as a result of MVC. The unit costs for this category are based on two small studies which did not produce robust and reliable estimates.

Third, reporting systems such as CRIS may have inaccurate data due to the difficulty of categorizing injuries in the field and also the fact that a larger percentage of crashes go unreported. According to the NHTSA, almost 60 percent of all property-damage only and 30 percent of nonfatal injury crashes are not reported to police. This means a large share of crash costs may not be included, resulting in underestimation.

Finally, even with accurate estimates, understanding costs to taxpayers using this method will result in inaccuracies due to the hidden nature of many MVC costs. As mentioned above, unreported crashes may make up a large share of hidden costs, but it is also important to note categories which are not considered to fall under state or local costs yet are still borne by society. The NHTSA estimates that three quarters of the costs of MVC are borne by society, meaning those who were not involved in the crash. This includes not just the equivalent taxes discussed here, but also increased medical care costs and insurance premiums. Regarding insurance premiums, car insurance companies in Texas, as in many states, may take past claims history in a zip code, as well as accident likelihood into account when determining rates (*Factors That Affect Car Insurance Rates; What Factors Affect Your Car Insurance Premium?; Why Did My Car Insurance Go Up?)*. This means that a history of crashes may mean higher rates for everyone in the affected area because insurance companies consider it riskier to cover drivers there.

## Conclusions and Recommendations

This study investigated the economic costs of MVC to Austin taxpayers in order to understand how much money may be saved by the public once transit expansion results in fewer cars on the road and thus fewer crashes. By these estimates, Austin may reduce crash costs between $7 to $8 million dollars per year by reaching 50/50 mode share. It is important that Austin taxpayers and policymakers understand these savings in order to properly weigh costs and benefits of Project Connect and other transportation infrastructure investments, similar to the method outlined in the FHWA Safety Benefit-Cost-Analysis Guide and Tool.

These initial estimates could be improved by an effort to accurately track data that could be used to optimize the unit costs used here and create more accurate estimates of MVC costs. As mentioned in the NHTSA report, most local governments do not have enough resources to calculate exact costs. One possibility is for Austin's Vision Zero to explore a lightweight, uniform method of collecting crash-related expenses and data across safety departments on a basis of every three to five years. While it may require some additional resources dedicated to process definition or data collection, it would be highly beneficial as a high-level planning tool. Such reporting could also make Austin a source of valuable data for NHTSA reports and other national reporting on MVC costs which is currently plagued by lack of data.

For further research, this author also recommends including comprehensive, not just the economic costs of MVC, in any cost benefit analysis. The economic losses pale in comparison to societal costs in terms of lost quality of life, and ultimately, we run the risk of transit expansion or other safety-related improvements being evaluated as too expensive if we don't consider benefits beyond economic costs (Blincoe 2023, 8; Harmon, Bahar, and Gross 2018, 37).

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