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2023 ANNUAL REPORT

Tracking Work-Related Deaths in Michigan



2023 Annual Report

Tracking Work-Related Deaths in Michigan

A Joint Report
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Executive Summary

The Division of Occupational and Environmental Medicine (OEM) at Michigan State University (MSU) began tracking work-related fatalities in the state of Michigan in January 2001. This is the 23rd annual Michigan Fatality Assessment and Control Evaluation (MIFACE) report on acute traumatic work-related deaths in Michigan. There were **172 work-related deaths in 2023**. There were 167 separate incidents representing 169 separate employers. A narrative summary of each work-related fatality is in [Appendix I](#). MIFACE educational material, including on-site Investigation Reports, Summaries of MIOSHA Investigations, and Hazard Alerts are located on the MIFACE webpage on the Michigan State University Division of Occupational & Environmental Medicine ([MSU OEM](#)) website. Key findings for 2023:

- The number of work-related deaths (172) in 2023 increased by 32 (18.7%) compared to 2022 (140 work-related deaths). The 2023 fatal injury rate of 3.6 deaths per 100,000 workers increased from 3.0 deaths per 100,000 workers in 2022.
- Although not directly comparable, the *overall* rate of work-related deaths in Michigan is higher than the rate in the United States (3.5 deaths/100,000 full-time equivalent [FTE] workers).
- The industry sector with the highest employment-based industry rate was Agriculture, Forestry, Fishing & Hunting (23.5 deaths/100,000 workers), followed by Construction (21.2 deaths/100,000 workers) and then Arts, Entertainment & Recreation (18.4 deaths/100,000 workers). Construction had the largest number of work-related deaths (40 deaths, 23.3% of all fatalities).
- Motor vehicle crashes and struck by incidents were the leading causes of work-related deaths (35 deaths each, 20.3%), followed by falls (22 deaths, 12.8%) and homicide & assault (18 deaths, 10.5%).
- By occupational group, Construction & Extraction had the largest number of work-related deaths (33 deaths, 19.2%) followed by Transportation & Material Moving (32 deaths, 18.6%) and Installation, Maintenance & Repair (23 deaths, 13.4%).
- Forty-nine of Michigan's 83 counties (59.0%) had a work-related death. Wayne County had the largest number of deaths at 28 (16.3%), followed by Oakland with 13 deaths (7.6%), and Ingham and Kent with 10 deaths each (5.8%).
- Of the 172 work-related fatalities, 36 (20.9%) were MIOSHA program-related and were investigated by a MIOSHA compliance officer.
- Eight individuals died in 2023 due to medical complications from a work-related injury sustained prior to 2023.

Definitions

A **traumatic injury** is any unintentional or intentional wound or damage to the body resulting from acute exposure to energy or from the absence of such essentials as heat or oxygen caused by a specific event, incident, or series of events within a single workday or shift.

Work is defined as legal duties, activities or tasks that produce a product as a result and that are done in exchange for money, goods, services, profit, or benefit.

A **work relationship** exists if an event or exposure results in the fatal injury or illness of a person:

- (1) ON the employer's premises and person is there to work; or
- (2) OFF the employer's premises and person is there to work, or the event or exposure was related to the person's work, or status as an employee.

Incidence means the number of new cases of an illness, injury, or other health-related event that commence during a specified period in a specified population.

Background

In 2001, MSU OEM instituted a tracking program for all traumatic work-related deaths, first with financial assistance from the Department of Licensing and Regulatory Affairs (LARA; now LEO) and then from the National Institute for Occupational Safety and Health (NIOSH). This is a joint project of LEO/MIOSHA and MSU OEM.

The purpose of the MIFACE tracking project is three-fold:

- Identify the types of industries and work situations where workers are dying from acute traumatic incidents,
- Identify the underlying causes of the work-related fatality, and
- Formulate and disseminate prevention strategies to reduce future work-related fatalities.

MIFACE uses the National Institute for Occupational Safety and Health (NIOSH) Fatality Assessment and Control Evaluation (FACE) as a model. Since 1982, NIOSH has funded selected states to operate a state FACE program. MIFACE investigations have provided aggregate data to identify high-risk industries and work practices as well as provided the stories or “faces” necessary to make the statistics real and influence change in the workplace. Emphasis on information dissemination and translation of information into user-friendly materials is an important part of the MIFACE program.

The MSU OEM webpage has many resources available to assist employers, employees, safety and health professionals and others to understand more about work-related illnesses, injuries and deaths.

Who is Included? Any individual of any age who meets the criteria of “at work”, including volunteers and prison inmates, who are exposed to the same work hazards and perform the same duties or functions as paid employees. Suicides are included, following the protocol established by the NIOSH FACE program and the Bureau of Labor Statistics (BLS), which collects the official work-related death statistics in all states.

Who is Not Included? Individuals who die while “at work” from diseases, such as a heart attack or stroke, individuals commuting to/from work, volunteers not working for a non-profit, students, and homemakers.

Methods

MIFACE utilizes multiple sources to identify work-related fatalities in Michigan: MIOSHA, Death Certificates, Newspapers, Medical Examiners, Police/Fire/EMT Departments, Workers' Compensation Agency, MSU Extension, Michigan Farm Bureau, Federal Agencies (MSHA, NTSB, etc.), Internet searches, and Michigan citizens reporting a work-related death.

IDENTIFY INDIVIDUALS

- ◇ **Receive Report of Death**
- ◇ **Determine if work-related death**
 - Paid employee, self-employed?
 - Working at job or family business?
 - Traveling "while on-the-clock" or compensated travel?
 - Volunteer?
 - In parking lot of business?

GATHER INFORMATION

- ◇ **Contact MIOSHA**
 - If fatality is program-related
- ◇ **Gather source documents**
 - Reports from agencies that investigated the death/provided emergency services when event occurred
 - Death certificate
 - Medical examiner report and, when appropriate
 - MIOSHA fatality investigation narrative

CONTACT EMPLOYER/FARM FAMILY

- ◇ **Send MIFACE Introduction Letter and Brochure**
- ◇ **Follow-up phone contact**
 - Answer questions
 - Ask if employer and/or family will voluntarily participate
 - If Yes, schedule date and time for MIFACE site visit
 - If No, write case summary or MIFACE Summary of MIOSHA Investigation

MIFACE SITE VISIT

- ◇ **Explain MIFACE program**
- ◇ **Complete appropriate research forms**
- ◇ **Conduct interviews with appropriate personnel**
 - Learn about process, equipment involved, work activities of deceased, training, safety programs, etc.
- ◇ **Observe area and/or equipment involved**
- ◇ **Take pictures, ensuring identifiers are removed**

ALL work-related deaths MUST be reported to MIOSHA within 8 hours of the death.

**The toll-free hotline to report a work-related death is:
1-800-858-0397**

MIFACE INVESTIGATION REPORT

- ◇ **Site Visit Report Includes:**
 - Summary statement
 - Background information
 - Detailed investigation narrative
 - Cause of death as determined by the Medical Examiner
 - Prevention recommendations, including discussion
 - References
 - Pictures, drawings, sketches
 - Review process

MIFACE FOLLOW-UP ACTIVITIES

◇ **Identify Stakeholders**

- Internet search for similar companies and/or trade groups

◇ **Update Database**

- Information collected from each site visit and statewide tracking entered into a database

◇ **Analyze Data**

- Annual Report developed analyzing and discussing data

◇ **Educational Outreach**

- MIFACE Summary of MIOSHA Investigation if MIOSHA investigation takes place
- Hazard Alert
- Data Fact Sheet
- Post on MSU OEM website:
 - Investigation Report
 - MIFACE Summary of MIOSHA Investigation
 - Hazard Alert
 - Data Fact Sheet
- Send notice of posted publications to MIFACE e-mail distribution list
- Guest speaker, display booths at health and safety conferences, industry trade group training programs

The level of information collected for each fatality depends on the type of incident.

For homicides, suicides and most transportation-related fatalities that occurred while the individual was at work, MIFACE collected only source documents.

For many of the remaining work-related fatalities including agricultural fatalities, MIFACE initiated contact with employers or farm family members to request permission for an on-site investigation. It is important to note that MIFACE investigators did not enforce compliance with Michigan Occupational Safety and Health Administration (MIOSHA) rules and regulations and did not assign fault or blame. However, to decrease the burden to the employer of multiple investigations, where possible, MIFACE accompanied the MIOSHA compliance officer with employer agreement. In addition, MIFACE interviewed the compliance officers about their investigation.

Results

There were 172 acute traumatic work-related fatalities in 2023. One hundred sixty-four (95.3%) of the 172 work-related traumatic incidents occurred in 2023. Below is a description of the eight individuals who died in 2023 due to medical complications from a work-related injury sustained in a previous year. Based on source documents, the individuals were included in the following industry deaths:

Agriculture, Forestry, Fishing and Hunting:

- A farm worker in her 60s died in 2023 due to complications of an intestinal transplant from a 1982 fall from a tractor. She was subsequently run over by the tractor.
- A self-employed logger in his 90s died in 2023 due to complications of spinal cord trauma with quadriplegia sustained when he was struck by a tree in 2010.

Construction

- A journeyman lineman in his 70s died in 2023 due to atherosclerotic hypertensive cardiovascular disease. He was injured in a 1982 high voltage transformer explosion. The medical examiner identified thermal and blast force injuries from the work injury as contributory.
- A roofer in his 60s died in 2023 due to spinal injury medical complications resulting from a fall from a roof in 1991.
- A roofer in his 60s died in 2023 due to chronic osteomyelitis and complications resulting from a fall from a roof in 1992.
- A house moving laborer in his 40s died in 2023 due to a traumatic brain injury with secondary seizure disorder after being struck by a vehicle in 1995.
- A roofer in his 60s died in 2023 due to sepsis with contributing factors of paraplegia and a spinal cord injury when he fell from a roof at a construction site in 2010.

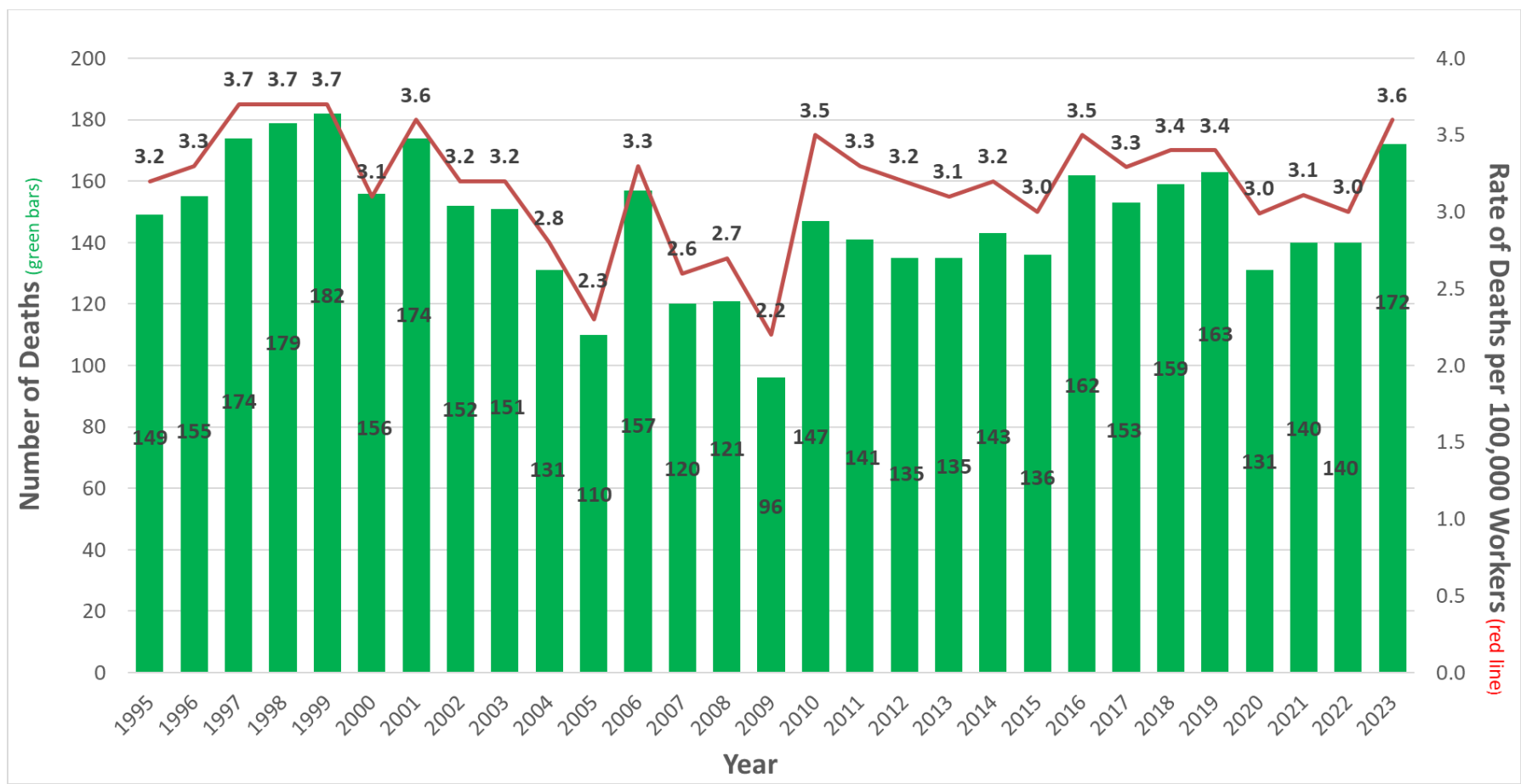
Retail Trade

- A cashier in her 40s died in 2023 due to a saddle pulmonary embolism due to a deep vein thrombosis sustained in a 2022 slip and fall on snow and slush on the sidewalk at her workplace.

The 172 individuals had 169 different employers and were involved in 167 separate incidents. In one crash, a driver ran a stop sign and struck a work truck, killing four individuals in the truck, all who worked for the same employer. One crash involved two semi-trucks, killing the drivers who were working for different employers. One crash involved two work vehicles, a pickup truck and a van; the crash killed both drivers who were working for different employers.

Figure 1 shows the number of acute traumatic work-related deaths and incidence rate per year in Michigan since 1995. Incidence rates shown from 1995 to 2000 were obtained from the BLS website. Rates since 2001 were determined from MIFACE statistics.

Figure 1. Number and Incidence Rate of Work-Related Fatalities in Michigan, 1995-2023



Demographics

Table 1 shows the demographic characteristics of the 172 traumatic work-related fatalities in Michigan in 2023. Demographic characteristics were obtained from the individual's death certificate. For two individuals, a death certificate could not be obtained. When available, their demographic information was obtained from other source documents.

Race

Of the 156 males who died, 119 were White, 22 were Black, seven were Hispanic, three were White/American Indian, two were American Indian or Alaskan Native, one was Asian or Pacific Islander, one was Middle Eastern or North African, and one was multi-racial. For one White male, ethnicity was unknown.

Of the 119 White males, three had Hispanic ethnicity. One of the American Indian males had Hispanic ethnicity. Of the 16 women, 12 were White and four were Black.

Age

The age at time of death ranged from 17 to 90 years. The average age of the 172 individuals was 49.1 years. For men, the ages ranged from 17 to 90 years, and for women, the ages ranged from 29 to 70 years. The average age for men at the time of death was 49.4 years; for women, it was 46.1 years.

Thirty-one individuals were 65 years of age or older when they died in 2023 compared to 20 individuals who died in 2022. The average age at time of death for these 31 individuals was 72 years and included 29 men and two women. The mean age for the 29 men was 72.2 and for the two women was 68.5. Eight (25.8%) of the 31 individuals aged 65 years or older died due to a motor vehicle crash, 7 (22.6%) due to being struck by an object, 6 (19.4%) due to a fall, 5 (16.1%) due to a machine-related injury, 3 (9.7%) due to a fire/explosion, 1 (3.2%) due to a homicide and 1 (3.2%) due to a suicide.

Table 1. Demographic Characteristics of 172 Work-Related Fatalities, Michigan 2023

Demographic Characteristic	Number	Percent*
Sex		
Male	156	90.7
Female	16	9.3
Race/Ethnicity		
White	131	76.2
Black	26	15.1
Hispanic	7	4.1
Asian or Pacific Islander	1	0.6
American Indian/Alaskan Native	2	1.2
White/American Indian	3	1.7
Middle Eastern or North African	1	0.6
Multi-Racial	1	0.6
Education		
Less than High School	26	15.1
High School Graduate	65	37.8
GED	12	7.0
Some College (1-4 years)	56	32.6
Post College (5+ years)	6	3.5
Vocational School	3	1.7
Unknown	4	2.3
Age		
<20	5	2.9
20-29	19	11.0
30-39	26	15.1
40-49	36	20.9
50-59	30	17.4
60-69	38	22.1
70-79	15	8.7
80-89	2	1.2
≤90	1	0.6
Country of Origin		
United States	162	94.2
Australia	1	0.6
Canada	1	0.6
Honduras	1	0.6
Kyrgyzstan	1	0.6
Lebanon	1	0.6
Mexico	4	2.3
Trinidad & Tobago	1	0.6
Totals	172	100

*Source: Death Certificate (percent may not add to 100 due to rounding)

Among those 65 years or older, the industries where the deaths occurred are as follows. The eight motor vehicle crashes occurred in Agriculture (2), Utilities (1), Construction (2), Retail Trade (1), Transportation & Warehousing (1) and Administrative & Support & Waste Management & Remediation (1). The seven struck by incidents occurred in Agriculture (2), Construction (1), Administrative & Support & Waste Management & Remediation (2), Arts, Entertainment & Recreation (1), and Other Services (1). The six fatal falls occurred in Construction (2), Administrative & Support & Waste Management & Remediation (1), Health Care & Social Assistance (1), Arts, Entertainment & Recreation (1) and Accommodation & Food Service (1). All five of the machine-related incidents which occurred in the 65+ year old age group occurred in Agriculture.

Table 2 describes the age distribution of the victims across industry sectors.

Table 2. Traumatic Work-Related Fatalities by Age of Victim and Industry Sector, Michigan 2023				
Industry Sector (NAICS Code)	0-17	18-64	65+	Total
	Number (%)	Number (%)	Number (%)	
Agriculture, Forestry, Fishing & Hunting (11)	--	11 (52.4)	10 (47.6)	21
Utilities (22)		2 (66.7)	1 (33.3)	3
Construction (23)	--	34 (85.0)	6 (15.0)	40
Manufacturing (31-33)	--	9 (100)	--	9
Wholesale Trade (42)	--	8 (100)	--	8
Retail Trade (44-45)	--	9 (81.8)	2 (18.2)	11
Transportation & Warehousing (48-49)	--	15 (93.8)	1 (6.3)	16
Information (51)	--	2 (100)	--	2
Finance & Insurance (52)	--	1 (100)	--	1
Real Estate & Rental & Leasing (53)	--	3 (100)	--	3
Professional/Science/Technology (54)	--	2 (100)	--	2
Administrative & Support & Waste Management & Remediation Services (56)	--	13 (76.5)	4 (23.5)	17
Educational Services (61)	--	3 (100)	--	3
Health Care & Social Assistance (62)	--	7 (87.5)	1 (12.5)	8
Arts, Entertainment & Recreation (71)	1 (10.0)	7 (70.0)	2 (20.0)	10
Accommodation & Food Services (72)	--	5 (83.3)	1 (16.7)	6
Other Services (except Public Administration) (81)	--	7 (77.8)	2 (22.2)	9
Public Administration (92)	--	2 (66.7)	1 (33.3)	3
Totals	1 (0.6)	140 (81.4)	31 (18.0)	172

Nationally, the [hours-based fatal work injury rate](#) per 100,000 full-time-equivalent (FTE) workers for individuals aged 65 and over was 8.7. Although not directly comparable, Michigan's employment-based fatality rate for workers aged 65 and over was 8.8 deaths per 100,000 workers in 2023. While the percentage of individuals 65 years of age and older who were employed (18.9%) was smaller than other age categories, this age group had the highest fatality rate of all age groups (**Table 3**), nearly double the fatality rate of the next highest rate (55-64 age range, 4.5 deaths/100,000 workers).

Table 3. Employment Number, Percent of the Civilian Non-institutional Population Employed and Fatality Rate by Age Group, Michigan 2023				
Age Range (in years)	Employment		Number of Deaths (%)	Fatality Rate (per 100,000 workers)
	Number employed	Percent of the civilian non-institutionalized population that is employed		
16-19	180,000	37.3	5 (2.9)	2.8
20-24	515,000	74.5	10 (5.8)	1.9
25-34	1,075,000	79.3	25 (14.5)	2.3
35-44	933,000	81.1	29 (16.9)	3.1
45-54	959,000	80.2	35 (20.3)	3.6
55-64	815,000	60.9	37 (21.5)	4.5
65 and older	354,000	18.9	31 (18.0)	8.8

^a Employment by age from the [BLS Local Area Employment State-Specific Report](#)

The eight individuals who sustained an injury prior to 2023 and died in 2023 due to injury complications are included in Table 3. At the time of injury, one individual was in the 35-44 age range, one individual was in the 45-54 age range, four individuals were in the 55-64 age range, and two individuals were in the 65+ age range.



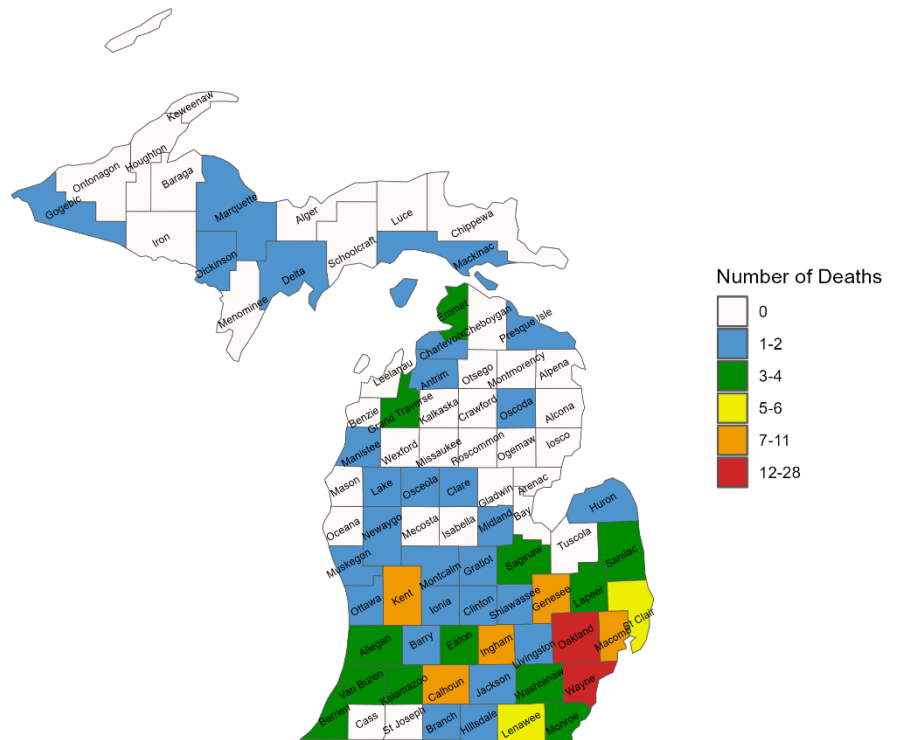
Case 19. A male farmer in his 40s died due to mechanical asphyxia when he was engulfed in soybeans in a silo. The victim climbed in and was standing on top of the soybeans using a PVC pipe to unplug the beans when he was engulfed. Photo courtesy of responding police.

Geographic Distribution

Forty-nine (59.0%) of the 83 Michigan counties had at least one work-related injury that led to the death of the worker (**Figure 2** and **Table 4**).

Collectively, the three southeast Michigan counties of Macomb, Oakland, and Wayne, comprising the Detroit Tri-County area, had 48 (27.96%) of all work-related deaths. Wayne County had the highest number of deaths (28 deaths, 16.3%), followed by Oakland (13 deaths, 7.6%), Ingham (10 deaths, 5.8%), and Kent (10 deaths, 5.8%). Nearly half of the deaths that occurred in Wayne County were construction-related (12 deaths, 42.9%).

Figure 2. County of Fatal Work-Related Injury, Michigan 2023



Case 138. A male caregiver in his 70s died due to multiple blunt force injuries after a fall from a 3rd floor balcony. The decedent cared for two elderly individuals with dementia in an assisted living facility. Photo courtesy of responding police.

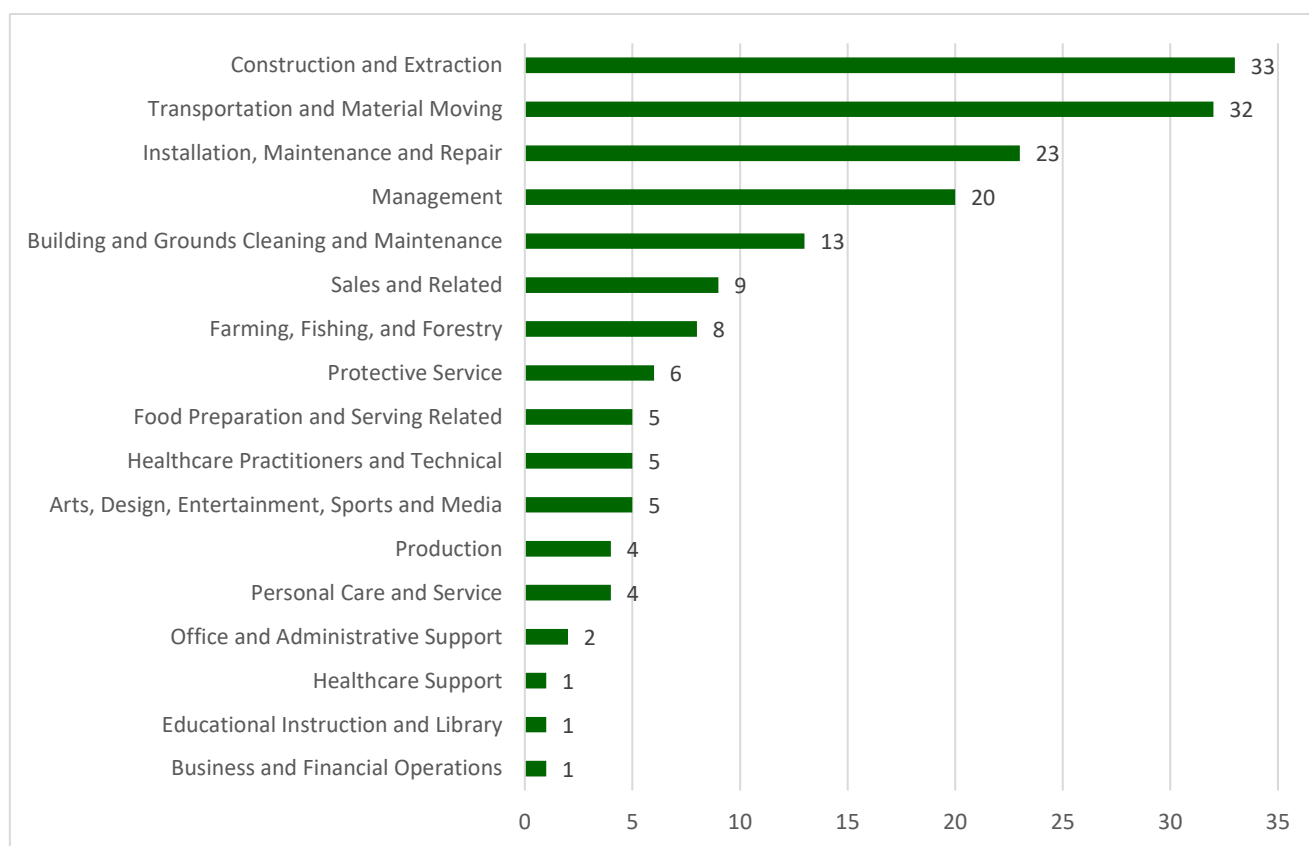
Table 4. County of Fatal Work-Related Injury, Michigan 2023

County	Number (%)		County	Number (%)		County	Number (%)		County	Number (%)	
Alcona	--	--	Dickinson	1	0.6	Lake	1	0.6	Oceana	--	--
Alger	--	--	Eaton	3	1.7	Lapeer	4	2.3	Ogemaw	--	--
Allegan	3	1.7	Emmet	4	2.3	Leelanau	--	--	Ontonagon	--	--
Alpena	--	-	Genesee	7	4.1	Lenawee	5	2.9	Osceola	2	1.2
Antrim	1	0.6	Gladwin	--	--	Livingston	2	1.2	Oscoda	1	0.6
Arenac	--	--	Gogebic	1	0.6	Luce	--	--	Otsego	--	--
Baraga	-	--	Grand Traverse	3	1.7	Mackinac	1	0.6	Ottawa	2	1.2
Barry	1	0.6	Gratiot	1	0.6	Macomb	7	4.1	Presque Isle	1	0.6
Bay	--	--	Hillsdale	1	0.6	Manistee	2	1.2	Roscommon	--	--
Benzie	--	--	Houghton	--	--	Marquette	1	0.6	Saginaw	4	2.3
Berrien	4	2.3	Huron	2	1.2	Mason	--	--	St. Clair	6	3.5
Branch	1	0.6	Ingham	10	5.8	Mecosta	--	--	St. Joseph	--	--
Calhoun	7	4.1	Ionia	2	1.2	Menominee	--	--	Sanilac	3	1.7
Cass	--	--	Iosco	--	--	Midland	1	0.6	Schoolcraft	--	--
Charlevoix	1	0.6	Iron	--	--	Missaukee	--	--	Shiawassee	1	0.6
Cheboygan	--	--	Isabella	--	--	Monroe	4	2.3	Tuscola	--	--
Chippewa	--		Jackson	1	0.6	Montcalm	1	0.6	Van Buren	4	2.3
Clare	1	0.6	Kalamazoo	3	1.7	Montmorency	--	--	Washtenaw	3	1.7
Clinton	1	0.6	Kalkaska	--	--	Muskegon	2	1.2	Wayne	28	16.3
Crawford	--	--	Kent	10	5.8	Newaygo	2	1.2	Wexford	--	--
Delta	1	0.6	Keweenaw	--	--	Oakland	13	7.6	Unknown	1	0.6

Occupation

Among the 172 deaths, **Figure 3** shows the occupation distribution of the 172 work-related deaths with known occupation utilizing the Standard Occupational Classification (SOC) categories. Occupation was determined from the reporting source data. The SOC categories are divided into 23 major groups. These major groups combine occupations according to the nature of the work performed, placing all people who work together into the same group regardless of their skill level.

Figure 3. Number of Deaths by Standard Occupational Classification (SOC), Michigan 2023



Construction & Extraction occupations had the highest number of deaths at 33 (19.2%). All deaths were among construction occupations; Construction Laborers had the largest number of deaths (9 deaths, 27.3%), followed by Roofers (6 deaths, 18.2%) and then Carpenters (4 deaths, 12.1%). The following four construction occupations had two deaths each (6.1%): First-Line Supervisors of Construction Trades and Extraction Workers, Electricians, Painters, Plumbers, Pipefitters, & Steamfitters. Each of these six construction occupations had one (3.0%) death each: Brickmason & Blockmason, Drywall & Ceiling Tile Installers, Insulation Workers, Floor & Ceiling Tile, Sheet Metal Workers, Construction & Building Inspectors, and Hazardous Materials Removal Workers.

Transportation & Material Moving occupations had the second highest number of deaths at 32 (18.6%). Truck drivers comprised 24 (75%) of the deaths in this occupational classification; Heavy & Tractor Trailer Truck Drivers (20 deaths) and Light Truck Drivers (4 deaths).

Installation, Maintenance and Repair occupations had the third highest number of deaths at 23 (13.4%). Within this occupational group, Automotive Service Technicians & Mechanics had the largest number of deaths (10 deaths, 43.5%).

Six of the 23 SOC major groups did not have a death in 2023: Computer & Mathematical; Architecture & Engineering; Life, Physical & Social Science; Community and Social Service; Legal; and Military-Specific.

Working Status of the Decedent

The 172 individuals who died had 169 different employers. The employer/employee status was known for 167 of the 172 (97.1%) work-related deaths. One hundred twenty-five (125; 72.7%) individuals were employees with seven of those individuals known to be temporary or contract workers. Thirty-nine (22.7%) were self-employed or the owner/co-owner of the business (15 [8.7%] and 24 [14.0%] deaths respectively) and three (1.7%) individuals were volunteer workers. For five individuals (2.9%) their employment status was unknown.

The decedent was working alone in 98 (57.0%) incidents, with a coworker in 65 (37.8%) incidents and the work status was unknown in 9 (5.2%) incidents. For the 18 homicides, the decedent was working alone in nine (50.0%) incidents and with a coworker in nine (50.0%) incidents.

Illegal Drug/Alcohol/Medication Use

Of the 143 individuals whose death was not a suicide (17 deaths) or a drug overdose (12 deaths), 54 (37.8%) individuals had detectable levels of alcohol, marijuana, illegal drugs or medications in their system. Half of the 54 individuals (27, 50.0%) had levels that were considered to possibly have contributed to the fatal incident (**Table 5**).

In Michigan, the standard legal blood alcohol content (BAC) limit for drivers 21 and older is 0.08% (grams of alcohol per 100 milliliters). In many European countries, 0.05% BAC is the limit and is the value MIFACE utilized in determining whether the individual's BAC may have contributed to their fatal incident. An individual's BAC may have been below 0.05% and determined to be non-contributory but it is important to note that even small amounts of alcohol can reduce reaction time and impair fine motor skills.

Michigan does not have a legal marijuana (THC) threshold (like 0.08% BAC for alcohol) that automatically defines impairment. Several states have adopted a legal limit for being impaired while driving of 5 µg/l (5 ng/ml) for marijuana (THC) in blood. Although 5 µg/l (5 ng/ml) does not directly correlate with impairment as does blood alcohol levels, the THC level of 5 µg/l was used by MIFACE to define whether the individual's marijuana (THC) use may have contributed to their fatal incident.

There were two separate vehicle crashes where the vehicle driver and the passengers had measurable levels of marijuana, illegal drugs or medications in their system. In one fatal crash, the driver (killed) and the three passengers (killed) each had a THC level above 5 µg/l while in the second crash, the vehicle driver (survived) and the passenger (killed) each had cocaine in their system. Due to the circumstances surrounding the deaths, MIFACE determined the presence of marijuana/cocaine did not contribute to the four passenger deaths.

In a third crash the passenger (killed) had a THC level below the cut off of 5 µg/l, however, the driver (survived) was determined to have been under the influence of marijuana with a THC level above 5 µg/l.

For individuals with hydrocodone, benzodiazepine, fentanyl, amphetamine, or morphine in their system, it was unknown if the drug was from the use of a prescribed medication or from illegal use.

Table 5. Type of Work-Related Fatal Incident and Drug Found in Toxicological Analysis Among 27 Individuals Where the Substance Detected was Considered a Possible Contributor to the Individual's Death, Michigan 2023

Incident Type	Blood Alcohol Content (%)	Prescription	Cocaine, Heroin, or Other Illegal	Unknown Prescription/ Non- Prescription
Electrocution			Methamphetamine	Amphetamine
Electrocution				Marijuana
Fall		Metoprolol	Xylazine	Fentanyl Morphine
Fall		Diazepam Buprenorphine metabolite		Hydrocodone
Fall		Buprenorphine		
Fall				Marijuana
Fall				Morphine Marijuana
Fire/Explosion		Midazolam	Cocaine metabolite	Fentanyl
Heat/Cold	0.349			
Homicide/Assault			Cocaine Cocaine metabolite	
Homicide/Assault				Marijuana
Homicide/Assault				Marijuana
Machine				Amphetamine
Machine				Marijuana
Motor Vehicle		Citalopram Tramadol Temazepam Amlodipine		Benzodiazepine
Motor Vehicle		Amlodipine Trazadone		Marijuana
Motor Vehicle			Cocaine Cocaine metabolite	
Motor Vehicle	0.059			
Motor Vehicle				Marijuana
Motor Vehicle				Marijuana
Motor Vehicle				Marijuana
Struck-By				Marijuana
Struck-By				Marijuana
Struck-By				Marijuana
Struck By			Methamphetamine	Amphetamine Marijuana
Struck By			Methamphetamine	Marijuana
Struck By			Cocaine Metabolite	Fentanyl

Work-Related Fatality Incidence Rates by Industry

Employment-based incidence rates measure the risk of fatal injury for those employed during a given period, regardless of hours worked, calculated as number of deaths/100,000 workers

Hours-based incidence rates measure fatality risk per standardized length of exposure. Hours-based rates (full-time equivalent (FTE) use the average number of employees at work and the average hours each employee works (40 hours/week, 50 weeks/year).

The BLS uses hours-based incidence rates to measure fatality risk for industry sectors.

Employment-based and hours-based incidence rates will be similar for industries which tend to have full-time employees. However, differences will be observed for industries that tend to have a high percentage of part-time workers, such as in the fast-food industry.

The number of hours worked was not available for several industry sectors. When provided, MIFACE calculated the hours-based work-related fatality incidence rate (See **Table 6**).

Michigan data shows that in industry sectors with many part-time workers (30 hours or less), the hours-based fatality rate is higher than the employment-based incidence rate, such as in Retail Trade and Accommodation & Food Service. When the number of hours worked is closer to 40 hours (or more), the hours-based incidence rate is similar to or lower than the

employment-based incidence rate, such as in Construction and Manufacturing.

Industry Highlights, Michigan 2023

Table 6 shows the number of traumatic work-related fatalities and Michigan's annual incidence rate by industry sector for number of employees and hours worked.

Highlights from Table 6

Six industry sectors had fewer work-related deaths and a lower employment-based incidence rate in 2023 compared to 2022:

Industry	Decrease in Number of Deaths from 2022	Number of 2023 WR Deaths	2023 Incidence Rate	Number of 2022 WR Deaths	2022 Incidence Rate
Manufacturing	8	9	1.5	17	2.8
Transportation & Warehousing	3	16	9.1	19	10.9
Information	1	2	3.5	3	5.3
Professional/Scientific/Technical	1	2	0.6	3	1.0
Accommodation & Food Service	5	6	1.6	11	3.1
Public Administration	4	3	1.2	7	2.7

Eleven industry sectors had a higher number of work-related deaths and a higher employment-based incidence rate in 2023 compared to 2022:

Industry	Increase in Number of Deaths from 2022	Number of 2023 WR Deaths	2023 Incidence Rate	Number of 2022 WR Deaths	2022 Incidence Rate
Agriculture, Forestry, Fishing & Hunting	7	21	23.5	14	15.8
Utilities	3	3	14.7	0	**
Construction	12	40	21.2	28	15.3
Wholesale Trade	3	8	4.6	5	2.9
Retail Trade	3	11	2.4	8	1.8
Real Estate & Rental & Leasing	2	3	5.2	1	1.8
Administrative & Support & Waste Mgt & Remediation	10	17	6.3	7	2.6
Education	1	3	0.8	2	0.6
Health Care & Social Assistance	3	8	1.3	5	0.8
Arts, Entertainment, & Recreation	6	10	18.4	4	7.9
Other Services (except Public Administration)	4	9	6.7	5	3.1

One industry sector, Finance & Insurance, had the same number of work-related deaths (1) and the same incidence rate (0.6) in 2023 compared to 2022.

The industry sectors with the highest employment-based industry rate were Agriculture (23.5 deaths/100,000 workers), followed by Construction (21.2 deaths/100,000 workers), and then Arts, Entertainment & Recreation (18.4 deaths/100,000 workers). Additionally, the Agriculture, Forestry, Fishing & Hunting (NAICS 11), Arts, Entertainment & Recreation (NAICS 71) and Construction (NAICS 23) industry sectors had the highest overall subsector incidence rates. While the number of deaths were small, Forestry & Logging (NAICS 113) had an incidence rate of 53.5 deaths/100,000 workers, Performing Arts & Spectator Sports (NAICS 711) had an incidence rate of 50.0 deaths /100,000 workers and Heavy & Civil Engineering (NAICS 237) had an incidence rate of 42.0 deaths/100,000.



Case 34. A male roofer in his 40s died due to multiple blunt force injuries when he fell approximately 30- to 35-feet through a gap in the roofing to a concrete barn floor. The decedent and his two coworkers were removing and replacing metal sheeting from a dairy barn roof. Photo courtesy of responding police.

Table 6. Number of Traumatic Work-Related Fatalities by Industry and Incidence Rates by Number of Employees and by Hours Worked, Michigan 2023

Industry Sector (NAICS Code)	Number	Percent	Employment-Based		Hours-Based	
			Number Employees ^a	Rate ^d	Number Hours ^e	Rate ^g
Agriculture, Forestry, Fishing & Hunting (11)	21	12.2	89,219^b	23.5	**	**
Crop Production (111) (Owners/Operators)	9	5.2	53,164 b	16.9	**	**
Crop Production (111) (Hired Workers)	6	3.5	52,371 b	11.5	41.6 ^f	11.2
Animal Production (112) (Hired Workers)	2	1.2	16,579 b	12.1		
Animal Production (112) (Owners/Operators)	3	1.7	29,384 b	10.2	**	**
Forestry & Logging (113)	1	0.6	1,877	53.3	**	**
Utilities (22)	3	1.7	20,438	14.7	**	**
Utilities (221)	3	1.7	20,438	14.7	**	**
Construction (23)	40	23.3	189,020	21.2	39.8	21.3
Construction of Buildings (236)	6	3.5	47,192	12.7	38	13.4
Heavy & Civil Engineering Construction (237)	9	5.2	21,435	42	**	**
Specialty Trade Contractors (238)	25	14.5	120,394	20.8	41.5	20
Manufacturing (31-33)	9	5.2	613,232	1.5	40.4	1.5
Chemical Manufacturing (325)	1	0.6	30,155	3.3	**	**
Plastics & Rubber Products Manufacturing (326)	1	0.6	39,949	2.5	**	**
Nonmetallic Mineral Product Manufacturing (327)	1	0.6	11,575	8.6	**	**
Fabricated Metal Products Manufacturing (332)	2	1.2	73,189	2.7	39.4	2.8
Computer and Electronic Product Manufacturing (334)	1	0.6	22,398	4.5	**	**
Transportation Equipment Manufacturing (336)	3	1.7	189,082	1.6	41	1.5
Wholesale Trade (42)	8	4.7	175,590	4.6	38.9	4.7
Merchant Wholesalers, Durable Goods (423)	5	2.9	109,382	4.6	40.3	4.5
Merchant Wholesalers, Non-durable Goods (424)	3	1.7	51,543	5.8	**	**
Retail Trade (44-45)	11	6.4	455,281	2.4	28.9	3.3
Motor Vehicle & Parts Dealers (441)	5	2.9	63,487	7.9	36.2	8.7
Food & Beverage Stores (445)	3	1.7	76,735	3.9	**	**
Health and Personal Care Retailers (456)*	2	1.2	35,579	5.6	**	**
Clothing, Clothing Accessories, Shoe, and Jewelry Retailers (458)*	1	0.6	25,639	3.9	**	**
Transportation & Warehousing (48-49)	16	9.3	175,811^c	9.1	**	**
Truck Transportation (484)	9	5.2	49,048	18.3	**	**

Table 6. Number of Traumatic Work-Related Fatalities by Industry and Incidence Rates by Number of Employees and by Hours Worked, Michigan 2023

Industry Sector (NAICS Code)	Number	Percent	Employment-Based		Hours-Based	
			Number Employees ^a	Rate ^d	Number Hours ^e	Rate ^g
Transit & Ground Passenger Transportation (485)	1	0.6	9,126	11	**	**
Support Activities for Transportation (488)	5	2.9	18,161	27.5	**	**
Postal Service (491)	1	0.6	21,386 ^c	4.7		
Information (51)	2	1.2	57,451	3.5	36.5	3.8
Internet Publishing and Broadcasting (516)	1	0.6	4,594	21.8	**	**
Telecommunications (517)	1	0.6	14,861	6.7	**	**
Finance & Insurance (52)	1	0.6	155,771	0.6	36.9	0.7
Credit Intermediation & Related Activities (522)	1	0.6	75,468	1.3	**	**
Real Estate & Rental & Leasing (53)	3	1.7	57,735	5.2	**	**
Real Estate (531)	2	1.2	44,073	4.5	**	**
Rental and Leasing Services (532)	1	0.6	12,954	7.7	**	**
Professional, Scientific, & Technical Services (54)	2	1.2	317,035	0.6	35.9	0.7
Professional, Scientific, & Technical Services (541)	2	1.2	317,035	0.6	**	**
Administrative & Support & Waste Management & Remediation Services (56)	17	9.9	268,175	6.3	**	**
Administrative & Support Services (561)	13	7.6	254,262	5.1	**	**
Waste Management and Remediation Services (562)	4	2.3	13,913	28.8	**	**
Educational Services (61)	3	1.7	367,908^c	0.8	**	**
Educational Services (611)	3	1.7	367,908 ^c	0.8	**	**
Health Care & Social Assistance (62)	8	4.7	633,458^c	1.3	32.1	1.6
Ambulatory Health Care Services (621)	2	1.2	216,186	0.9	**	**
Hospitals (622)	2	1.2	236,956 ^c	0.8	35.5	1
Nursing and Residential Care Facilities (623)	3	1.7	97,118	3.1	**	**
Social Assistance (624)	1	0.6	83,199	1.2	**	**
Arts, Entertainment, & Recreation (71)	10	5.8	54,201	18.4	20.4	36.2
Performing Arts & Spectator Sports (711)	5	2.9	10,006	50	**	**
Amusement, Gambling, & Recreation Industries (713)	5	2.9	39,709	12.6	**	**
Accommodation & Food Services (72)	6	3.5	366,604	1.6	22.6	2.9
Accommodation (721)	1	0.6	39,860	2.5	**	**
Food Services & Drinking Places (722)	5	2.9	326,744	1.5	**	**

Table 6. Number of Traumatic Work-Related Fatalities by Industry and Incidence Rates by Number of Employees and by Hours Worked, Michigan 2023

Industry Sector (NAICS Code)	Number	Percent	Employment-Based		Hours-Based	
			Number Employees ^a	Rate ^d	Number Hours ^e	Rate ^g
Other Services (except Public Administration) (81)	9	5.2	134,426	6.7	**	4.0ⁱ
Repair & Maintenance (811)	8	4.7	45,051	17.8	**	**
Religious, Grantmaking, Civic, Professional and Similar Organizations (813)	1	0.6	42,964	2.3	**	**
Public Administration (92)	3	1.7	246,300^h	1.2	**	**
Justice, Public Order, & Safety Activities (922)	3	1.7	**	**	**	**
Unknown	3	1.7	**	**	**	**
Totals	172	100	4,802,000ⁱ	3.6	**	3.6ⁱ

^a Employment numbers from Michigan Department of Technology, Management and Budget (DTMB), Bureau of Labor Market Information and Strategic Initiatives, [QCEW Industry Employment and Wages](#) unless otherwise noted.

^b [2022 United States Department of Agriculture Census of Agriculture, Michigan-level data, Table 75](#). Summary by North American Industry Classification System. Number of owners/operators are defined as the number of “producers” in Table 75 summed by industry group (crop or animal). Hired workers are defined as the number of “hired farm labor” in Table 75 by industry group. Total number of employees in NAICS Sector 11 defined as total number of producers (owner/operators) for crop and animal production added to the number of employees in sectors 113 to 115 from Michigan DTMB QCEW data, excluding the count of “hired workers”. See the [Agriculture section](#) for discussion.

^c Includes federal, state, or local workers obtained from Michigan DTMB, Bureau of Labor Market Information and Strategic Initiatives, [Current Employment Statistics \(CES\)](#) found under the classification Public Administration NAICS 92.

^d Employment-based incidence rates calculated per 100,000 workers.

^e Average number of hours worked per week by industry taken from Michigan DTMB [CES](#) estimates unless otherwise noted.

^f Number of hours worked per week by hired farm workers in the Lake Region for 2022 as reported in the [Quick Stats Search Option from the USDA National Agricultural Statistics Service](#). Corresponding hours-based rate is calculated using the number of hired farm worker fatalities from the Crop and Animal production sectors combined.

^g Hours-based incidence rates calculated as $(N/EH) \times 200,000,000$, where N is the number of fatalities, EH is the total employee-hours (number of employees * average number of hours worked per week * 50 weeks), and 200,000,000 is the benchmark number of hours worked by 100,000 FTE (40 hour/week) employees in one year.

^h The number of workers in the Public Administration sector was calculated as the sum of Federal, State, and Local government employees in Michigan, minus the number of U.S. Postal Service workers, state and local hospital workers, and state and local education workers. All numbers from Michigan DTMB [CES](#) estimates.

ⁱ Total 2023 state employment taken from Michigan DTMB [LAUS](#) report.

^j [Michigan CFI 2023 hours-based incidence rate](#).

*The 2017 NAICS code 446 (Health and Personal Care Stores) and 448 (Clothing and Clothing Accessories Stores) seen in prior annual reports were re-coded in the 2022 NAICS. All of 2017 NAICS 446 was re-coded to 2022 NAICS 456 and 448 was re-coded to 2022 NAICS 458.

** No data available from corresponding sources.

Table 7 compares the employment-based and hours-based work-related fatality incidence rates by industry in Michigan to national hours-based rates for 2023 as computed by the Bureau of Labor Statistics (BLS). When calculating the fatal injury rates for the United States, BLS excludes workers under the age of 16 years, volunteers, and the resident military.

In 2023, the overall employment-based fatality rate of 3.6 per 100,000 workers, calculated by the MIFACE program, was higher than the BLS-calculated hours-based fatality incidence rate (3.5/100,000 FTEs) in the United States.

However, caution should be used when comparing hours-based and employment-based fatal work-related injury rates because of the differences in the denominators used. When available, MIFACE used Michigan-specific hourly rates from Michigan Department of Technology, Management and Budget (DTMB) CES; when unavailable, MIFACE used the BLS Census of Fatal Occupational Injuries (CFOI) State-based hourly rate for Michigan.

Overall, Michigan's CFOI calculated hours-based work-related fatality rate of 3.6 deaths per 100,000 FTEs was higher than the United States national rate of 3.5 deaths per 100,000 FTEs. For the industries for which MIFACE or BLS calculated a Michigan-specific hours-based rate and for which BLS also calculated a nationwide hours-based rate, most Michigan industry groups had a higher hours-based rate than the United States rate for that industry. The Arts, Entertainment & Recreation industry sector, due to the 10 work-related fatalities in that sector, had an hours-based fatality rate of 36.2 deaths/100,000 FTEs, compared to the BLS nationwide hours-based rate of 3.2 deaths/100,000 FTEs. Only two industry groups had a lower hours-based rate than the United States rate for that industry: Manufacturing (1.5 v 2.5) and Wholesale Trade (4.7 vs 5.4). (**Table 7**).



[Case 5](#). A male farmer in his 60s died due to asphyxiation due to smoke inhalation when he was caught under an electric golf cart that had caught fire during repair in a 20- by 40-foot metal pole barn/structure. Photo courtesy of responding police.

Table 7. Traumatic Work-Related Fatalities by Industry Sector, Michigan Incidence Rates Compared to US Incidence Rates, 2023				
Industry Sector (NAICS Code)	Number of Fatalities	2023 MI Employment-based Rate^a	2023 MI Hours-Based Rate^a	2023 US Hours-Based Rate^b
Agriculture, Forestry, Fishing & Hunting (11)	21	23.5	36.2 ^c	20.3
Utilities (22)	3	14.7	**	3.3
Construction (23)	40	21.2	21.3	9.6
Manufacturing (31-33)	9	1.5	1.5	2.5
Wholesale Trade (42)	8	4.6	4.7	5.4
Retail Trade (44-45)	11	2.4	3.3	2.1
Transportation & Warehousing (48-49)	16	9.1	**	12.9
Information (51)	2	3.5	3.8	1.1
Finance & Insurance (52)	1	0.6	0.7	0.3
Real Estate & Rental & Leasing (53)	3	5.2	**	3.1
Professional, Scientific, & Technical Services (54)	2	0.6	0.7	0.5
Administrative & Support & Waste Management & Remediation Services (56)	17	6.3	**	7.9
Educational Services (61)	3	0.8	**	1.0
Health Care & Social Assistance (62)	8	1.3	1.6	0.7
Arts, Entertainment, & Recreation (71)	10	18.4	36.2	3.2
Accommodation & Food Services (72)	6	1.6	2.9	2.0
Other Services (except Public Administration) (81)	9	6.7	4.0 ^c	3.1
Public Administration (92)	3	1.2	**	**
Total	172	3.6	3.6^c	3.5

^a From Table 6, unless otherwise noted

^b From U.S. BLS CFOI, [National hours-based fatal injury rates](#) by industry, occupation, and selected demographic characteristics, 2023.

^c Michigan Hours-based rate taken from [BLS state CFOI data](#)

** No rate available from either MIFACE or CFOI

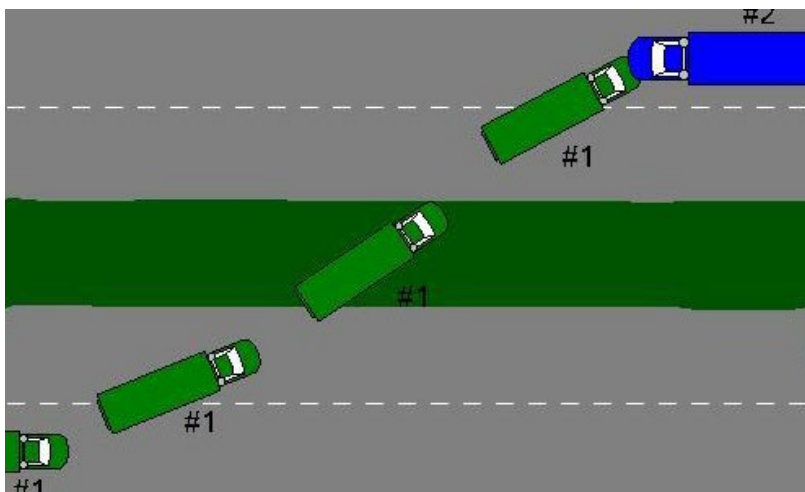
Means of Work-Related Death

In 2023, the means of death was known for 172 work-related Michigan deaths. **(Table 8)**. Motor Vehicle crashes and Struck By incidents were the leading means of work-related death (35 deaths each, 20.3%). The next leading means of a work-related death were falls (22 deaths, 12.8%), then homicide and assault (18 deaths, 10.5%), followed by suicide (17 deaths, 9.9%), machines (13 deaths, 7.6%), and drug overdoses (12 deaths, 7.0%).

Motor Vehicles

There were 30 separate motor vehicle crashes which killed 35 individuals. Motor vehicle crashes were *the*, or one of the leading means of death in 6 of 18 industry sectors (33.3%). A motor vehicle crash was *the* leading means of death in Utilities (2 of 3 deaths, 67.7%), Wholesale Trade (5 of 8 deaths, 62.5%), and Transportation & Warehousing (7 of 16 deaths, 43.8%). Other industries where motor vehicle crashes were the second leading means of death include Agriculture, Forestry, Fishing & Hunting (4 of 11 deaths, 36.4%), Construction (11 of 40 deaths, 27.5%) and Administrative & Support & Waste Management & Remediation (3 of 17 deaths, 17.6%).

The type of vehicle involved in the 35 deaths varied: seven vans and six semi-trucks were the vehicles involved in 13 deaths. Three pickup truck crashes were involved in seven deaths. Five SUVs and four small trucks (less than 10,000 pounds), two motorcycles, one bus, one passenger car, one ATV, and one mail truck were the other vehicles involved. Weather may have been a factor in seven (23.3%) of the 30 crash events; it was raining at the time of six crashes, and it was snowing at the time of one crash. Road surface conditions may have been a factor in nine (30.0%) of the 30 crashes; the surface was wet in eight crashes and slushy in one crash. Lap and shoulder belt use was known for 24 of 33 deaths (72.7%); for the two motorcycle deaths, seat belt use was not applicable. Eighteen (75.0%) of the 24 individuals were wearing a lap and shoulder belt at the time of the crash and six (25.0%) were not wearing their lap and shoulder belt.



[Cases 74-75](#). Two semi-truck drivers, Driver 1 in his 30s and Driver 2 in his 40s both died due to multiple injuries in a motor vehicle crash. The crash occurred on a dry, 2-lane divided highway without a barrier with a posted speed limit of 55 mph. At the time of the crash, Driver 1 was eastbound hauling approximately 3,600 gallons of liquefied petroleum gas (propane). Driver 2 was westbound hauling approximately 13,000 gallons of gasoline. Photo courtesy of responding police.

Struck By

Struck by incidents were *the*, or one of the leading means of death in 9 of 18 industry sectors (50.0%). A struck by incident was *the* leading means of death in Administrative & Support & Waste Management & Remediation (7 of 17 deaths, 41.2%) and Other Services (5 of 9 deaths, 55.6%). Other industries where a struck by incident was a leading means of death include Utilities (1 of 3 deaths,

33.3%), Wholesale Trade (2 of 8 deaths, 25.0%), Transportation & Warehousing (3 of 16 deaths, 18.8%), Educational Services (1 of 3 deaths, 33.3%), and Health Care & Social Assistance (2 of 8 deaths, 25.0%).

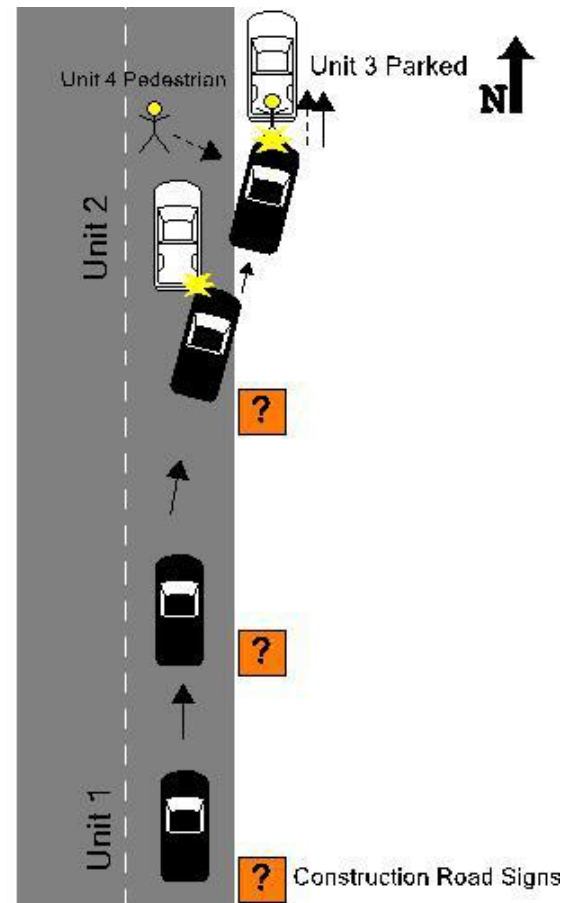
A motor vehicle was involved in 20 (57.1%) of the fatal struck by incidents. Twelve (34.3%) individuals were pedestrians on or near a roadway; two were flaggers on a road construction site. The motoring public was involved in 10 of the 12 fatal incidents of pedestrians working on or near roadways. Five (14.3%) individuals died while working under a vehicle elevated by a jack when the vehicle dislodged from the jack and fell on them. One individual died while attempting to re-enter his moving pickup truck and was run over, one individual was working in a train car when he was struck by a pickup truck being loaded, and one individual died when he was pinned between a work van and a shipping container. Falling trees or tree limbs fatally struck 5 (14.3%) individuals. A shock-loaded rigging line and shock-loaded tow chain were involved in one incident each. Two individuals were killed when the tire exploded while inflating a vehicle tire outside of a tire cage. The following incidents had one death each: crushed by a pre-cast concrete panel being unloaded from the truck, falling rooftop cooling tower during demolition, pipe end cap dislodged during a pressure release, a soybean engulfment, a semi/dump trailer overturn at a landfill, and a falling radiator assembly during the dismantlement of a transformer at an electrical substation.

Falls

Falls were *the*, or one of the leading means of death in 3 of 18 industry sectors (16.7%). Falls were *the* leading means of death in Construction (13 of 40 deaths, 32.5%) and a leading means of death in Arts, Entertainment & Recreation (2 of 10 deaths, 20.0%) and Accommodation & Food Services (2 of 6 deaths, 33.3%). The height of the fatal fall was known for 20 (90.9%) of the 22 deaths. Six (30.0%) individuals died as a result of a fall less than 10 feet; four of these falls occurred when an individual fell to the ground from standing height. Seven (35.0%) individuals died from a 10- to 19-foot fall, five (25.0%) individuals died from a 20- to 29-foot fall, and two (10.0%) individuals died from a 30+ foot fall. The fatal falls in the Construction industry are discussed in [Highlights and Discussion by Select Industries and Means of Death](#).

Homicide/Assault

A homicide was not *the* leading means of death in any industry sector but was one of the leading means of death in 7 of 18 industry sectors (38.9%). A homicide was the second leading means of death

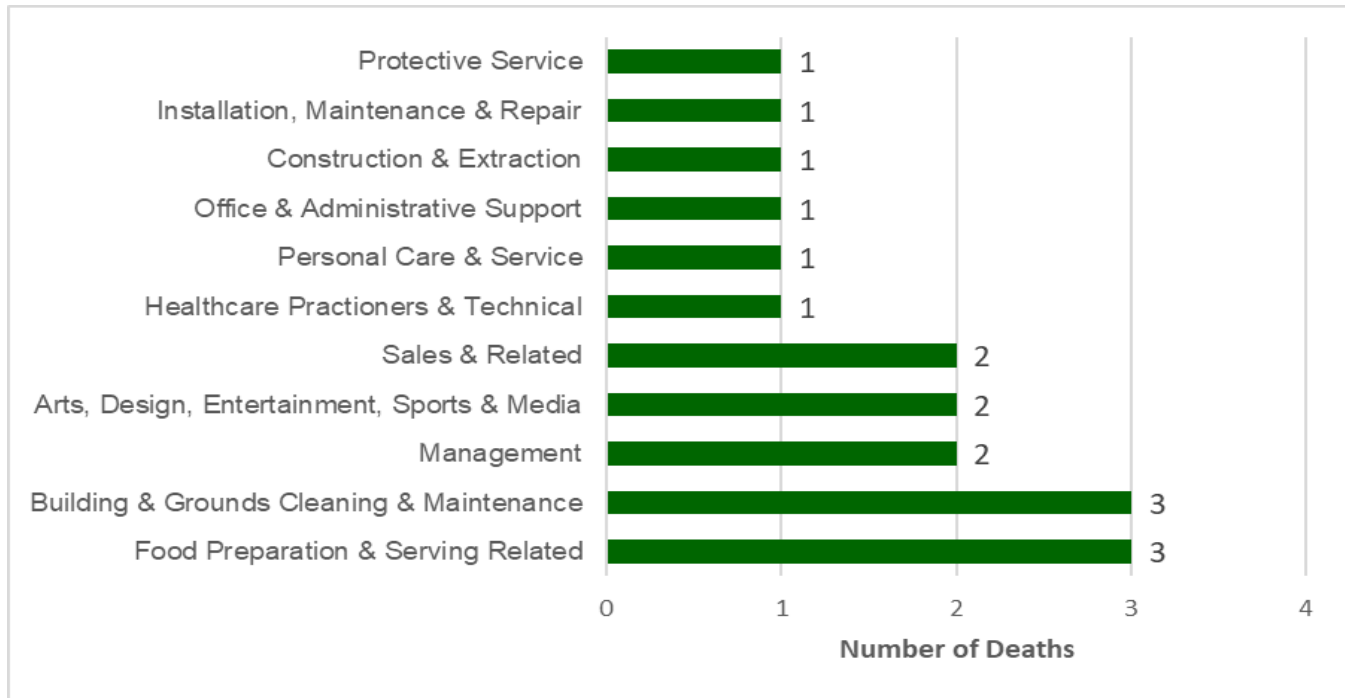


Case 56. A male road commission laborer in his 50s died due to multiple injuries when struck by a vehicle that did not stop while directing traffic at a road construction site. The construction zone was visible for at least one mile. The crash took place at the top of the hill. Photo courtesy of responding police.

in Retail Trade (3 of 11 deaths, 27.3%). A homicide was tied as a top means of death in Accommodation & Food Services (2 of 6 deaths, 33.3%) and Health Care & Social Assistance (2 of 8 deaths, 25.0%). Other industries with fewer deaths also had a homicide tied as a leading means of death; these industries include Real Estate, Rental & Leasing (1 of 3 deaths, 33.3%), Professional, Scientific, & Technical Services (1 of 2 deaths, 50.0%), Educational Services (1 of 3 deaths, 33.3%) and Public Administration (1 of 3 deaths, 33.3%).

Guns were involved in 17 (19.4%) of the 18 homicides; a knife was involved in one homicide. Thirteen (72.2%) of the work-related homicides occurred on two weekdays; Thursdays (6 of 18, 33.3%) and Saturdays (7 of 18, 38.9%). The remainder were evenly distributed throughout the week. The age range of those who died was 18-66 years of age and involved 12 men and 6 women. **Figure 4** shows the occupations that experienced a homicide in 2023.

Figure 4. Number of Homicides by Standard Occupational Classification (SOC), Michigan, 2023.



Suicide

Suicides were *the*, or one of the leading means of death in 5 of 18 industry sectors (27.8%). A suicide was *the* leading means of death in Retail Trade (4 of 11 deaths, 36.4%), Finance & Insurance (1 of 1 death, 100%) and Arts, Entertainment & Recreation (3 of 10 deaths, 30.0%). Other industries in which a suicide was a leading means of death include Information (1 of 2 deaths, 50.0%) and Professional, Scientific, & Technical Services (1 of 2 deaths, 50.0%).

Machines

Machines were *the*, or one of the leading means of death in 3 of 18 industry sectors (16.7%). A machine-related death was *the* leading means of death in Agriculture, Forestry, Fishing & Hunting (8 of 21 deaths, 38.1%) and tied as a leading means of death in Real Estate, Rental & Leasing, (1 of 3

deaths, 33.3%) and Educational Services (1 of 3 deaths, 33.3%). One individual was pinned by a skid steer arm, one individual was pinned between a stationary mold and an extended conveyor, one individual was pinned under a riding mower's roll-over bar, one individual was pinned under an overturned telehandler forklift, and one individual was involved in a motocross race crash. The eight machine-related deaths in Agriculture are discussed in Highlights and Discussion by Select Industries and Means of Death section of this report.

Drug Overdose

A drug overdose occurred in 9 of 18 industry sectors (50.0%). Three industry sectors had two deaths each (Construction, Manufacturing and Transportation/Warehousing). Five industry sectors had one death each (Agriculture, Forestry, Fishing and Hunting, Administrative & Support & Waste Management & Remediation, Health Care & Social Assistance, Accommodation & Food Service, and Other Services). The average age of the 10 men was 48.5 years, and the average age of the two women was 40 years. The women worked in the Retail Trade industry and the Health Care & Social Assistance industry.

Electrocution

A fatal electrocution occurred in 4 of the 18 industry sectors (22.2%). The voltage contacted was known in all of the electrocutions. The individual working in Construction contacted 4,800 volts (removed his insulated gloves while operating the bucket truck near live powerline equipment). The individual working in Real Estate, Rental & Leasing contacted 120 volts (he was standing in water snaking a drain). The individual working in Administrative & Support & Waste Management & Remediation contacted 13,200 volts (aloft in a tree when pole saw contacted the energized line). The individual working in Public Administration contacted 14,000 volts (a falling tree branch snapped an energized overhead line which fell onto him).

Fire/Explosion

There were four Fire/Explosions in three industry sectors; two in Agriculture, Forestry, Fishing & Hunting, one in Construction and one in Other Services. One individual in Agriculture died when he was trapped in his burning barn while working on a golf cart and one individual was burning a brush pile when the fire got out of control. The Construction death involved a high voltage transformer explosion and the Other Services death, a mechanic, was involved a pole barn fire while working on a vehicle.

Toxic Exposure

Two of the four Toxic Exposures identified in Table 8 are asthma deaths that occurred in Manufacturing and were related to contaminant exposure at work; one death resulted from an exposure to welding fumes, and one death was exposure to airborne injection molding contaminants. The remaining two deaths were caused by an overexposure to carbon monoxide.

Other

Three deaths were categorized as Other (tornado-related, complications of a fungal infection, and complications of a bacterial infection).

Animal

A bull was involved in the Agriculture, Forestry, Fishing & Hunting death and a dog was involved in the Arts, Entertainment & Recreation death.

Heat/Cold

One of the two Heat/Cold deaths was an asthma death triggered by exposure to cold temperatures. One death was caused by an overexposure to hot temperatures.

Medical

One death was categorized as Medical (firefighter died within 24 hours after firefighting duties).

Trends over time

Table 9 displays the number of fatalities across leading means of death by year from 2003–2023. There are variations in the means of death each year and because of small numbers in any given means of death, it is difficult to identify any temporal trends.

In 2018, a review of the MIFACE database was performed to standardize the categorization of death by motor vehicle. All motor vehicle entries were reviewed. If the death was a result of the deceased being a driver or passenger in a motor vehicle crash, the death was categorized as a motor vehicle crash. If the death was caused by a motor vehicle striking a pedestrian or a worker on a machine, then the categorization of the death was changed from motor vehicle to struck by.

The highest number of fatal drug overdoses at Michigan workplaces occurred in 2022 with 16 overdose deaths. Overdose deaths increased from 7 cases in 2020 to 14 cases in 2021 to 16 cases in 2022 and then reduced slightly to 12 cases in 2023. The seven years between 2018 to 2023 account for 62.6% of all drug overdoses in the workplace (67 of 107 deaths). The increase from 2018 to 2022 and then the decrease in the number of overdose deaths mirrored national trends during this period of increasing opioid (e.g., fentanyl, heroin, hydrocodone), stimulant (e.g., cocaine, methamphetamine) and alcohol use both at home and at work. The CDC's National Center for Health Statistics indicates that nationally, in 2023, there was a 3% decrease in drug deaths.

Table 8. Traumatic Work-Related Fatalities by Means of Death and Industry Sector, Michigan 2023

Industry Sector (NAICS)	Animal	Drug Overdose	Electrocution	Fall	Fire/Explosion	Heat/Cold	Homicide/Assault	Machine	Medical	Motor Vehicle	Struck by	Suicide	Toxic Exposure	Other	Total
Agriculture, Forestry, Fishing & Hunting (11)	1	1	--	1	2	--	--	8	--	4	3	1	--	--	21
Utilities (21)	--	--	--	--	--	--	--	--	--	2	1	--	--	--	3
Construction (23)	--	2	1	13	1	--	1	1	--	11	9	1	--	--	40
Manufacturing (31-33)	--	2	--	--	--	--	1	1	--	--	1	1	2	1	9
Wholesale Trade (42)	--	--	--	--	--	--	--	--	--	5	2	1	--	--	8
Retail Trade (44-45)	--	1	--	1	--	--	3	--	--	2	--	4	--	--	11
Transportation & Warehousing (48-49)	--	2	--	1	--	1	--	--	--	7	3	1	1	--	16
Information (51)	--	--	--	--	--	--	--	--	--	--	--	1	--	1	2
Finance & Insurance (52)	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1
Real Estate, Rental, & Leasing (53)	--	--	1	--	--	--	1	1	--	--	--	--	--	--	3
Professional, Scientific, & Technical Services (54)	--	--	--	--	--	--	1	--	--	--	--	1	--	--	2
Administrative & Support & Waste Management & Remediation Services (56)	--	1	1	1	--	--	2	--	--	3	7	1	--	1	17
Educational Services (61)	--	--	--	--	--	--	1	1	--	--	1	--	--	--	3
Health Care & Social Assistance (62)	--	1	--	1	--	1	2	--	--	--	2	1	--	--	8
Arts, Entertainment, & Recreation (71)	1	--	--	2	--	--	2	1	--	--	1	3	--	--	10
Accommodation & Food Services (72)	--	1	--	2	--	--	2	--	--	1	--	--	--	--	6
Other Services (except Public Administration) (81)	--	1	--	--	1	--	1	--	--	--	5	--	1	--	9
Public Administration (92)	--	--	1	--	--	--	1	--	1	--	--	--	--	--	3
Total	2	12	4	22	4	2	18	13	1	35	35	17	4	3	172

Table 9. Leading Means of Death by Year, 2003–2023

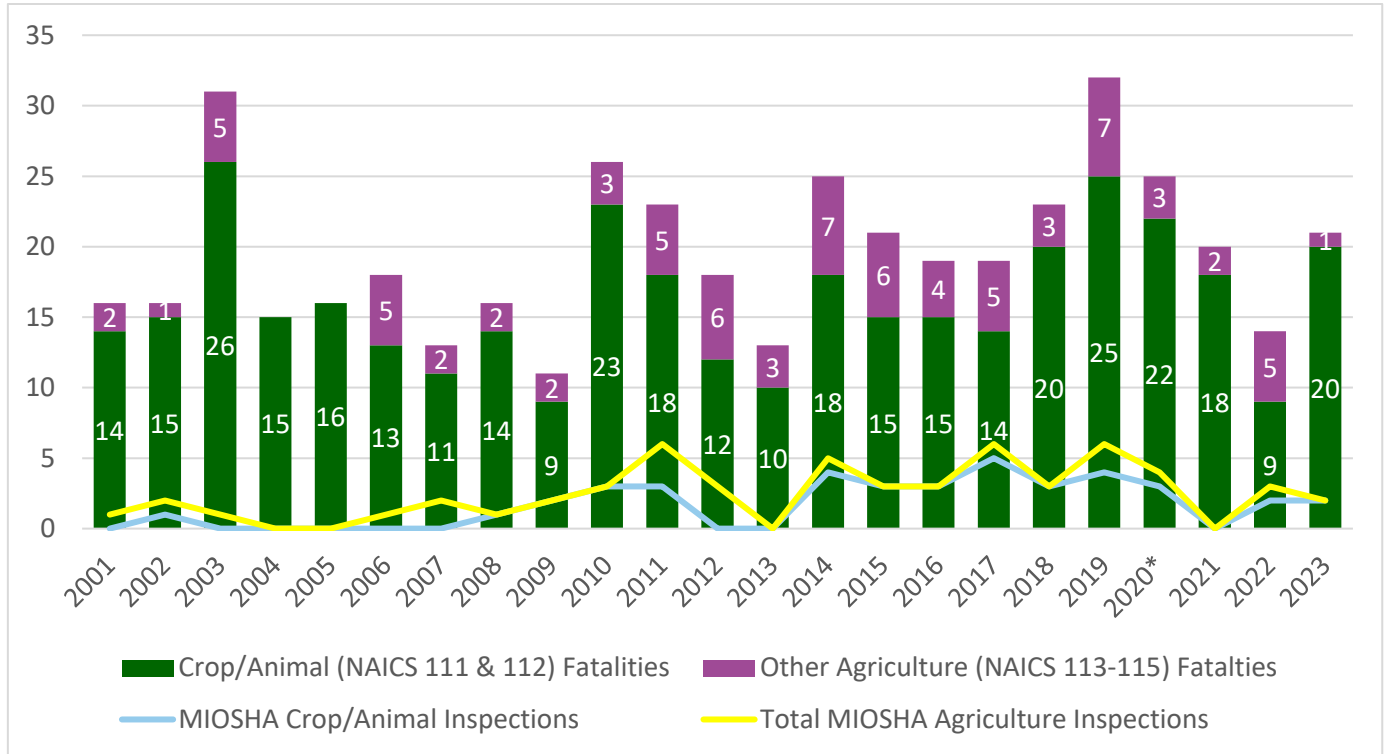
Year	Motor Vehicle	Struck by	Fall	Homicide/ Assault	Machine	Suicide	Drug Overdose	Electrocution	Aircraft	Toxic Exposure	Fire/Explosion	Asphyxiation	Drowning	Animal	Heat/Cold	Other
2003	27	20	19	15	36	5	3	10	2	3	4	4	1	2	1	--
2004	26	16	16	22	26	4	1	7	4	4	3	1	--	1	--	--
2005	23	11	20	16	18	2	3	4	6	2	4	--	1	--	--	--
2006	32	34	24	11	14	8	1	10	8	6	4	1	2	2	--	--
2007	26	19	17	21	16	6	2	4	--	4	1	--	--	2	1	2
2008	22	23	26	14	12	9	2	5	--	2	3	1	1	1	--	--
2009	18	19	14	11	7	12	4	5	2	--	1	1	--	2	--	--
2010	23	20	24	26	16	11	2	7	4	6	3	--	2	--	1	2
2011	22	16	21	15	20	16	1	7	7	4	3	2	1	2	2	1
2012	31	19	18	28	14	12	2	3	--	--	--	--	3	--	--	4
2013	24	27	19	17	10	22	3	2	2	1	3	1	--	--	1	1
2014	26	30	24	19	11	9	4	5	5	--	1	3	3	3	--	--
2015	25	23	18	22	15	12	3	2	3	4	3	2	2	1	--	--
2016	28	19	32	22	19	13	5	5	1	9	2	1	3	1	1	1
2017	28	27	26	25	9	17	4	5	--	--	4	1	6	--	--	--
2018	24	36	21	22	10	15	10	5	3	2	4	4	2	1	--	--
2019	31	21	19	11	19	23	8	5	9	6	4	2	1	3	1	--
2020	21	27	21	11	10	14	7	3	2	--	2	7	2	0	3	1
2021	24	23	21	7	12	8	14	5	4	2	5	8	2	3	--	--
2022	20	24	21	23	7	14	16	--	1	2	2	5	2	1	--	1
2023	35	35	22	18	13	17	12	4	--	4	4	--	--	2	2	3
Total	536	489	443	376	314	249	107	103	63	61	60	44	34	27	13	16

Highlights and Discussion by Select Industries and Means of Death

Agriculture, Forestry, Fishing & Hunting (NAICS 11)

Figure 5 shows the number of fatalities in the Agriculture, Forestry, Fishing & Hunting sector by year for 2002–2022. Work-related deaths in the Crop and Animal raising industries (NAICS 111 and 112, respectively) have been combined and separated from the Other agricultural industries (NAICS 113–115). The figure also shows the number of fatalities which were investigated by MIOSHA by year.

Figure 5. Number of Agriculture Fatalities and MIOSHA Inspections, 2001–2023



*In 2020 MIOSHA conducted 1 inspection related to COVID-19 (no citations issued) on a crop farm. This inspection is not included in the MIOSHA inspection numbers reported in graph.

The federal Appropriations Act exempts small farming operations from federally funded activities. Only State funds can be used by MIOSHA for interventions at farming operations when a farm operation:

- Employs 10 or fewer employees currently and at all times during the preceding 12 months; and
- Has not had an active temporary labor camp during the preceding 12 months.

It is important to note that immediate family members of farm employers are not counted when determining the number of employees. Most agricultural work-related deaths in Michigan have occurred on family farms with fewer than 10 employees and which did not have an active temporary labor camp. Therefore, few MIOSHA work-related fatality inspections on family farm operations have been performed.

The average age of those who died working in Agriculture in 2023 was 59.2 years, with a range of 23 years old to 90 years old. **Table 10** shows the average age at the time of death for the past 23 years for those employed in Agriculture. In only 3 years (2001, 2002, and 2014), the average age was less than 50 years old; in 20 of the 23 previous years (87%), the average age of the individual was in their 50's or 60's.

Table 10. Age at Time of Death, Agriculture, Michigan 2001–2023			
Year	Age (in years)	Year	Age (in years)
2001	47.4	2013	55.8
2002	48.0	2014	46.8
2003	58.1	2015	55.3
2004	59.7	2016	60.4
2005	54.9	2017	52.5
2006	49.9	2018	58.4
2007	54.2	2019	58.5
2008	67.9	2020	62.4
2009	51.5	2021	60.2
2010	53.0	2022	52.1
2011	56.6	2023	59.2
2012	52.2		

Special Considerations Regarding Employment Estimates in Agriculture

Traditional farm operations (Crop and Animal Production) accounted for 20 of the 21 (95.2%) deaths in 2023 while Logging accounted for 1 death (4.8%). Twelve of the 21 (57.1%) known work-related deaths were identified as an owner/operator, while eight (38.1%) were identified as hired labor/worker.

Hired labor includes paid family members, bookkeepers, office workers, maintenance workers, etc., if their work was primarily associated with agricultural production on the operation. Hired labor excludes contract (migrant) laborers. Unpaid workers likely make up a significant portion of the agricultural workforce – the [2022 USDA Census of Agriculture reports](#) 68,950 hired workers and 39,369 unpaid workers. The number of migrant workers was not noted on the 2022 Agricultural Census, only the number of farms utilizing migrant labor. The [2013 Michigan Migrant and Seasonal Farmworker Enumeration Profiles Study](#) estimated 49,135 migrant and seasonal farm laborers in 2013 (a more recent enumeration has not been completed). Seasonal farm labor was described as “an individual whose principal employment is in agriculture on a seasonal basis, who has been so employed within the last twenty-four months”. The Julian Samora Research Institute at Michigan State University’s 2017 Research Report No. 59, “[Farm Workers in Michigan](#)”¹ noted that there are over 49,000 migrant and seasonal farmworker households in Michigan, and over 94,000 people in the Michigan farmworker community when non-working family members are included.

Migrant farm workers were defined as meeting the seasonal farm labor definition but “establishes for the purposes of such employment a temporary abode” (U.S. Code, Public Health Services Act, “Migrant

¹ Lewis, B., Martinez, R., & Coronado, J. (2017). Farm Workers in Michigan. JSRI Report Report No. 59, East Lansing, MI: The Julian Samora Research Institute, Michigan State University.

Health”). Migrant farm workers include both individuals who met the definition of a migrant but only travel within the state of Michigan (intrastate migrants) and others who come from outside the state to work in Michigan (interstate migrants). The 2022 Agricultural Census reports that 10,269 of 45,581 farms (22.5%) in Michigan reported using hired labor, while only 1,208 (2.7%) reported using migrant labor.

If the total number of Agricultural operators (82,548), hired farm labor (68,950), and unpaid workers (39,369) identified in the 2022 Agriculture Census are added to the above 2013 estimate for migrant and seasonal farm laborers (49,135), as well as to the number of employees working in Forestry & Logging (1,877), Fishing, Hunting & Trapping (221), and Agricultural Support Activities (4,573) estimated by the Michigan Department of Technology, Management and Budget (DTMB), Bureau of Labor Market Information and Strategic Initiatives, [QCEW Industry Employment and Wages](#) in 2023, the total number of workers in Agriculture would be 246,673. The increase in the number of workers would dramatically lower the NAICS 11 Agriculture, Forestry, Fishing & Hunting work-related fatality incidence rate from 23.5 deaths per 100,000 workers to 8.5. Both rates are appreciably lower than the 2023 BLS CFOI hours-based rate for Michigan of 36.2 per 100,000 FTEs, which only includes hired employees. If only employment estimates from the Michigan DTMB Industry Employment and Wages report are used, the number of workers in Agriculture totals only 35,829 which would drive the employment-based rate up to 58.6 deaths per 100,000 workers.



Case 11. A male farmer in his 70s died due to multiple blunt and crushing force injuries when he was run over by a backhoe. The incident occurred in a fenced cow pen. Family members arrived at the residence and noticed the backhoe turning in circles within the pen. Photo courtesy of responding police.

The transient nature of crop production complicates the picture of Agricultural employment. A single farm may produce several crops utilizing hired labor to harvest. Workers may come and go (leave the state) to harvest other crops. Given that many of these work stints may be for durations significantly shorter than a year, it is possible that many hired and/or migrant workers will work at multiple farms in a year, each of which may count the worker in their reported number of hired workers, leading to overestimation of total employment in the industry.

Due to uncertainties regarding the true total number of hired, unpaid, and seasonal/migrant workers, and which of these categories may be overlapping or enveloped by others, the employment-based incidence rate of work-related fatalities across Agriculture (23.5/100,000 workers) utilizes only the total number of operators in Crop and Animal Production reported by the 2022 USDA Census of Agriculture combined with employee counts for Forestry & Logging (NAICS 113), Fishing, Hunting & Trapping (NAICS 114), and Agricultural Support Activities (NAICS 115) from the Michigan DTMB. It is

likely that the most accurate employment-based incidence rate lies somewhere between this number and the rate given when all possible counts of hired, unpaid, and migrant labor are combined (8.5/100,000 workers).

Machine-related Deaths in Agriculture

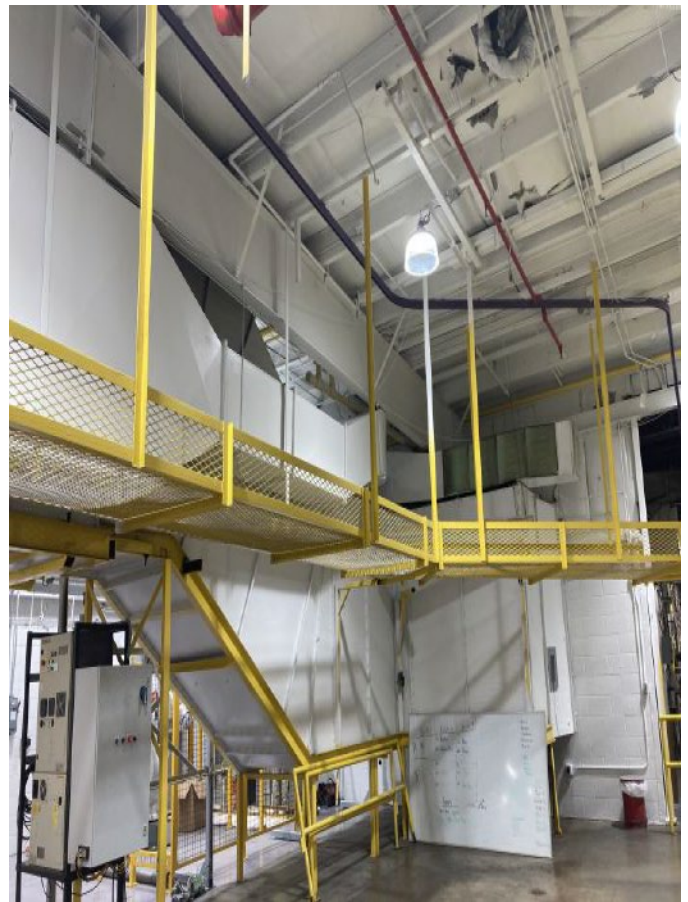
Machine-related deaths were the leading means of death in Agriculture (8 of 21 deaths, 38.1%). Four of the eight deaths involved the individual being run over by their tractor. Two individuals were run over by their backhoe. One individual was pinned under an overturned riding lawnmower with the roll bar across his neck. One individual was entangled in a hay baler.

Construction (NAICS 23)

The number of deaths in the Construction industry sector increased by 12 compared to the prior year (28 deaths in 2022 compared to 40 deaths in 2023). Deaths in two subsectors increased from 2022 to 2023, respectively: Heavy and Civil Engineering subsector (NAICS 237) from 2 deaths to 9 deaths and Specialty Trade Contractors subsector (NAICS 238) from 17 to 25 deaths. Construction of Buildings subsector (NAICS 236) had a decrease from 9 deaths in 2022 to 6 deaths in 2023.

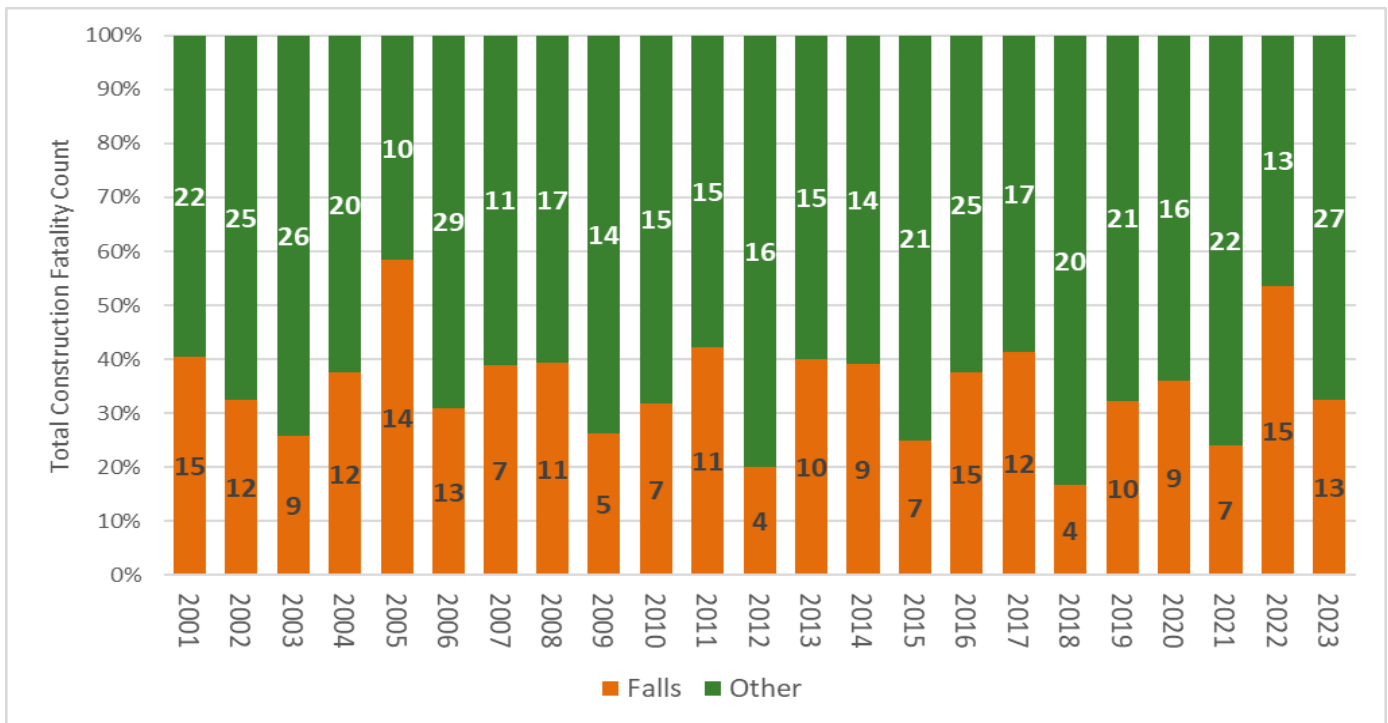
The number of fatal falls in Construction decreased (13 in 2023 compared to 15 in 2022) but were still *the* primary means of death in the Construction sector (13 of 40 deaths, 37.5%) in 2023, followed by motor vehicle crashes (11 deaths). Twelve of the 13 falls occurred in the Specialty Trade Contractor's subsector (NAICS 238), including six roofers, three construction laborers, two sheet metal workers, and one painter. **Figure 6** shows the number of fatal falls in the Construction sector by year and the percentage of construction work-related deaths the fatal falls represent. Five fatal falls each occurred when the individual fell from a ladder/scaffold and a roof edge. Two falls were through skylights, and one fall was from structural steel.

Between 2001 and 2023, the number of fatal falls in the Construction industry sector ranged from a low of four falls in 2012 and 2018 to a high of 15 falls in 2001, 2016, and 2022. During the 23 years, falls were the leading means of death for 18 years and the secondary means of death for four years, with a low of 16.7% in 2018 (secondary means of death) to a high of 58.3% in 2005 (leading means of death). Falls were tied with Struck By as the leading means of death (7 falls each, 24.1%) in 2021.



Case 29. A male laborer/painter in his 30s died due to multiple blunt force injuries and complications due to a fall. The decedent was a member of a 2-person crew hired to perform painting at a facility. The decedent's coworker, who was painting in another area of the room, indicated that the decedent was standing on the catwalk to paint the rail. Photo courtesy of responding police.

Figure 6. Fatal Falls as Percent of Total Construction Deaths by Year, 2001–2023



In the years where falls were not the leading means of death, struck by incidents were the leading means of death in 2003, 2009, and 2018. Motor vehicle crashes were the leading means of death in 2012.

Motor vehicle crashes were a significant source of fatal injury in Construction in 2023; eight crashes claimed the lives of 11 individuals. Two crashes resulting in five deaths occurred in the Heavy and Civil Engineering subsector (NAICS 237), four crashes in the Specialty Trade Contractors subsector (NAICS 238), and two crashes in the Construction of Buildings subsector (NAICS 236).

The month of the fatal injury was known in 39 of the 40 Construction deaths. Work occurring in May, the summer months of June, July and August, and the September accounted for 26 (65.0%) of the deaths. The time of the incident was known in 33 of the 40 deaths. Fifteen occurred between 8:00am and noon, 14 fatal injuries were between noon and 4:00pm, and there were four fatal injuries that occurred after 4:00pm.

Retail Trade (NAICS 44-45)

During the period 2001 to 2023, homicides and assaults were the leading means of death in the Retail Trade industry sector (NAICS 44-45) accounting for 46.1% (105 deaths) of all 228 fatalities. Furthermore, with the exception of 2023, each year during this time-period, homicides were the leading means of death within Retail Trade. The Retail Trade industry accounts for 24.9% of all 422 homicides from 2001 to 2023, the largest proportion of all industry sectors, followed by Accommodation and Food Services (56 deaths, 13.3%). Within Retail Trade, the next three most common means of death during the 23-year period were suicides (35 deaths, 15.4%), motor vehicle crashes (34 deaths, 14.9%), and falls (27 deaths, 11.8%).

Transportation & Warehousing (NAICS 48-49)

Motor vehicle crashes were the most common means of death in the Transportation & Warehousing industry sector in 2023 (7 of 16 deaths, 43.8%). In 2023, the Truck Transportation subsector (484) had four fatal crashes (2 in General Freight and 2 in Specialized Freight). The Transit and Ground Passenger transportation (485) had two fatal crashes, and the Warehousing sector (Postal Service subsector, 491) had one fatal crash. Motor vehicle crashes as the most common means of death reflect overall trends for 2001–2023 for the Transportation & Warehousing industry sector (149 of 377 deaths, 39.5%). Struck by incidents were the next highest means of death (61 deaths, 16.2%). In the 22-year period homicides were the third most common means of death with 32 (8.5%), followed by falls (31 deaths, (8.2%)) and aircraft crashes (28 deaths, (7.4%)). Furthermore, this industry accounts for a nearly a quarter (24.5%) of all 593 motor vehicle crash deaths from 2001–2023, the largest percentage of all industry sectors, followed by Construction which had 82 deaths (13.8%) (**Table 11**).

Table 11. Number of Motor Vehicle Crash Work-Related Deaths by Industry Sector, Michigan 2001–2023	
<i>Industry (NAICS Code)</i>	<i>Number MV-related deaths (%)</i>
Agriculture, Forestry, Fishing & Hunting (11)	40 (6.7)
Mining (21)	3 (0.5)
Utilities (22)	5 (0.8)
Construction (23)	82 (13.8)
Manufacturing (31-33)	27 (4.5)
Wholesale Trade (42)	41 (6.9)
Retail Trade (44-45)	34 (5.9)
Transportation & Warehousing (48-49)	149 (24.5)
Information (51)	19 (3.2)
Finance & Insurance (52)	6 (1.0)
Real Estate, Rental, & Leasing (53)	1 (0.2)
Professional, Scientific & Technical Services (54)	17 (2.9)
Administrative & Support & Waste Management & Remediation Services (56)	41 (6.9)
Education Services (61)	12 (2.0)
Health Care & Social Assistance (62)	22 (3.7)
Arts, Entertainment, & Recreation (71)	17 (2.9)
Accommodation & Food Service (72)	10 (1.7)
Other Services (except Public Administration) (81)	24 (4.0)
Public Administration (92)	43 (7.3)
Total	593 (100)

Comparisons to MIOSHA and CFOI Fatalities

MIOSHA Fatality Investigations

In 2023, MIOSHA personnel conducted a work-related fatality program-related compliance investigation for 36 (20.9%) of the 172 deaths. A fatality was recorded as a MIOSHA “Program-Related” fatality if the deceased party was employed in an occupation included under MIOSHA jurisdiction as defined in Public Act 154 of 1974, as amended, and the fatality appeared to be related to one or more of the following conditions:

- The incident was found to have resulted from violations of MIOSHA safety and health standards or the “general duty” clause.
- The incident was considered the result of a failure to follow a good safety and health practice that would be the subject of a safety and health recommendation.
- The information describing the incident is insufficient to make a clear distinction between a "Program-Related" and "non-Program-Related" incident, but the type and nature of the injury indicated that there was a high probability that the injury was the result of a failure to adhere to one or more MIOSHA standards, the “general duty” clause, or good safety and health practice.

Table 12 shows the number of work-related fatalities in Michigan in 2023 by industry sector and the number of MIOSHA work-related fatality compliance inspections for each industry sector. MIOSHA issued a violation citation to the firm at the conclusion of the fatality investigation in 24 of the 36 (66.7%) investigations. Citation penalties assessed at the conclusion of the compliance inspection (not the penalties decided after appeal) ranged from \$800 to \$42,000.

Number of 2023 Deaths Compared to Michigan CFOI

The Census of Fatal Occupational Injuries (CFOI) is the surveillance system funded in most states by the US Department of Labor, Bureau of Labor Statistics. [The Michigan CFOI](#) program reported 166 work-related deaths in 2023. MIFACE reported 172 work-related deaths. The six deaths not included in the CFOI count involved five work-related exposures leading to a fatal medical condition (three fatal asthma attacks, one death due to a fungal infection, and one death due to exposure to bacteria) and one death of a tow truck driver hauling vehicles on the truck who was struck by a vehicle while performing a non-work-related task.

Table 12. Work-Related Fatalities and Number of MIOSHA Work-Related Fatality Compliance Inspections, Michigan 2023

Industry (NAICS Code)	Number of Work-Related Fatalities	Number of Work-Related Fatality MIOSHA Compliance Inspections (%)	Number of Companies Issued a Citation (%)	MIOSHA Penalty Assessed (\$)
Agriculture, Forestry, Fishing & Hunting (11)	21	2 (9.5)	2 (100)	7,000; 14,000
Utilities (22)	3	1 (33.3)	1 (100)	7,000
Construction (23)	40	12 (30.0)	6 (50)	14,000-42,000
Manufacturing (31-33)	9	3 (33.3)	3 (100)	7,000-35,000
Wholesale Trade (42)	8	1 (12.5)	1 (100)	33,000
Retail Trade (44-45)	11	0	0	**
Transportation & Warehousing (48-49)	16	3 (18.8)	2 (66.7)	5,000; 17,500
Information (51)	2	0	0	**
Finance & Insurance (52)	1	0	0	**
Real Estate & Rental & Leasing (53)	3	2 (66.7)	2 (100)	12,000; 21,000
Professional, Scientific, & Technical Services (54)	2	0	0	**
Administrative & Support & Waste Management & Remediation Services (56)	17	8 (35.3)	4 (50)	800-19,000
Educational Services (61)	3	1 (33.3)	1 (100)	7,000
Health Care & Social Assistance (62)	8	1 (12.5)	1 (100)	5,000
Arts, Entertainment, & Recreation (71)	10	0	0	**
Accommodation & Food Services (72)	6	0	0	**
Other Services (ex. Public Administration) (81)	9	1 (11.1)	1 (100)	21,000
Public Administration (92)	3	1 (33.3)	0	**
Total	172	36 (20.9)	24	385,300

Sensitivity of “Injury at Work” Box on Death Certificate

The “injury at work” box (Box 41d) on the death certificate is completed by the Medical Examiner when the manner of death (Box 39) on the death certificate indicated accident, suicide, homicide, indeterminate or pending. The Medical Examiner may select “Yes”, “No”, or “Unknown” for the “injury at work” box. “Yes” signifies that the fatal injury occurred at work, “No” signifies it did not occur at work, and “Unknown” signifies that the Medical Examiner did not know if the injury occurred at work. As described in the Methods Section, MIFACE determined a death to be work-related by compiling multiple source documents, including the following: Workers’ Compensation forms; Police/Fire/EMT Department reports; MIOSHA 24-hour fatality log; hospital records; newspaper reports; family interviews; and Federal agencies (OSHA, NTSB, MSHA, etc.). When the Injury at Work box contains Unknown, MIFACE counts this as an incorrect code and the case is placed in the “DC Not Coded At Work” column in Table 13.

The medical examiner coded six deaths as Natural in the Manner of Death box on the death certificate. These individuals sustained an exposure at work which caused their deaths: three individuals died due to an asthma attack, one firefighter died within 24 hours of performing firefighting duties, one individual died due to fungal infection complications, and one individual died due to complications of a bacterial infection. When coded as Natural, the medical examiner does not complete the Injury at Work box (the box is left blank).

Table 13. Sensitivity of Death Certificate “Injury at Work” Box Predicting Fatal Injury at Work, Michigan 2001-2023

Year	Number Deaths	DC Coded as at work (%)	DC not coded at work (%)
2001	174	133 (79.6)	34 (20.4)
2002	151	126 (86.9)	19 (13.1)
2003	152	110 (74.3)	38 (25.7)
2004	131	93 (74.4)	32 (25.6)
2005	110	88 (83.0)	18 (17.0)
2006	157	122 (79.2)	32 (20.8)
2007	121	99 (85.3)	17 (14.7)
2008	121	100 (84.0)	19 (16.0)
2009	96	72 (75.8)	23 (24.2)
2010	147	102 (70.3)	43 (29.7)
2011	141	95 (69.3)	42 (30.7)
2012	135	74 (55.2)	60 (44.8)
2013	134	82 (62.6)	49 (37.4)
2014	143	89 (62.7)	53 (37.3)
2015	136	89 (67.9)	42 (32.1)
2016	158	99 (62.7)	59 (37.3)
2017	153	85 (55.5)	68 (44.4)
2018	152	91 (59.9)	61 (40.1)
2019	163	99 (60.4)	64 (39.3)
2020	131	82 (62.6)	49 (37.4)
2021	140	89 (63.6)	51 (36.4)
2022	140	106 (75.7%)	34 (24.3)
2023	172	102 (59.3)	70 ^{ac} (40.7)

^a Death certificates could not be obtained for two individuals

^b Death certificate indicated Pending. Completed death certificate could not be obtained.

Table 13 shows that from 2001–2023, 13.1% to 44.8% of the work-related deaths would have been missed if MIFACE had solely relied on the “Injury at Work” box being completed with “Yes”.

Table 14 shows that in 2023, the “Injury at Work” box on the death certificate was misidentified at the highest rate in the designation of an injury at work in for those in the Finance & Insurance industry (100% of deaths misidentified; 1 death), however both the Agriculture, Forestry, Fishing & Hunting and the Construction industries had the highest number of misidentified work-related deaths (12 each). The Agriculture, Forestry, Fishing & Hunting industry had the higher of the two percentages of

misidentified deaths (57.1%) compared to Construction (30%). Eighty percent (80.0%) of misidentified deaths occurred in the Arts, Entertainment and Recreation industry (8 of 10 deaths) followed by Other Services (7 of 9 deaths, 77.8%). There were zero misidentified deaths in Utilities and Information.

Table 14. Industry and Number of Deaths and Number and Percent of Misidentified Deaths*, Michigan 2023		
Industry (NAICS Code)	Number of Deaths	Number of Misidentified Deaths (%)
Agriculture, Forestry, Fishing & Hunting (11)	21	12 ^{ab} (57.1)
Utilities	3	0
Construction (23)	40	12 ^{cd} (30.0)
Manufacturing (31-33)	9	6 ^{be} (66.7)
Wholesale Trade (42)	8	5 ^a (62.5)
Retail Trade (44-45)	11	5 (45.5)
Transportation & Warehousing (48-49)	16	3 ^b (18.8)
Information (51)	2	0
Finance & Insurance (52)	1	1 (100)
Real Estate & Rental & Leasing (53)	3	1 (33.3)
Professional, Scientific, & Technical Services (54)	2	1 (50.0)
Administrative & Support & Waste Management & Remediation Services (56)	17	3 ^f (17.6)
Educational Services (61)	3	1 (33.3)
Health Care & Social Assistance (62)	8	3 ^f (37.5)
Arts, Entertainment & Recreation (71)	10	8 (80.0)
Accommodation & Food Service (72)	6	1 (16.7)
Other Services (ex. Public Administration) (81)	9	7 (77.8)
Public Administration (92)	3	1 ^f (33.3)
Total	172	70 (40.7)

^a Death certificate could not be obtained for one individual

^b Injury at Work box on the death certificate was marked "Unknown" for one individual.

^c Injury at Work box on the death certificate was marked Unknown for four individuals

^d Death certificate marked as Pending. A completed death certificate could not be obtained.

^e Injury at Work box on the death certificate was left blank for three individuals

^f Injury at Work box was left blank for one individual

MIFACE Activities

Importance of Using Multiple Data Sources

MIFACE used multiple data sources to ascertain if a fatal injury was work-related. Reliance on just the information in the "Injury at Work" box on the individual's death certificate would have missed 70 (40.7%) of the 172 work-related deaths in 2023, particularly with means of death from medical examiner determinations of motor vehicle crashes, homicides, struck-by incidents, and work-related/located suicides, as well as where the manner of death listed of the death certificate was natural. That MIFACE can capture these work-related fatalities that would otherwise be missed when

relying solely on the “Injury at Work” box supports the utility, and need, for surveillance programs that bring together fatality information from multiple sources.

Prevention Material Dissemination

On the MSU OEM website (<http://www.oem.msu.edu/>) are copies of the completed MIFACE Investigation Reports, Hazard Alerts, and MIFACE Summaries of MIOSHA Investigations (work-related fatality compliance inspection) conducted by MIOSHA personnel.

MIFACE Investigation Reports, MIFACE Summaries of MIOSHA Investigations, Hazard Alerts, and the annual MIFACE Data Fact sheet were posted on the MSU OEM website and distributed to stakeholders. MIFACE Summaries of MIOSHA Investigations included a summary of the work-related fatality and the citations issued to the employer by MIOSHA compliance personnel at the conclusion of the fatality investigation. Hazard Alerts are 1- to 3-page documents that review work-related fatalities and provide prevention recommendations that target specific industrial sectors or repeated work-related fatality incidents. The MIFACE Data Fact Sheet summarizes information received regarding the state’s work-related deaths and was updated periodically when new information was received. The most current MIFACE Data Fact Sheet can be found [here](#).

For each MIFACE Investigation Report, MIFACE Summary of a MIOSHA Investigation, and Hazard Alert there was a dissemination plan to maximize awareness of the Report and Alert. Investigation Reports and Hazard Alerts were sent via email to appropriate trade associations, unions, trade journals, employers who did the same type of work, and to employers who have expressed interest in receiving the reports.

MIFACE presentations are regularly given to trade groups ranging from health and safety professionals in construction, agriculture, and general industry.

Case Narratives

Based on the information collected during MIFACE investigations and/or from source documents, a brief narrative summary organized by industry of each of the 172 acute traumatic work-related deaths in 2023 is included in [Appendix I](#).

Table 15 provides the narrative case number and cause of death by NAICS code found in the Appendix. Each combination of industry and cause of death is hyperlinked to the beginning of the corresponding narratives. Additionally, each cause of death label is hyperlinked to its corresponding heading in the Appendix.

When the brand name of equipment was known, MIFACE included this information in the narrative. Unless noted, the inclusion of the brand does not signify that there was a defect or other problem with the equipment. Where available, the case narrative is hyperlinked to its MIFACE Summary of MIOSHA Investigation (MIFACE Summary) on the MSU OEM/MIFACE webpage. If a MIFACE Investigation Report was written, the MIFACE Investigation number is hyperlinked to its corresponding report on the MSU OEM/MIFACE website.

Table 15. Narratives for 2023 Work-Related Fatalities

Industry Sector (NAICS)	Animal	Drug Overdose	Electrocution	Fall	Fire/ Explosion	Heat/Cold	Homicide/ Assault	Machine	Medical	Motor Vehicle	Struck-By	Suicide	Toxic Exposure	Other
Agriculture (11)	1	2		3	4-5			6-13		14-17	18-20	21		
Utilities (22)										22-23	24			
Construction (23)		25-26	27	28-40	41		42	43		44-54	55-63	64		
Manufacturing (31-33)		65-66					67	68			69	70	71-72	73
Wholesale Trade (42)										74-78	79-80	81		
Retail Trade (44-45)		82		83			84-86			87-88		89-92		
Transportation & Warehousing (48-49)		93-94		95		96				97-103	104-106	107	108	
Information (51)												109		110
Finance & Insurance (52)												11		
Real Estate, Rental, & Leasing (53)			112				113	114						
Professional, Scientific, & Technical Services (54)							115					116		
Administrative & Support & Waste Management & Remediation Services (56)		117	118	119			120-121			122-124	125-131	132		133
Educational Services (61)							134	135			136			
Health Care & Social Assistance (62)		137		138		139	140-141				142-143	144		
Arts, Entertainment, & Recreation (71)	145			146-147			148-149	150			151	152-154		
Accommodation & Food Services (72)		155		156-157			158-159			160				
Other Services (81)		161			162		163				164-168		169	
Public Administration (92)			170				171		172					

Conclusion

Traumatic occupational fatalities are an important public health issue in Michigan and throughout the United States. These deaths are not random events, and information about the settings and circumstances in which work-related deaths occur is necessary to prevent their occurrence in the future. There was an increase in the number of deaths from 2022. The numbers and rates of these acute traumatic fatalities have fluctuated from year to year, and there has not been a clear downward trend over multiple years. Michigan's significant increase in the number of work-related deaths in 2023 is contrary to national trends. The increase of 32 deaths in 2023 includes eight deaths (25.0%) where the injury causing the death occurred prior to 2023. The increase was most likely also secondary to resumed work activity from the stay-at-home work order and increased commuting related to the COVID-19 pandemic in 2020. The MIFACE program will continue to monitor work-related deaths as it appears there may be a return to pre-pandemic levels. However, further efforts are needed to have a meaningful reduction in the occurrence of these tragedies.

The lack of a consistent and lasting decrease in the number and incidence rate of work-related fatalities, both nationally and in Michigan, is likely a result of many factors and continued investigation of the causal factors of work-related fatalities is necessary to understand and effect a meaningful reduction in these deaths. Understanding the root cause(s) of these tragic events and sharing this information with stakeholders, from individuals to groups, employees to employers, makes these information-gathering efforts worthwhile. If what we learn from any of these deaths can help prevent further tragedies, then the surveillance program has been successful in its goal. An awareness of the hazards of one's job and an attitude of safety-mindfulness on the part of labor and management is critical to prevent future fatal events.

Some important points highlighted by the deaths:

- The workforce aged 65 and older continues to grow as individuals put off retirement and part-time workers enter the workforce due to economic or other reasons. In 2023, this age group had the highest rate of death (8.8/100,000 workers) of all age groups. Older workers have unique health and safety challenges, including resistance to changing long standing work practices that may not be safe, medical issues, or strength issues, all likely contributing to the higher work-related fatality rate in this age group. Federal [OSHA](#) and [NIOSH](#), among other agencies, have developed resources which can help employers address the challenges faced by older workers and provide a safe working environment for this population group.
- Fatalities from falls remain a major concern, particularly in construction. Information for both employers and employees is plentiful, including MIOSHA's [Fall Prevention resource page](#) and OSHA's National Construction Fall Prevention Campaign [page](#). The campaign's goal is to prevent fatal falls from roofs, ladders, and scaffolds by encouraging construction contractors to:
 - ✓ PLAN ahead to get the job done safely.
 - ✓ PROVIDE the right equipment.
 - ✓ TRAIN everyone to use the equipment safely.

The MIOSHA Fall Prevention Resource page has resources on fall prevention, including fact sheets, toolbox talks, relevant MIOSHA rules and regulations for construction and general

industry, free On-Demand Streaming Video training as well as DVD training, including many available in Spanish.

- Homicides in the Retail Trade and Accommodations and Food Services sectors and workplace violence in the Health Care sector have been recognized as important workplace risks. [OSHA](#), [NIOSH](#), [The Joint Commission](#), and [American Hospital Association](#) have developed extensive resources for employers and employees to use to address the risks associated with workplace violence, especially within certain workplaces such as [hospitals](#).
- Motor vehicle crashes are a major cause of work-related fatalities. This should not be a surprise in the Transportation and Warehousing industry sector given the nature of work tasks within this industry sector, but it is also true for many industry sectors. The NIOSH About Motor Vehicle Safety at Work [webpage](#) offers resources regarding work-related motor vehicle crash prevention. The NIOSH Center for Motor Vehicle Safety has collaborated with the Network of Employers for Traffic Safety and developed a [guide](#) for fleet safety professionals on fatigue management and reducing the risk of crashes and injuries resulting from fatigued driving. Employers should create and maintain safe driving policies and offer driver safety training (including defensive driving) as part of their safety program and training. MIFACE has created [a hazard alert](#) containing recommendations and resources for employers to develop motor vehicle safety policies and programs.
- Drug abuse/overdose in the workplace is a challenging issue for employers. Solutions are not straightforward. Stakeholders, including the medical, legal, insurance, safety, and regulatory community must collaborate to develop state-specific interventions and resources that Michigan's employers and employees can utilize to address these issues. NIOSH [Opioids in the Workplace](#) webpage offers resources related to opioid use. Resources to address prescription drug use and misuse in the workplace can be obtained from the [Substance Abuse and Mental Health Services Association](#) and [National Safety Council](#). NIOSH and the Mine Safety Health Administration collaborated on a resource for mining employers but could be useful for other employers as well. The guide, [Implementing Effective Workplace Solutions to Prevent Opioid Use Disorder: A Resource Guide for the Mining Industry](#).
- Suicides are the fifth leading cause of death in Michigan since 2003. The NIOSH webpage [Critical Steps Your Workplace Can Take Today to Prevent Suicide](#) includes recent resources such as the U.S. Surgeon General 2022 release: A [Framework for Workplace Mental Health and Well-being](#). The CDC release of the [Suicide Prevention Resource for Action](#) which details the strategies with the best available evidence to reduce suicide, and the [Workplace Suicide Prevention and Postvention Committee](#) white paper, [Mental Health Promotion and Suicide Prevention in the Workplace](#). MIOSHA also has a [Mental Health in the Workplace](#) Fact Sheet which offers resources and strategies for employers to implement to foster a supportive workplace environment.
- Employers should evaluate and plan for a distracted motoring public to minimize the risk of a vehicle striking a worker in a work zone. The motoring public is a contributing cause in 10 work-related fatalities. Individuals working on or near roadways face a risk they cannot control. MIFACE recommends employers consult [Best Practices for Mitigating, Controlling](#)

[and Minimizing the Effects of Work Zone Intrusions](#) developed by the members of the OSHA Roadway Work Zone Alliance members. The Guide offers employers a template to improve work zone safety for their employees. The Guide states: “While intrusions may be due to driver recklessness, inattention, distraction, or impairment, they may also result from improper temporary traffic control. Controls should not rely on the motorists’ assessment of the situation and may need to go beyond the plans and specifications outlined in the Manual on Uniform Traffic Control Devices (MUTCD). This guidance document provides a set of coordinated transportation management strategies and describes how they might be used to manage the work zone during roadway construction projects. Transportation management strategies for a work zone include temporary traffic control measures and devices, safe work practices, training, planning and coordination, and worker protection.”

Each of the 172 deaths in this report could have been prevented, whether through installation of engineering controls, development and implementation of health and safety plans, changes to work practices, creating a work environment to encourage workers to seek and receive mental health counseling to better cope with both work and personal stressors, provide employee assistance programs (EAPs). The descriptions of the acute traumatic work-related deaths in Appendix I highlight these tragedies and the need to act to prevent them.

Acknowledgements

We are extremely appreciative of the support of the Michigan OSHA Safety and Health personnel, the employers, the families, and the experts who have worked with us to improve work conditions in Michigan.

We are also appreciative of our Advisory Board who provided constructive comments on each MIFACE Report and assisted us by providing thoughts on developing MIFACE policies and educational outreach activities, and their promotion of the MIFACE program to their employees and constituents.

MIFACE is a research effort and relies on the voluntary cooperation of employers and for the self-employed, and their family members. We have received funds from the National Institute for Occupational Safety and Health to continue this program through 2026 and look forward to identifying ways to prevent work-related traumatic deaths and sharing what we have learned with those who may benefit from this knowledge.

APPENDIX I - Narratives

Agriculture, Forestry, Fishing and Hunting (21)

Animal

1. A male cattle farmer in his 40s died due to blunt force injuries and puncture wounds when he was repeatedly gored by a 1 ½-year old intact bull with earlier aggressive tendencies. His spouse told responding police that the decedent went out to the field to tend to the farm animals and put the bulls in for the night. There were two bulls outside of their normal pasture (enclosed in an electric fence). She ran some errands and upon her return approximately two hours later, he was not in the house, so she went to look for him. It appears the decedent successfully brought in one bull; it was tied up near the barn. His spouse found him faced down in the back cow pasture with significant injuries. She called for emergency response. The bull was still in the pasture and was running around and very agitated. Responders could not access the decedent until the bull was killed. He was declared dead at the scene.

Drug Overdose

2. A male farm laborer in his 30s died due to methamphetamine intoxication. He had been performing field harvesting activities. When he came in for lunch, he began vomiting and then collapsed to the ground. Bystanders initiated CPR. EMS transported him to the hospital where he was declared dead on arrival.

Fall

3. A male potato farmer in his 40s died due to multiple blunt force injuries when he fell 10-15 feet from a potato piler to a concrete floor. Harvested potatoes were being delivered by truck to the sorting location outside the barn where the piler was operating. Employees sorted the potatoes onto a conveyor which flowed potatoes to the piler inside the barn. The piler had stopped, causing the potato sorting conveyor to back up and overflow on the ground outside. While sorters picked up the overflow, the decedent went inside the barn to check the piler, out of sight from the sorters. The piler had stopped for several minutes. The sorters went inside the barn and found the decedent unresponsive on the concrete floor. The sequence of events was unknown. It was hypothesized that the decedent climbed to the top of the piler to clear the potato jam and fell to the floor. The jam was not cleared when he was found. Emergency services were called and EMS transported him to the hospital where he died 9 days later. No ladder, platform or other fall protection equipment were in the vicinity of the decedent when he was found.

Fire/Explosion

4. A male cattle farmer in his 70s died due to thermal injuries in a brush fire. The decedent had been burning brush near a wooded area. It appeared to emergency responders that heavy winds sent embers into the woods and the wooded area caught on fire. It is thought that the decedent went into the woods to check on the fire and attempted to put it out. In the process he suffered a broken leg and burns. It seems that he had been crawling for an unknown distance through the woods and was able to get to the edge of the wooded area. A family member saw the fire, called for emergency

response, and found him at the woods edge. He was declared dead at the scene.

5. A male farmer in his 60s died due to asphyxiation due to smoke inhalation when he was caught under an electric golf cart that had caught fire during repair in a 20- by 40-foot metal pole barn/structure. The decedent and a family member used the golf cart to access the back field. The golf cart developed mechanical problems and wouldn't run. They pushed the golf cart to the pole barn and placed it inside. The farmer had notified his family members that he was stuck under the golf cart and there was a fire. It was unclear to the family members if the golf cart or the pole barn was on fire. Family members could not arrive in time to extricate him. A neighbor noticed a large amount of smoke coming down the road, saw it was from the barn, and called 911. When the fire department arrived, the fire had fully engulfed the pole barn and two nearby vehicles. The farmer was declared dead at the scene. Fire investigators found all combustible materials of the golf cart were consumed. There were no discernable fire patterns which would isolate an area of origin. Investigators believed that the origin of the fire was in the area of the golf cart but could not determine the cause of the fire.

Machine

6. A male farmer in his 60s died due to multiple blunt force injuries when he was run over by his 1965–1973 John Deere Loader Backhoe JD300, Serial #003412T with 4,065 hours. The loader/backhoe had run out of fuel, and after adding fuel, the tractor would not start. The decedent's wife saw him bent over, working near the engine compartment before she went into the house. She heard the machine start and accelerate at a high RPM and went back outside. She found him lying in the backyard. She called for emergency response and began CPR. When police arrived, the decedent had a wrench in his hand, and several tools were found in his vicinity. The key was in the ignition. Droplets of blood were observed near the exposed engine filter. EMS transported him to the hospital where he was declared dead.

7. A male farmer in his 60s died due to blunt force trauma when he was pinned under a spinning tractor tire in a pole barn. He was found by a friend lying on the ground on his left side between the left rear tire of a medium sized Massey-Ferguson tractor (model number unknown) and a brush hog. The tractor was in first gear, running, and the tires were spinning upon his friend's arrival. The friend turned the tractor off and called 911. Police arrived and found tractor's front wheels turned to the left and the tractor pinned against items along the side of the barn. The rear tires of the tractor had dug holes into the ground approximately 1/3 of the way up the height of the tire. The brush hog was attached using a 3-point attachment and the power take off was not hooked up or engaged. The decedent's right leg was under the brush hog and his chest touching the left rear tractor tire. His left hand and arm were on the left side of the rear left tractor tire and his right hand grasping an attachment arm of the tractor. The sequence of events leading up to the fatal injury were unknown. He was declared dead at the scene.

8. A male farmer in his 70s died due to medical complications of multiple blunt force injuries; contributing factors included diabetes, high blood pressure, and COVID-19 pneumonia. The decedent told EMS that he had been gathering firewood with his John Deere tractor when he stepped off the tractor and accidentally knocked it into gear, running over his lower legs. The tractor stalled with the tires parked on his lower legs and feet. He was under the tractor tire for approximately 2 hours before his spouse found him. EMS arrived and the fire department lifted the tractor from him. EMS transported him to the hospital where he was treated, released to a rehabilitation facility and then released to his home. Two weeks after being released home, he was readmitted to the hospital with multiple complications where he died approximately 2 months after the injury.

9. A male farm mechanic in his 70s died due to mechanical asphyxia when he was trapped under a Grasshopper 725D diesel Zero Turn commercial lawn mower. The mower had a rollover protection system. The incident was unwitnessed. The decedent, who was not wearing the seatbelt, operated the mower on an approximate 27-degree slope near a retaining wall. The mower rolled off the 3-foot embankment retaining wall, pinning him. He was found by coworkers with the mower's roll bar across his face and neck. Coworkers were able to move the mower from the decedent. He was last seen approximately 1.5 hours prior to the incident. He was declared dead at the scene. Postmortem blood toxicology found a blood alcohol level of 0.028%.

10. A male farmworker in his 20s died due to craniocerebral injuries due to blunt head trauma when he became entangled in a New Idea 4854 round baler. The decedent was hired to bale the hay by the field owner. The decedent used his own family farm owned equipment and worked independently. The field owner arrived at the field and found the tractor stationary, but running on high idle and PTO engaged to the baler. Four bales had been completed prior to the incident. The baler service door was found open. The hay owner turned off the power take off (PTO). Upon further cracking the door to the baler, the farm worker was found entangled in the machine and unresponsive with no pulse. The decedent had apparently been attempting to clear a clog in the baler. EMS arrived and he was declared dead at the scene. MIFACE Investigation Report [23MI119](#).

11. A male farmer in his 70s died due to multiple blunt and crushing force injuries when he was run over by a backhoe. The incident occurred in a fenced cow pen. Family members arrived at the residence and noticed the backhoe turning in circles within the pen. They found the decedent in the pen. Family members surmised that the decedent was attempting to move a molasses bucket; the bucket was in the main runway, and the cows had pushed it under a fence and into the cow pen. Family members called for emergency response. He was declared dead at the scene.

12. A male farmer in his 70s died due to blunt force trauma to his head and chest when he was run over by his International tractor with a John Deer planter in his farm field. It appeared that the decedent was performing repairs on the tractor; responding police found him lying on top of a crushed step stool with numerous miscellaneous tools near him. The decedent previously told a family member that he needed to perform repairs to the hydraulic lines. Investigators determined that the tractor's ignition switch was on, and the tractor was in gear. The decedent was most likely trying to start the machine when he was run over by the tractor's driver's side rear wheel and then run over by the planter. After the tractor crushed the decedent, it continued to travel across a gravel roadway due west into an adjacent field, circle back, cross the gravel roadway again, and head due east back into the field. The tractor/planter ultimately crashed 200 yards to the east of the decedent in a wooded area. EMS responded and he was declared dead at the scene.

13. A female practical nurse/farmer in her 60s died due to complications of an intestinal transplant due to ischemic enteritis due to injuries sustained in a farming accident. Per the death certificate she fell from a tractor and was run over by a farm machine in 1982. She died at home.

Motor Vehicle

14. A male farmer in his 80s died due to multiple injuries when the utility vehicle (UTV) he was driving was involved in a motor vehicle crash. The crash occurred on a dry, not physically divided 2-lane road with a posted speed limit of 55 mph. The decedent was the operator of a Bobcat side-by-side UTV. The UTV had a rear-view mirror and a slow-moving vehicle (SMV) sign on the rear window. The UTV was not equipped with side-view mirrors or turn signals. He was traveling approximately 20 mph when another westbound vehicle (Vehicle 2) approached the UTV. Due to the slow speed, Vehicle 2's driver attempted to pass the UTV while in a passing zone just as the decedent crossed the centerline to make a left turn into a farm driveway. There was no indication

that the decedent signaled that he was making a left turn. Vehicle 2's driver could not stop in time and collided with the UTV on the driver's side. The decedent was ejected from the UTV and came to rest in a ditch. EMS transported him to the hospital where he died 6 days later. The decedent's restraint use was unknown. The UTV was not equipped with airbags.

15. A female farm owner/truck driver in her 50s died due to blunt impact injuries sustained in a motor vehicle crash. The crash occurred on a dark, unlit, dry, not physically divided 2-lane road with a posted speed limit of 55 mph. The decedent was driving a single unit, 2-axle diesel farm fuel tanker truck westbound when she tried to avoid striking a deer in the westbound lane. Skid marks in the roadway proved she swerved sharply into the eastbound lane to avoid striking the deer in the westbound lane. Another deer was in the eastbound lane. The truck struck this deer, and as she tried to correct the vehicle and enter back into the westbound lane, she lost control of the truck. The truck rolled two times in the eastbound lane, skidded in on its side across the roadway and came to rest on the driver's side in the westbound lane's ditch, where it began leaking fuel. She was ejected from the cab and came to rest in the eastbound lane, with the truck's hood lying on top of her. Witnesses driving behind the truck called for emergency response. She was declared dead at the scene. She was not wearing a lap and shoulder belt. The truck was not equipped with airbags.

16. A male farm laborer in his 20s died due to blunt force injuries sustained in a motor vehicle crash. The crash occurred on a wet, divided without a barrier 2-lane roadway with a posted speed limit of 70 mph. It was raining at the time of the crash. The decedent was one of 11 passengers in a 15-passenger van; the driver was transporting the 11 passengers from one state to a blueberry farm in Michigan. The van was one of three vans transporting workers to the blueberry farm. The van driver was driving at a speed too fast for the road conditions. Witness statements indicated the van driver was in the right lane when he began to drift from the right lane towards the left and eventually went off the road. When the van reached the grass, the driver attempted to return to the roadway and eventually did so. When the van returned back to the left lane, the rear end fishtailed and sent the van back into the grass and it rolled into the median. Police determined that the driver did not apply the brakes prior to leaving the roadway. As the van rolled, the decedent was ejected from the vehicle and both the decedent, and the van came to rest in the median. Emergency response was called and he was declared dead at the scene. The driver and other passengers were transported to the hospital and survived their injuries. The decedent's position in the van was unknown. His restraint use was unknown. The van's airbags did not deploy.

17. A male semi-truck driver in his 60s died due to multiple injuries sustained in a motor vehicle crash. The incident occurred on a dark, unlit, dry, 2-lane divided highway without a traffic barrier with a posted speed limit of 70 mph. The decedent was traveling southbound in the right lane when responding police indicated he appeared to have fallen asleep at the wheel. The semi and trailer filled with potatoes drifted off the right-hand side of the roadway, sideswiped a parked vehicle on the shoulder of the road, and then left the roadway. The semi tractor and trailer went into a ditch and then struck trees where it came to rest. When the tractor impacted the trees, the load of approximately 41,000 pounds of potatoes came forward. This pushed the front trailer wall into the back of the semi tractor and the potatoes directly into the cab. He was declared dead at the scene. He was wearing his lap and shoulder belt. The front airbags deployed.

Struck By

18. A male farmer in his 60s died due to blunt force injuries when he was struck by a tree while on his Massey Ferguson tractor. The decedent told his spouse he was going to the woods approximately 400 yards from the home to chop down trees. When his spouse could not reach him, she drove to the woods to look for him. She found the tractor (model number unknown) not running and she

walked over to it. She found the decedent laying on his back at the back of the tractor. She called emergency response and began CPR. He was declared dead at the scene. It appeared that the decedent was struck by a tree that he originally cut down. The tree was caught up in another tree, so he placed a chain around the tree and attached the chain to his tractor. He was attempting to have the chain “shimmy” down the tree and fall flat so he could pull it behind the tractor. It appeared the tree fell forward instead, onto the tractor, striking him in the tractor seat and causing him to be knocked off the tractor seat to the ground behind the tractor. The scene and tire tracks aligned with this scenario.

19. A male farmer in his 40s died due to mechanical asphyxia when he was engulfed in soybeans in a silo. A grain bin became plugged at the center of the hopper. The victim climbed in and was standing on top of the soybeans using a PVC pipe to unplug the beans when he was engulfed. Police interviewed a coworker who was inside of the silo with the decedent, and that they had been there for some time working near the edges of the stored beans. The coworker indicated that the decedent went to the middle of the silo to break up the soybeans. The soybeans “gave way” and the decedent was fully submerged in the soybeans. One of the decedent’s family members was outside of the silo near the auger and called for emergency response. Several farm members as well as fire department personnel attempted to gain access to the side of the silo to drain some of the soybeans; the decedent had been submerged for approximately 10-20 minutes. A tactical team was called and approximately 40 minutes later, the decedent was extricated from the silo. He was declared dead at the scene.

20. A male self-employed logger in his 90s died due to complications of spinal cord trauma with quadriplegia. He was struck by a tree in 2010, severing his spinal cord.

Suicide

21. A male farmer in his 30s died due to a self-inflicted hanging. Family members called police for a welfare check. Police found him in the barn. Emergency response arrived and lifesaving measures were attempted and were unsuccessful. He was declared dead at the scene.

Utilities (3)

Motor Vehicle

22. A male wind turbine technician in his 30s died due to blunt impact injuries due to a motor vehicle crash. The crash occurred within an intersection. Both 2-lane, not physically divided roadways were dry, with white fog lines on both sides of the road, and a double yellow centerline. Both had gravel shoulders. It is unknown if the roads had posted speed limit signs. Both vehicles involved were pickup trucks. Road A ran east and west and had 2 Stop signs at the intersection of the north and south side of the roadway. Road B ran north and south and had the right of way (no Stop signs). The decedent, who was the driver, and his passenger were traveling eastbound at approximately 55 mph in the pickup. He did not stop at the Stop sign and was struck on the driver’s side by the southbound pickup truck, which was traveling approximately 60 mph. There were no pre-crash skid marks from either vehicle involved in the crash. The decedent was wearing his seatbelt/shoulder harness, but his passenger was not and was thrown from truck. The decedent’s truck left the roadway, struck a utility pole, and came to rest on the passenger side on top of his passenger in a farm field. The decedent was declared dead at the scene, and his passenger was transported to the hospital. The southbound pickup came to rest in another field, landing on its wheels.

23. A male electrical inspector in his 60s died due to multiple injuries and complications thereof sustained in a motor vehicle crash. The crash occurred on a dry, not physically divided 2-lane road with a posted speed limit of 55 mph. The decedent's vehicle was traveling southbound. A pickup truck was traveling northbound at approximately 50- to 55-mph. Witnesses traveling southbound indicated that the pickup truck slowly started to veer to the left and crossed the centerline. The decedent moved to his right toward the shoulder but did not move over far enough and the northbound truck struck his vehicle head on. Responding police did not observe any evidence of braking (no skid marks) by the pickup truck. Witnesses called for emergency response. The decedent was trapped in the vehicle and after extrication, transported to the hospital where he died 5 days later from injury complications. The decedent was wearing a lap and shoulder belt. The vehicle's airbags deployed.

Struck By

24. A male electrical maintenance journeyman in his 60s died due to multiple blunt force injuries and complications when he was struck by a 2100-pound radiator assembly during the dismantlement of a transformer at an electrical substation. The decedent was a member of a multi-person crew. Crew members were removing the connecting flange bolts that fastened the radiator to the transformer when a loud noise was heard. The crew witnessed the radiator fall straight down, uncontrolled, to the ground. No secondary support was utilized during the connecting flange bolt removal nor was the radiator secured to the truck crane. His coworkers yelled out to warn anyone who could be in the way of the falling radiator assembly. The decedent was struck by and pinned under the radiator assembly. Coworkers were able to extricate him. EMS arrived and transported him to the hospital where he underwent surgical intervention. He died later that day in the hospital.

Construction (40)

Drug Overdose

25. A male painter/flooring company laborer in his 40s died due to a combined drug toxicity (alprazolam, fentanyl, methamphetamine and morphine) in a bathroom in a wing of a rehabilitation and nursing center undergoing renovation. The flooring company the decedent was working for was contracted to perform the renovation work. At the time of the incident, the decedent was painting the wing undergoing renovation, which was vacant and rarely entered by staff. The facility staff received a phone call from the decedent's girlfriend saying he had not returned home from work the previous day. The building manager began to search for him and found a patient bathroom locked from the inside in the wing undergoing renovation. Unlocking the door, the building manager found the decedent and called for emergency response. He was declared dead at the scene.

26. A male insulation installation laborer in his 40s died due to atherosclerotic cardiovascular disease complicated by methamphetamine toxicity while at a jobsite. The decedent arrived at the jobsite that morning complaining he was not feeling well. He laid down in his running vehicle, the doors open, and air conditioning on while his coworkers worked. At lunchtime, his workers went back to the vehicle and the decedent was unresponsive. They removed him from the vehicle, called for emergency response, and began CPR. EMS arrived, and he was declared dead at the scene.

Electrocution

27. A male utility lineman working for a transmission line construction company in his 30s died due

to an electrocution when he contacted a 4,800-volt high voltage overhead line. The decedent was elevated in a bucket truck. He removed his insulated gloves and was using a drill to remove a screw. He was holding part of newly installed equipment when the ground wire contacted a cutout of the installed equipment. This created a phase to ground circuit, which the worker contacted with his drill and bare right hand. Fellow crewmembers lowered the bucket and began CPR while EMS was enroute. EMS transported him to the hospital where he was declared dead in the emergency room.

Fall

28. A male roofer in his 20s died due to head injuries when he fell 20 feet through a 3-foot by 3-foot skylight while installing fanfold insulation on a warehouse's flat roof. He landed on the concrete floor below. The company for whom the decedent worked had not determined if the skylight/cover could support twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time nor was the skylight appropriately color coded/marked. He was not wearing fall protection and had not received fall protection training. Coworkers called 911 and the decedent was transported to the hospital. He died from the injuries sustained a month later as a hospital inpatient.

29. A male laborer/painter in his 30s died due to multiple blunt force injuries and complications due to a fall. The decedent was a member of a 2-person crew hired to perform painting at a facility. The incident occurred in a large open area. The east side and the west side of the area each had a parts rail suspended from the ceiling. Under each parts rail was a catwalk, with an approximate 1-foot sidewall on each side and suspended 6-7 feet from the ceiling with vertical angle iron; the catwalk was approximately 6-8 feet above the cement floor and prevented any parts that might fall off the rail from hitting someone standing below or from hitting the floor. The decedent's coworker, who was painting in another area of the room, indicated that the decedent was standing on the catwalk and not using a ladder to paint the rail; he could reach the rail without a ladder. A ladder was placed on the catwalk, and the decedent was painting towards it. He was using a mini-roller and had a 1-gallon paint can. The fall was unwitnessed but heard by his coworker, who looked over, and saw the decedent on the floor, covered in paint. His paint can and roller were on the floor. The ladder was still on the catwalk. He rushed over to him and called 911. Emergency response arrived and transported him to the hospital. He died approximately one month later in the hospital.

30. A male gutter installer in his 20s died due to multiple blunt force injuries when he fell approximately 20 feet from a ladder. The decedent and a coworker were measuring the building for gutter placement. When his coworker asked a question and the decedent did not respond, he looked over, saw the decedent's eyes roll back into his head, become limp and fall backwards off the ladder landing on his head on the concrete below. Coworkers immediately called for emergency response and initiated CPR. Emergency response arrived and transported the decedent to the hospital where he was declared dead in the emergency room. Postmortem toxicology found measurable levels of morphine, THC and its metabolites in his blood. In his urine, a metabolite indicative of heroin use was found at measurable levels.

31. A male construction laborer in his 50s died due to multiple injuries when he fell approximately 18 feet to concrete during fire-proofing activities to structural steel. He was wearing fall protection but was not physically tied off to an anchorage point. He utilized a boom lift to lift himself to the structural steel deck to spray on the fireproofing material. Per a witness, the decedent removed the harness from his body and stepped off the lift. He stepped backwards after removing the harness and fell between the visqueen wall and I-beam to the ground, feet first. He then "got up" and fell over face-first, hitting his head on the concrete. Coworkers called emergency response. EMS transported him to the hospital where he was declared dead in the emergency room.

32. A male self-employed electrician in his 60s died due to blunt force trauma to his head when he fell an unknown height from a ladder to concrete. A bystander who happened to come by the area saw the decedent on the ground near the garage of a storage unit and called for emergency response. Responding police found a 15-foot ladder on the ground next to him. He was declared dead at the scene.

33. A male sheet metal worker in his 60s died due to multiple blunt force injuries when he fell from a roof. EMS transported him to the hospital where he died later that day. His work activities at the incident site are unknown.

34. A male roofer in his 40s died due to multiple blunt force injuries when he fell approximately 30- to 35-feet through a gap in the roofing to a concrete barn floor. The decedent and his two coworkers were removing and replacing metal sheeting from a dairy barn roof. One of the coworkers, who was approximately 15 feet away from the decedent, saw him fall through the gap to the floor. The coworker told the other coworker what happened, and they both climbed down from the roof and went to the decedent. One coworker checked for his pulse, and the other coworker ran to the farm's main office and requested a farm hand to call for emergency response. EMS arrived and he was declared dead at the scene.

35. A male roofer in his 60s died due to sepsis with contributing factors of paraplegia and a spinal cord injury when he fell an unknown distance from a roof at a construction site in 2010. He died in 2023 from injury complications.

36. A male remodeling business owner in his 60s died due to cranial cerebral trauma sustained when he fell approximately 10 feet from a ladder to the ground. He had been working on a barn roof at the time of the incident. EMS was called and he was transported to the hospital. Based on the injuries sustained, he was transferred to another hospital, and despite medical intervention, died the following day.

37. A male roofer in his 60s died due to medical complications of a spinal injury resulting in paraplegia from the waist down when he fell from a roof in 1991. It appeared to emergency responders that the decedent was attempting to self-transfer to his bed from his wheelchair when he fell, breaking both of his femurs. He was unable to contact anyone for assistance, and he was discovered in his home by a family member. He was declared dead at the scene.

38. A male roofer in his 60s died in 2023 due to chronic osteomyelitis and complications due to a fall from a roof in 1992. He had sustained thoracic spine injuries from the fall.

39. A male roofer in his 40s died due to a closed head injury due to a 15- to 20- foot fall from a roof to a concrete floor. The decedent was painting, what was described by responding police as a "weak plastic barn roof" with a powered paint sprayer. Individuals on a bike ride were taking a break at a pavilion and were watching the decedent paint the roof. They heard a loud crash, and noticed the decedent was no longer on the roof. They went to investigate, and looking through one of the building windows, were able to see the decedent on the concrete floor. They called for emergency response. The decedent was found on the concrete floor with the paint sprayer and cord wrapped around his body. EMS transported him to the hospital where he died the following day.

40. A male general contractor in his 50s died due to cranial cerebral trauma due to a 10-foot fall from either a roof or a ladder. A family member found him on the ground with a ladder laying on top of him and a nail gun on the roof of a home. This was an unwitnessed incident, and the sequence of events was unknown. The family member called another family member and then ran to a neighbor's home for help. CPR was initiated while awaiting emergency response arrival. EMS arrived and he was declared dead at the scene.

Fire/Explosion

41. A male journeyman lineman in his 70s died in 2023 due to atherosclerotic hypertensive cardiovascular disease due to or as a consequence of thermal and blast force trauma and electrocution injury caused by a transformer explosion that occurred in 1982. Noted on the death certificate was a significant condition - loss of mobility due to loss of upper and both lower extremities.

Homicide/Assault

42. A female waterproofing business owner in her 50s died due to multiple gunshot wounds when her ex-business and relationship partner shot her while she was sitting in her vehicle. The decedent had placed a personal protection order against him in 2022 and fired him from the company five weeks prior to the incident. She was declared dead at the scene in her vehicle.

Machine

43. A male construction project manager in his 50s died due to a traumatic crush injury when he was pinned under a 2006 Genie Model GTH-636 telehandler forklift in a ditch. The decedent and a coworker had asked and received permission to use the telehandler to move hunting shacks from one location to another for use on a property used by fellow workers for hunting. The two workers used a pickup with an attached flatbed trailer. This unit was positioned on the north side of a roadway with the hazard lights activated. The decedent's coworker paid for the hunting shacks and was walking back to the flatbed trailer when he saw the decedent trying to load the hunting shacks on the trailer by himself. The coworker noted that the telehandler's wheels were halfway off the trailer at the peak of the trailer. The telehandler rolled off the side of the trailer into the ditch. The decedent was ejected from the cab and pinned under the body of the telehandler as it rolled. His coworker called 911, but due to the location of the incident, he was pinned under the machine for at least 20 minutes before emergency responders arrived. He was declared dead at the scene.

Motor Vehicle

44-47. A male foreman in his 30s, and three male laborers, one in his teens, one in his 20s and one in his 30s all died due to multiple blunt force trauma in a motor vehicle crash. The crash occurred within an intersection. Both the east/west and north/south 2-lane roads were dry, not physically divided, and posted speed limit of 55 mph. The east/west road had Stop signs; the north/south road had the right-of-way. The foreman (driver) and his 3 passengers were traveling southbound in a pickup truck hauling a trailer. An eastbound driver in a pickup truck disregarded the Stop sign and entered the intersection. The eastbound pickup truck struck the southbound pickup truck on the front passenger side. The decedent's truck rolled several times, landing on the passenger side in a corn field. When emergency responders arrived, the work truck had a fire in engine and passenger compartments. The fire was extinguished, however, restarted at least 2 more times during extrication operations. Three individuals were found inside the pickup truck. The passenger in his 20s was ejected and was found lying approximately 20 feet away. The foreman was wearing a lap and shoulder belt. The lap/shoulder belt status for the passengers was unknown (EMS reported the passengers as unrestrained). The pickup truck's airbags deployed. The three individuals in the pickup truck were declared dead at the scene; the passenger in his 20s was transported to the hospital where he was declared dead in the emergency room.

48. A male service technician in his 30s (Driver 1; see narrative 76) and a male laborer for a brick paving company in his 30s (Driver 2) died in a motor vehicle crash. Driver 1 died due to multiple blunt impact injuries and Driver 2 died due to craniocerebral trauma due to blunt impact to his head. The crash occurred on a dry, 2-lane roadway with a posted speed limit of 45 mph. A double yellow line divided the lanes. Driver 1 was driving northbound in a company-issued work van. Driver 2 and his passenger were driving southbound in a pickup truck. A witness traveling northbound observed Driver 1's van approaching to the rear of his vehicle at a high rate of speed. A short time later, the witness observed Driver 1's van cross the double yellow lines and enter the southbound lane. Driver 2 did not have time to take evasive action and Driver 1's van struck the pickup head-on. Driver 1 and Driver 2 were declared dead at the scene. The passenger in the pickup was transported to the hospital with non-life-threatening injuries. Both drivers were wearing their lap belts and shoulder harnesses. The airbags in both vehicles deployed.

49. A male generator salesman with a home service repair company in his 30s died due to craniocerebral trauma sustained in a motor vehicle crash. The crash occurred in a construction zone on dry, 2-lane physically divided with barrier expressway with a posted speed limit of 70 mph. There was a fully marked lane closure on the eastbound expressway. Traffic was stopped in the right lane. The incident involved three vehicles: two stopped vehicles (the decedent's SUV and a semi-truck-trailer) and Vehicle 1. The driver of Vehicle 1 was experiencing sharp pains and looked down to the painful area, and when the driver looked back at the road, was unable to stop in time for the stopped traffic. Vehicle 1 struck the rear of the decedent's vehicle at a high rate of speed, pushing it into the stopped semi-truck trailer in front of him. The decedent's vehicle lodged under the trailer and both the front and rear of the vehicle sustained severe damage due to the crash. The decedent was wearing his lap and shoulder belt. The airbags had deployed. He was declared dead at the scene.

50. A male HVAC service technician in his 20s died due to multiple blunt force trauma sustained in a motor vehicle crash. The crash occurred in a construction zone on a dry, 4-lane divided highway with a barrier and a posted speed limit of 60 mph. Two lanes were eastbound and two lanes were westbound. A semi-truck and trailer were disabled and could not move in the right eastbound lane. The semi-truck driver had placed his emergency triangles in the road and had activated the truck's emergency flashers. The semi driver saw the decedent approaching at a high rate of speed and attempted to get his attention by waving his arms. The decedent struck the rear of the semi at 76 mph per GPS data. The decedent was wearing a lap and shoulder belt. It was unknown if the airbags deployed. He was declared dead at the scene.

51. A male carpenter in his 30s died due to blunt force injuries sustained in a motor vehicle crash. The decedent was a passenger in a pickup truck on a dry, not physically divided 2-lane road with a posted speed limit of 40 mph. The pickup was traveling westbound. The area of the crash involved a roadway curve, with a narrow gravel shoulder and an embankment to a wooded area/tree line. The pickup driver indicated that his attention was diverted from the roadway by his GPS on his phone. Police determined that the pickup gradually left the roadway and entered the gravel shoulder. As the pickup approached the curve, it was fully outside the shoulder, traveling in the grass along the embankment and the tree line. The vehicle speed was a consistent 55 mph and there was no evidence at the scene that the driver attempted any evasive action or braking to get back on the road. The passenger side of the pickup was crushed when it struck a large tree; the decedent, who was not wearing a lap and shoulder belt, was ejected. He came to rest within the tree line. The rear of the pickup rotated out toward the roadway, and then the pickup struck another tree head-on. The driver, who was wearing his seatbelt, reached out for the decedent and saw he was not in the cab. The driver, along with a passerby who stopped and called for emergency response, went to look for the decedent. EMS arrived and transported both the driver and the decedent to the hospital.

The decedent was declared dead in the emergency room. The driver advised police that he used cocaine the previous evening. Toxicological testing of the driver's blood showed active cocaine (8 ng) and cocaine metabolite (greater than 1000 ng). It was the opinion of the certified drug recognition expert (DRE) after the driver completed various tests, that the driver was on the downside of a Central Nervous System (CNS) stimulant/cannabis and could not operate the vehicle safely.

52. A male carpenter in his 70s died due to multiple blunt force injuries sustained in a motor vehicle crash. The crash occurred on a dry, not physically divided 2-lane roadway with a posted speed limit of 55 mph. The decedent was traveling northbound in his box truck when he crossed the centerline and struck the east side of a concrete bridge on the southbound side, then struck a guardrail, then left the roadway leaving tire tracks in the grass heading directly to the large tree, which the truck struck head-on. There were no visible evasive maneuvers, such as pre-braking or vehicle swerving to avoid striking the tree. Residents nearby heard large bangs, and seeing the crash, called for emergency response. Emergency response arrived and he was declared dead at the scene. The decedent was wearing his lap and shoulder belt. The truck's front airbags deployed.

53. A male dump truck driver in his 60s died due to multiple blunt force injuries sustained in a motor vehicle crash. The crash occurred on a dry, divided highway with a barrier consisting of 5 lanes with a posted speed limit of 70 mph. The westbound freeway was separated from the eastbound lanes by a concrete median wall and from the service streets by a grass embankment with a chain link fence and metal guardrails. The freeway and service drive were at a similar elevation at the crash scene. The decedent was traveling westbound and collided with the beginning of a guardrail at an exit lane. The truck went through this rail, struck a chain-link fence and then went through a second guardrail between the small embankment and service drive. The truck crossed over a 2-lane service drive and then rolled down a 35-foot embankment, coming to rest on the driver's side of the truck in a park. There were no signs of braking or debris prior to the impact with the first guardrail. At some point during the roll down the embankment, the decedent was ejected from the cab, and the truck caught fire due to a punctured fuel tank. Witnesses called for emergency response. EMS arrived and he was transported to the hospital where he died 12 days later. Responding police indicated both restraint use and airbag deployment was unknown.

54. A male heat and frost insulation laborer in his 50s died due to multiple injuries sustained in a motor vehicle crash. The crash occurred on a wet, not physically divided 5-lane roadway with a posted speed limit of 45 mph. The roadway included a two-way center turn lane that travels north and south. There was light rain at the time of the crash. The decedent, driving a transit van, was traveling southbound in the left-through lane. The van crossed over into the center turn lane and then into oncoming northbound traffic. The van struck the curb on the east side of the road and left the roadway into the grass. The driver's side of the van struck a tree head-on with a tree on the east side of the road. The van then spun counterclockwise and came to rest in the right through northbound lane. Witnesses and police concurred that his actions were consistent with someone having a medical emergency. His vehicle speed, 5 seconds prior to the crash, was 44 mph; when the van struck the tree, the vehicle speed was 54 mph. There were no pre-impact skid marks left on the roadway nor evidence that the decedent tried to avoid a crash. Emergency responders arrived and he was declared dead at the scene. He was wearing his lap and shoulder belt. Unknown airbag deployment.

Struck By

55. A male truck driver for a demolition and excavation company in his 50s died due to blast injuries sustained when a single piece rim wheel and tire assembly underwent an explosive separation

during inflation. The decedent and his coworker were in the service garage. A semi tire required servicing, and his coworker told the decedent that they would work on it the morning. The decedent, nonetheless, began to inflate the tire utilizing an air hose with no clip-on chuck or inline pressure gauge or regulator. There was no single rim manual or a tire restraining device for service or repair of tire and wheel assemblies to constrain all rim wheel components during an explosive separation available to him. His coworker left the service garage. He heard a loud “pop” and returned to the service garage. He discovered the decedent lying on his back on the floor with fatal injuries. It appeared that the decedent was kneeling on the tire, inflating it when the sidewall of the tire burst causing the rim wheel and tire assembly to propel upward striking him. On scene, there was a large, ruptured tire, damage to the ceiling, and glass debris.

56. A male road commission laborer in his 50s died due to multiple injuries when struck by a vehicle that did not stop while directing traffic at a road construction site. The road maintenance consisted of scraping the shoulder of the roadway with a bobcat due to dirt/debris that had been built over the years that was underneath a guardrail. The incident occurred on a dry, not physically divided 2-lane road with a posted speed limit of 55 mph. Responding police noted the four advanced warning signs appropriately placed for the upcoming construction on the shoulder of the northbound roadway going up the hill. The construction zone was visible for at least one mile. The crash took place at the top of the hill. An employer-supplied construction vehicle was parked on the roadway shoulder with its lights activated. Driver 1 and his passenger indicated that they approached the road construction site driving approximately 30-35 mph and started to cross the center line to go around the construction as the crew was working on the right-hand side of the road. The decedent came into the roadway with the Stop sign displayed to stop them quickly. Driver 1 stopped and backed up a couple feet back into his driving lane, now fully stopped in the northbound lane with his foot on the brake. Driver 1 indicated he had been stopped a couple of minutes while the decedent held the Stop sign. Driver 1 saw the oncoming vehicle approaching quickly and hypothesized that the decedent also saw the vehicle because the decedent attempted to get out of the way toward the right (east) shoulder of the road. Driver 2 attempted to avoid the collision with the Driver 1's stopped vehicle by applying the brakes and swerving to the right onto the east shoulder. Driver 2 struck the rear passenger side of Driver 1's vehicle and then struck the decedent, pushing him into the rear of the parked construction vehicle. Emergency response was called, and the decedent was declared dead at the scene. Driver 2 consented to a blood test after the incident; toxicology found quantifiable blood levels of hydrocodone, THC, THC metabolite and sertraline in his blood.

57. A male flagman on a road construction project in his 70s died due to multiple blunt force injuries when he was struck by a vehicle. The incident took place in a construction zone on a dry, not physically divided 2-lane roadway with a posted speed limit of 55 mph. The westbound lane had been blocked with traffic cones leaving only the eastbound lane open for travel. Flagmen were positioned at both the west side and east side of the construction zone for traffic control. Near each of the flagman was a digital arrow sign marking and alerting traffic of the construction zone. The decedent was wearing a high visibility vest and holding a Stop/Slow sign. He was positioned on the shoulder of the westbound lane, standing between an arrow sign trailer and the traffic lane, approximately 3-4 feet away from traffic. The sign near him had flashing LEDs through the center with no arrow direction. The decedent, holding the Stop sign and the arrow sign trailer were simultaneously struck by a westbound vehicle traveling at a high rate of speed that crossed over the fog line of the westbound lane and onto the shoulder. The decedent was thrown up to the hood but did not strike the windshield. He was then pushed forward and fell under the car, where the vehicle driver drove over him and came to a stop. It did not appear that the vehicle driver attempted to avoid the collision with the decedent. The driver indicated to responding police that they may have fallen asleep. The decedent was transported to the hospital and declared dead in the emergency

room.

58. A male construction laborer in his 30s died due to blunt force trauma to his head when a rooftop cooling tower being demolished fell and pinned his head against a piece of angle iron. The decedent was working off a platform approximately 3-4 feet high using an angle grinder to dismantle the structure, which was being held in place by a cloth rope. He cut one piece of angle iron, and while cutting the second angle iron, the 5- to 6-foot tower wall fell as he ran. His coworkers contacted another individual, who called for emergency response. He was declared dead at the scene.

59. A male pipefitter in his 40s died due to craniocerebral trauma a victaulic end cap came off a pipe while releasing pressure and struck his head. The decedent and his coworker, another pipefitter were in a scissor lift elevated 25 feet performing a pressure test on an 8-inch diameter hydro chilled water line (pipe). The pipe ended and was held by a victaulic end cap, the site where the incident happened. The decedent and his coworker increased the pressure to 156 psi and held that pressure for approximately an hour. When the test held, rather than notify the appropriate individual to release pressure from the main line as recommended, they closed two valves, leaving a six-foot section of piping pressurized at the end near the cap. They waited another hour, then both he and the decedent decided to "slow release" the pressure in the six-foot section. They did this by using an impact drill to unscrew a clamp. The decedent used a Milwaukee red impact drill and started to loosen a clamp bolt. The coworker mentioned that the decedent "hit it hard," describing the decedent as not drilling slow enough. The coworker heard a loud bang and when he looked over to the decedent, he observed that he had been struck by the end cap. The end cap struck the decedent's head, penetrated his hard hat and continued approximately 110 feet where it struck a wall, leaving an impression. The decedent fell forward over the scissor lift railing and his head struck one of the scissor lift's legs. He was suspended in the air by his harness approximately 10 feet above the ground. A second scissor lift was used to get him down to ground level. EMS transported him to the hospital where he died later that day. See Hazard Alert [Workers Fatally Struck By Victaulic End Caps During Pressure Testing](#) for Recommendations For Pressure Testing Injury Prevention.

60. A male truck driver in his 20s died due to multiple blunt force injuries when he was crushed by a pre-cast concrete panel he was unloading from his truck. The 12- by 4-foot by approximately 10-inch-wide pre-cast concrete wall panels were to be set for a basement for a new home. The crane operator assisted the decedent in backing the semi and flatbed trailer to the desired location. The ground was hard and uneven. The panels, weighing approximately 1,700 pounds each, were double stacked onto an attached A-frame on the flatbed trailer. The crane operator asked the decedent, as he was starting to unstrap the load if he had experience unloading a "double strap"; the decedent replied he had experience. The crane operator returned to the crane and was ready to fasten the wall when he heard a "cracking noise". He saw a precast concrete panel fall. The panels were not connected to a truck crane or other alternate means of securement, such as a safety chain, before the decedent released three ratchet tie-down straps holding the stacked panels in place. One of the top panels slid down and fell off the trailer, crushing him. The crane operator who was positioned on the opposite side of the trailer, ran over to the decedent, yelled for help, and when help arrived, returned to the crane and let it down to fasten to the wall to lift it from the decedent. Coworkers pulled the decedent away when the wall was lifted and along with the homeowner, provided CPR. EMS arrived, assumed care and transported him to the hospital where he was declared dead on arrival.

61. A male construction laborer in his 40s died due a traumatic brain injury with a secondary seizure disorder to when he was struck by a vehicle while moving a home in 1995.

62. A male cell tower installation site manager in his 50s died due to head injury complications sustained when he was struck by a vehicle. The crash occurred on a dry, not physically divided 3-lane roadway with a posted speed limit of 35 mph. The roadway had two travel lanes, eastbound

and westbound, with a center turn lane. Approaching the incident site were posted pedestrian crosswalk signs alerting drivers of an upcoming north-south marked pedestrian crossing located east of a rental car agency driveway. The decedent had parked his work truck on the westbound side of the roadway and was performing work on the eastbound side. As the decedent was walking southbound within the pedestrian walkway, an SUV driver exited the rental car agency driveway and turned left to travel eastbound, stopping in the center turn lane to allow the decedent to cross the road. Approaching the rental car agency, an eastbound vehicle traveling at a high rate of speed passed another vehicle using the center turn lane. The SUV position may have obstructed both the vision of the speeding eastbound vehicle and the decedent. It appeared that the eastbound vehicle did not see the decedent until it was too late. The driver applied the brakes and immediately took a sharp left turn, entered the center turn lane, but was unsuccessful in his attempt to avoid striking the decedent with the front bumper. A police officer witnessed the incident and immediately called for emergency response as he responded to the scene. The decedent was transported to the hospital, and after several medical interventions, died 2 months later from injury complications.

63. A male carpenter in his 50s died due to an anoxic brain injury due to a cardiac arrest when he was pinned between a work van and a metal shipping container in a dark, lighted parking lot. The decedent had exited the van while the van was still in a forward gear. A family member working in a garage shop nearby heard a loud noise and investigated. He exited the shop and saw the decedent's van had run into the metal shipping container. The van's back wheels were spinning, and smoke was coming from the van. Running over to the van, the witness found the van still in gear. As he placed the vehicle in park, he called out to his family member. Hearing no response, he exited the van, again called for him. He found him pinned between the container and the driver's side door. The family member called for emergency response. EMS arrived, and finding no pulse, began resuscitative efforts. EMS transported him to the hospital where he died 2 weeks later from the injuries sustained.

Suicide

64. A male construction company owner in his 60s died due to a self-inflicted gunshot wound to his head. He was found deceased at his place of business.

Manufacturing (9)

Drug Overdose

65. A male auto parts supplier supervisor in his 50s died due to multiple drug (fentanyl, heroin, tramadol) intoxication. The decedent, who often went to the second-floor tool room to take his break/work was initially found by a coworker who needed a tool to repair something on the assembly floor. He noted the decedent bent over at his waist with his arms on a desk and his head on his arms and thought he was sleeping. He left with his tool. Several hours later another employee went to the tool room, and the decedent was in the same position. He called for assistance and additional coworkers arrived. Checking the decedent's pulse, and finding none, the coworkers laid him on the floor and began CPR while 911 was called. EMS arrived, and after administering several rounds of medication and Narcan, he was declared dead at the scene.

66. A male truck driver in his 50s died due to toxic effects of cocaine. Hypertensive and atherosclerotic cardiovascular disease and morbid obesity contributed to his death. He had been making deliveries and stopped at a rest area. Witnesses observed him walking to the rest stop from the semi parking lot, trip over the curb and fall onto his face on the sidewalk. The witnesses rushed

over to administer aid. Emergency response was called. He was declared dead at the scene.

Homicide/Assault

67. A female entrepreneur in her 50s died due to a gunshot wound to her chest during an altercation about paperwork with the business' co-owner in the parking lot of the business. The verbal altercation escalated, including pushing away a young woman who was trying to get in between the decedent and the shooter. The shooter drew his firearm, pointing it at the decedent. The decedent had a gun in her purse and while retrieving her own gun in self-defense, she was shot. She was transported to the hospital where she was declared dead on arrival.

Machine

68. A male production technician employed by a temporary agency in his 20s died due to blunt force trauma when he was pinned between a stationary vacuum thermoforming mold and an extended conveyor. The decedent was a member of a 4-person team preparing thermoplastic olefin (TPO) molds for foam (soundproofing) application. A timer was used to time processing of the TPO in the work cell. An oven heated the TPO material for 120 seconds and the conveyor brought the heated TPO to the stationary mold to be vacuum formed. Employees enter the cell and place the heated TPO material on the mold. The conveyor then retracts. The distance from the retracted conveyor to the mold is approximately 2 feet in width. Once the material is placed on the mold, an employee will turn the vacuum valve on, and when complete, another employee will come into the cell when the timer is down to 70 seconds and cut and remove any excess material. When the timer is at 20 seconds, the "torcher" (the decedent) will walk around the mold, using a propane torch with a hose, connected to a propane cylinder to remove oils from the TPO material. After the torcher completes his work, two employees remove the TPO and the process cycle continues. Two sets of light curtains, one in the front of the cell and one in the rear of the cell at the conveyor and two area scanners, one in the front right side of the cell and one on the left side rear of the cell were to be utilized for employee protection. The rear light curtain was inoperative, and the area scanners were not in position to detect an employee in the 2-foot area where the conveyor ejects the next mold. His coworkers had been called away to address a nearby issue; he was working alone. He was positioned with his back to the timer when the cycle began. The oven conveyor began to extend toward the mold, and he was crushed between them. There was no audible signal or authorized person to warn workers of the conveyor starting, no guard between the conveyor and stationary vacuum forming mold, or emergency stop devices within the decedent's reach. The decedent was transported to the hospital where he was declared dead in the emergency room. Postmortem toxicology revealed the presence of cannabinoids in the decedent's blood.

Struck By

69. A male concrete mixer driver in his 50s died due to blunt force trauma to his head when he was struck by tow cable and hitch. The decedent was delivering concrete to an outdoor construction site in a 33,000-pound cement truck filled with 26,443 pounds of concrete. The cement truck became stuck in heavy mud. A coworker operating a John Deere 650K Crawler Dozer attempted to pull the cement truck out of the mud and onto mats by attaching one end of a 15-foot braided wire rope to the cement truck's front-end tow plate and the other end of the wire rope to an aftermarket 8-ton combination pintle hitch attachment on the bulldozer blade. The four grade eight bolts securing the hitch on the bulldozer blade failed, causing the hitch to snap towards the windshield of

the cement truck. The hitch struck the decedent's face and head. The bulldozer driver went to the aid of the decedent, turned off his truck, and based on the injuries sustained called for emergency response. EMS arrived and he was declared dead at the scene.

Suicide

70. A male machine maintenance worker in his 30s died due to a self-inflicted hanging. He was found hanging in the maintenance room at his place of employment.

Toxic Exposure

71. A male weld tech in his 40s died due to an asthma attack at work. He had a history of asthma. He was performing routine work tasks in support of operations at a robotic welding cell when he experienced breathing difficulty and collapsed to the ground, his inhaler lying nearby. Emergency services were called and upon arriving they took over resuscitation efforts from facility personnel. EMS transported him to the hospital where he was declared dead in the emergency room.

72. A male laborer in his 50s died due to asthma and complications due to or as a consequence of dilated cardiomyopathy. The decedent had been working at his workstation in the plastic injection molding area. During his shift, he had complained to fellow workers that he had not been feeling well. It appeared he experienced breathing difficulties and left the building. He called for emergency response, indicating he was having trouble breathing. He collapsed on the hood of his vehicle while on the phone with 911. His albuterol inhaler was next to him on the hood. When emergency response arrived, he was pulseless. He was transported to the hospital and died several days later. He had been treated for asthma exacerbation and obtained his inhaler a couple of months prior to his death.

Other

73. A male machine repairman in his 60s died due to complications of Legionnaires pneumonia 10 days after an exposure to the Legionella bacteria from a water source at work. There are no governmental regulations that identify permissible levels of Legionella bacteria in water systems in the workplace. MIOSHA environmental sampling found that a handwashing station and a parts washing station in the plant and in both the men's (urinal) and women's (sink) bathrooms had legionella counts that identified a need for a water maintenance program to inhibit microbial growth. Despite being hospitalized, he succumbed to complications of the Legionnaires pneumonia.

Wholesale Trade (8)

Motor Vehicle

74-75. Two semi-truck drivers, Driver 1 in his 30s and Driver 2 in his 40s both died due to multiple injuries in a motor vehicle crash. The crash occurred on a dry, 2-lane divided highway without a barrier with a posted speed limit of 55 mph. At the time of the crash, Driver 1 was eastbound hauling approximately 3,600 gallons of liquefied petroleum gas (propane). Driver 2 was westbound hauling approximately 13,000 gallons of gasoline. Dividing the eastbound and westbound lanes was a grass median. Driver 1 was traveling eastbound in the right lane and as the truck approached the median crossover, it immediately swerved to the left (North), entered the median, and then struck a yield sign. The truck continued eastbound, left the grass median and entered the westbound lanes. Driver

2, traveling in the right lane, attempted to take evasive measures but was unsuccessful in avoiding the head on collision with Driver 1's semi-tractor. Responding police found there was no direct action by Driver 1 to stop or correct the trajectory of his semi; witness statements indicated that Driver 1 did not apply the semi brakes. Both drivers were wearing their lap and shoulder belts. The airbags for both trucks did not deploy. The propane tank broke free and due to leaking propane, firefighters were required to make the scene safe for emergency responders. Driver 1 was declared dead at the scene. Driver 2 was eventually transported to a local hospital where he was declared dead in the emergency room.

76. A male service technician in his 30s (Driver 1) and a male laborer for a brick paving company in his 30s (Driver 2; see narrative 48) died in a motor vehicle crash. Driver 1 died due to multiple blunt impact injuries and Driver 2 died due to craniocerebral trauma due to blunt impact to his head. The crash occurred on a dry, 2-lane roadway with a posted speed limit of 45 mph. A double yellow line divided the lanes. Driver 1 was driving northbound in a company-issued work van. Driver 2 and his passenger were driving southbound in a pickup truck. A witness traveling northbound observed Driver 1's van approaching to the rear of his vehicle at a high rate of speed. A short time later, the witness observed Driver 1's van cross the double yellow lines and enter the southbound lane. Driver 2 did not have time to take evasive action and Driver 1's van struck the pickup head-on. Driver 1 and Driver 2 were declared dead at the scene. The passenger in the pickup was transported to the hospital with non-life-threatening injuries. Both drivers were wearing their lap belts and shoulder harnesses. The airbags in both vehicles deployed.

77. A male food industry sales representative in his 40s died due to multiple blunt force trauma sustained in a motor vehicle crash. The crash, which involved two pickup trucks, occurred on a dry, 2-lane, not physically divided roadway with a posted speed limit of 55 mph. The decedent was traveling southbound when a northbound pickup truck crossed the centerline and struck the decedent's pickup truck. His truck left the roadway; the truck bed was in the ditch and the front of the truck faced northbound. Bystanders noted the bottom of the decedent's pickup was on fire and were able to remove the decedent prior to fire engulfing the truck. The bystanders were performing CPR when the first emergency responders arrived. The decedent was declared dead at the scene. The medical examiner noted the recent use of THC was a contributing factor to the crash. He was not wearing a lap and shoulder belt. The airbags in both pickup trucks were deployed. The driver of the northbound pickup truck was wearing vehicle restraints and was transported to the hospital.

78. A male automotive parts delivery driver in his 60s died due to multiple blunt force injuries sustained in a motor vehicle crash. The crash occurred on a not physically divided 2-lane road with a posted speed limit of 55 mph. It was snowing at the time of the crash. The roadway was ice- and snow-covered in parts, and clear and dry in other parts. The decedent's transit van (Vehicle 1) and another vehicle (Vehicle 2) were traveling westbound. An oncoming eastbound pickup truck driver, who was driving under the influence of alcohol (BAC 0.163%), lost control of the pickup (Vehicle 3) on an icy section of the roadway. The bed of the pickup slid to the right. The tires regained traction on a dry portion of roadway, causing the pickup to launch forward into the westbound lane and crash head-on into the decedent's transit van. The van spun approximately 180 degrees and then went down an embankment along the north side of the roadway. The pickup truck also spun approximately 180 degrees after the impact. The pickup truck's engine and transmission separated from the vehicle and were left in the roadway, while the cab and bed separated from the frame. The cab of the pickup truck came to a rest on the northern shoulder, while the bed and frame went down the embankment. The driver of Vehicle 2 was unable to avoid hitting the pickup engine and transmission; his vehicle came to rest on the southern shoulder, west of the other two vehicles. EMS arrived and the decedent was declared dead at the scene. He was wearing his lap and shoulder harness. The transit van's airbags deployed.

Struck By

79. A male yard worker at an auto sales/repair shop in his 50s died due to multiple blunt force trauma when he was struck by an exploding single-piece rim tire during inflation. The decedent successfully mounted the first tire using a TMG Tire Changer. The business owner indicated he was at the tire changer attempting to mount the second tire, but it would not seat right so the decedent came over and took the tire to the front of the shop to put air in it. The decedent placed the tire flat on the ground, and using an air hose without a clip-on chuck and an in-line valve with a gauge or a pressure regulator, proceeded to inflate the tire. The air hose was set at approximately 150 psi. The decedent was either kneeling or standing in the potential trajectory when the sidewall of the tire burst, striking him. The tire continued upward and struck the ceiling, 16 feet above. Coworkers in the area heard a loud bang, turned and found the decedent lying on the ground with obvious injuries to his face. EMS transported him to the hospital where he was declared dead in the emergency room.

80. A male scrap metal salesman in his 40s died due to blunt force injuries and complications due to entrapment beneath a motor vehicle, perhaps a truck (type unknown). Per family members, the decedent worked on vehicles to obtain scrap metal. It appeared that the decedent used a jack (type unknown) to raise the vehicle and work underneath. The decedent was under the vehicle when either the jack failed or was intentionally released by an individual nearby who was heard arguing with the decedent. The vehicle landed on his chest/abdominal area. This individual ran for help. When help arrived, the responding individuals indicated that “all they needed to do with the jack was turn it and crank it back up” to lift the vehicle up and away from the decedent. Emergency response was called and transported him to the hospital where he died several weeks later.

Suicide

81. A male truck driver in his 40s died due to a self-inflicted gunshot wound to his head. The decedent had entered and left his place of employment, walked to a light pole on the business property, sat down and deployed the weapon. An individual who arrived to pick up another employee noticed him on the ground and investigated. Seeing the weapon and blood stains, the bystander called for emergency response. He was declared dead at the scene.

Retail Trade (11)

Drug Overdose

82. A female cashier in her 30s died due to an opioid overdose. The decedent was found in bathroom in the business for which she worked. She was last seen approximately 90 minutes before being found unresponsive. Bystanders initiated CPR while awaiting emergency response. Emergency responders arrived, due to evidence at the scene, administered naloxone, assumed care and transported her to the hospital where she died 2 days later as a hospital inpatient.

Fall

83. A female cashier in her 40s died due to a saddle pulmonary embolism due to a deep vein thrombosis sustained in a slip and fall on snow and slush on the sidewalk at her workplace. She sustained multiple leg injuries and was treated. She declined specialized care and was released to her home. Approximately two weeks after the fall, while at another location, a blood clot in her leg broke loose and traveled to her lungs. EMS was called and she was declared dead.

Homicide/Assault

84. A male tire technician in his 30s died due to multiple gunshot wounds sustained while sitting in a vehicle near the tire shop. A coworker stated to the responding police that the shooter frequented the tire shop, always trying to sell things to the business. The decedent's coworker indicated that the shooter approached from the west of the location and walked up to the passenger side of the vehicle, pointed a shotgun at the passenger side front window and began shooting. EMS transported him to a local hospital where he was declared dead in the emergency room.

85. A female automotive dealership manager in her 40s died due to shotgun wounds to her head and back when shot by her ex-boyfriend in the business' parking lot.

86. A male convenience store cashier in his 20s died due to multiple gunshot wounds. Earlier in the day, he had an altercation with a customer. The customer returned, pulled out a handgun, stuck it under the plexiglass shield and opened fire. The customer was apprehended a short time later. The decedent was found behind the register and was declared dead at the scene.

Motor Vehicle

87. A male motorcycle mechanic in his 20s died due to blunt force injuries sustained in a motor vehicle crash. The crash occurred within an intersection controlled by a traffic light. The not physically divided roadway was dry and had a posted speed limit of 45 mph. The decedent, wearing a full-face helmet, was traveling eastbound in the left lane taking the motorcycle he had finished repairing for a test ride. He had the right-of-way (green light) to enter the intersection. A vehicle traveling westbound was in the left turn lane. The westbound driver made an improper left turn on a red light. The decedent was unable to avoid the collision and was ejected from the motorcycle. He landed on a roadway island approximately 30 feet from his motorcycle on the southeast corner. EMS transported him to the hospital where he was declared dead in the ICU.

88. A male vehicle transporter in his 70s died due to multiple blunt force injuries sustained in a motor vehicle crash. The crash, involving a Transit 350 XLT van and a semi-tractor and trailer, occurred at a lane merger in a construction zone on a wet, physically divided with a barrier 2-lane northbound roadway with a posted speed limit of 60 mph. It was raining. Construction barrels tapered the left lane to the right lane. The normal posted speed for expressway was 70 mph, but due to it being a construction zone, it was posted at 60 mph and 45 mph where workers were present. Road signage prior to the crash area included: road work ahead, left lane closed ahead, reduced speed zone ahead, left lane merger to right lane, and that the work zone began. There was also an arrow board trailer with a blinking right arrow near the start of construction barrels. The van driver and his six passengers were traveling out of state to pick up and transport vehicles to another location. The decedent, who was not wearing his seat belt and shoulder harness, was positioned in the middle seat of the second row. The van driver told responding police that "he thought about slowing down to get over but one of the passengers told him to "hurry up, speed up". At the end of the merger, the van driver, traveling in the left lane at approximately 76 mph attempted to pass the semi travelling approximately 60 mph and enter the right lane. The van driver was unsuccessful, and the right side of the van struck the left side/left front of the semi tractor. The van ran off the road to the right, rolled and eventually came to rest on the driver's side. Another semi driver witnessing the crash called for emergency response. EMS arrived and the decedent was declared dead at the scene.

Suicide

89. A male farm market worker in his 70s died due to a self-inflicted chest injury when he used a farm tractor and disc attachment. The farm market workers were readying the fields to grow the farm market items. The family member observed the decedent walking home. He escorted him home, placed him on the couch and called for EMS. The decedent stated to the family member that he intentionally used the tractor and disc to fatally injure himself. EMS transported him to the hospital where he died later that day.

90. A male auto parts salesman in his 50s died due to self-inflicted wounds from a sharp object. The store manager said that the decedent went into the bathroom for a significant amount of time. The manager kept checking on him, but the decedent kept saying he was just going to the bathroom. Eventually, when the manager checked on him, he did not get a response. The bathroom door was locked so the manager used screwdrivers and was able to gain access to the bathroom to find him deceased. Post-mortem blood toxicology showed an elevated level of mitragynine (Kratom).

91. A male sporting goods store manager in his 50s died due to a contact gunshot wound to his chin due to a self-inflicted gunshot wound. He used the firearm while at work in his office. A coworker heard the shots, found the decedent, and emergency response was called. EMS transported him to the hospital where he was declared dead on arrival at the hospital.

92. A male pharmacist in his 40s died due to a self-inflicted gunshot wound to his chest. He was found deceased in the pharmacy.

Transportation & Warehousing (16)

Drug Overdose

93. A male tow truck driver in his 60s died due to fentanyl and cocaine intoxication. The decedent went on a call for a tire change at 0530. When a coworker arrived at 0630, he noticed the decedent in the tow truck parked in the lot. The coworker said it was not unusual, as drivers will complete paperwork in the truck at the end of their shift. The coworker attempted to contact the decedent by phone 15 minutes later, and again a short time later. Receiving no response, the coworker checked on the decedent and found him slumped over the wheel. The coworker called for emergency response. He was declared dead at the scene.

94. A male truck driver in his 60s died due to methamphetamine toxicity. Police found him deceased in the semi's sleeper compartment.

Fall

95. A male automobile mechanic in his 60s died due to craniocerebral trauma with complication due to a fall at his workplace. The decedent was standing in his work area looking on his phone while eating breakfast. For unknown reasons, he fell backwards, hitting his head on the concrete floor. Coworkers attempted CPR while awaiting emergency responders. EMS transported him to the hospital where he died several hours later as an inpatient. EMS noted his blood sugar to below 65 mg/ml, which can lead to dizziness, confusion or weakness.

Heat/Cold

96. A male furniture mover in his 30s died due to hyperthermia with ethanol intoxication as a contributory cause. The decedent arrived at work that morning in his personal pickup truck,

parking the truck in the parking lot. Company video showed him rolling up the windows but not getting out of the car. Approximately 12 hours later, he was found still seated in the driver's seat of the truck and emergency response was called. Responding police found that he had turned off the truck but left the key in the accessory position. The truck battery was dead, and it could not be determined if the truck fan had been left on. The outside temperature that day ranged from the low 60s when he arrived at work to a high of 87-degrees F during the day. He was declared dead at the scene.

Motor Vehicle

97. A female United States Postal Service (USPS) mail carrier in her 30s died due to blunt force injuries in a motor vehicle crash. The crash occurred on a slushy, not physically divided 2-lane roadway with a posted speed limit of 55 mph. The decedent was in a USPS right-side driven flexible fuel light truck (sitting on the passenger side) with rear-wheel drive to deliver the mail. She was travelling westbound at a speed that was too fast for conditions to get up a hill with a 3-degree grade. She lost control of the truck and crossed the centerline. An eastbound mid-size SUV struck the passenger side of the USPS truck, pinning her. The decedent was wearing her lap and shoulder belt. The truck did not have airbags. EMS transported her to the hospital. She died 9 days later as an inpatient in the hospital.

98. A male semi-truck driver in his 60s died due to multiple blunt force injuries in a motor vehicle crash. The crash occurred on a dry, median divided 2-lane expressway with a posted speed limit of 70 mph. The crash involved 4 vehicles: three semi-trucks and a passenger vehicle. All the vehicles were traveling westbound in the right lane. The crash occurred before the first warning sign for a construction zone. Traffic was slowing and coming to a stop due to the upcoming work zone. The decedent was able to talk with responding police at the scene. He told police that he was talking on the phone using a headset and did not see the traffic slowing down. The decedent did not slow for the traffic and rear-ended the passenger vehicle, pushing it into the median. The decedent's semi-truck then struck the trailer of the second semi-truck, which pushed the second semi-truck forward, striking the rear of the third semi-truck. The decedent was ejected from his vehicle and was found by emergency responders under the trailer of the second semi-truck. The decedent's lap/shoulder harness use and the semi's airbag deployment were unknown according to police. EMS airlifted him to the hospital where he was declared dead in the emergency room.

99. A male delivery driver in his 20s died due to multiple blunt force injuries sustained in a motor vehicle crash. The crash occurred on a wet, not physically divided 2-lane roadway with a posted speed limit of 55 mph. The decedent was a passenger in a box truck delivering appliances. A bee entered the cab of the northbound truck, and the driver waved at it. As he was attempting to get the bee out of the cab, the driver veered to the right at a high rate of speed. He lost control, crossed the centerline and then struck a mailbox on its way to a large tree. The passenger side of the box truck struck the tree head on; the truck was on its side wrapped around the tree. The driver was able to extricate himself and was transported to the hospital. The decedent was pinned in the vehicle. He was not wearing a lap and shoulder belt. The van's airbags did not deploy. EMS responded. Extrication of the decedent was prolonged due to the position of the truck. He became unresponsive and was declared dead at the scene. Responding police determined that the box truck driver's blood level of marijuana was a contributing factor in the crash.

100. A female rideshare driver in her 40s died due to multiple blunt force trauma sustained in a motor vehicle crash. The crash occurred within an intersection controlled by a stop light. Both the southbound roadway and the westbound roadway were dark, but lit, not physically divided 2-lane roads. The southbound road had a posted speed limit of 40 mph. The westbound road had a posted

speed limit of 35 mph. The decedent's vehicle was traveling westbound, and Vehicle 2 was traveling southbound. A witness indicated that the stop light was red for the southbound roadway for approximately 4 seconds. The decedent was making a left turn when Vehicle 2, traveling approximately 95 mph disregarded the red light and entered the intersection, striking the decedent's vehicle on the passenger side. The decedent was ejected from the vehicle and came to rest in the roadway approximately 23–30 feet from her vehicle. EMS responded and transported her to the hospital where she was declared dead in the emergency room. Police indicated that her restraint use was unknown and that the vehicle airbags had deployed.

101. A male truck driver in his 60s died due to blunt force injuries sustained in a motor vehicle crash. The crash occurred on a dry expressway ramp. The decedent was driving a semi-tractor hauling a tanker trailer containing fuel. He was traveling at a high rate of speed on a southbound expressway ramp to a westbound expressway when his tractor-trailer unit left the roadway to the left. The semi and tanker tipped over and began skidding into a ditch where it rolled multiple times and came to rest on the passenger side. The decedent was partially ejected from the truck and found near the cab by passing drivers, who removed debris from him and covered him with a blanket. The employer told responding police that the semi's tracking program indicated the last registered speed was 58 mph. EMS arrived and he was declared dead at the scene. He was not wearing his lap and shoulder belts. The semi's airbags did not deploy.

102. A male delivery driver in his 60s died due to multiple blunt force injuries of the chest, abdomen, pelvis and right femur sustained in a motor vehicle crash. The decedent was driving a cargo van westbound in the right lane on a wet, divided highway with a barrier 2-lane roadway with a posted speed limit of 70 mph. Traffic speeds had slowed due to backed up traffic for a construction lane closure ahead. The decedent failed to slow down and initiated a crash involving four vehicles. The decedent struck Vehicle 2 at a high rate of speed, causing Vehicle 2 to rear-end Vehicle 3. Vehicle 3 then struck Vehicle 4; the force of the impact caused Vehicle 3 to leave the right lane and exit the roadway to the left. Vehicle 4 then struck Vehicle 5. EMS arrived and the decedent was declared dead at the scene. He was not wearing a lap and shoulder belt. The van's airbags deployed. EMS transported all other drivers and passengers to the hospital; one passenger, who was not wearing a lap and shoulder belt was also killed.

103. A male semi-truck driver in his 40s died due to multiple injuries sustained in a motor vehicle crash. The crash occurred within an intersection of two 2-lane roadways, both dry, not physically divided, and both with posted speed limits of 55 mph. The crash involved two semi-tractor trailers. The north-south roadway had the right-of-way. The east-west roadway had stop signs posted on both sides of the road (double stops). Semi #1 had two trailers and was traveling southbound. The decedent's semi was traveling eastbound. The decedent disregarded the stop sign and failed to yield to the southbound semi. The decedent's tractor collided with the lead trailer of the southbound semi. It appears that the decedent, at the last minute, attempted to avoid the collision; police observed a short distance of skid marks just prior to the collision. The decedent was trapped inside of the cab. Emergency response was called, and after extricating the decedent from the cab, EMS transported him to the hospital where he was declared dead in the emergency room. The decedent was wearing his lap and shoulder belt. The airbags did not deploy.

Struck By

104. A male truck driver in his 40s died due to multiple trauma when he was hit by a vehicle while checking tie downs on his load on the shoulder of the road. The crash occurred at dusk, on a dry, not physically divided 2-lane road with a posted speed limit of 65 mph. The decedent had parked his semi-truck and flatbed trailer fully on the westbound shoulder of the road outside of the rumble

strips. He had activated both the hazard flashers and LED amber strobe lights. He was wearing a high visibility vest and checking the tie-downs chains for a skid steer when an intoxicated driver traveling westbound crossed the fog line and struck him with the right passenger front of his vehicle. Witnesses had previously observed the driver to be swerving within the westbound lane. EMS was called and he was declared dead at the scene.

105. A male tow truck driver in his 20s died due to multiple blunt force injuries when he was struck by an oncoming vehicle. The incident occurred in the median crossover of a dry, 2-lane highway divided by a grass covered median (no barrier) with a posted speed limit of 70 mph. The decedent, who was wearing a lime-colored high visibility vest parked his truck, loaded with several vehicles, in the median crossover facing southbound. He activated the overhead lights of the tow truck and exited the truck to try to coax an animal in the median to his truck. Vehicle 1's driver was traveling eastbound in the right lane and had the vehicle's cruise control set at approximately 78–80 mph. The driver saw a tow truck enter the median crossover ahead of him and made a lane change to the right lane behind another vehicle that was traveling about the same speed. The vehicle in front slowed down and Vehicle 1's driver had to brake hard, causing the driver to lose control. Vehicle 1 swerved to the left, cut across the left lane and into the median crossover nearly striking the front end of the tow truck. The vehicle then traveled off the road into the median where the decedent was standing. The vehicle struck the decedent and then continued into median ditch. The decedent was thrown into the air and landed in the median, approximately 132 to 167 feet from the area of impact. A witness stopped, checked on the decedent's condition, and called 911. EMS arrived and he was declared dead at the scene.

106. A male freight inspector in his 50s died due to multiple blunt force injuries and complications thereof when he was pinned between two pickup trucks in a railroad car. The decedent was wearing a lime green high visibility vest. The pickup driver involved in the incident was responsible for loading the pickup onto the rail car and chock the driver's side front wheels. He had been in training for two weeks, at which time he had a "spotter" to help him. This was his second day loading trucks on his own and thought he still had use of a "spotter" to inform him if he needed to stop for any reason. At the time of the incident, as he was loading the next pickup truck into the railroad car, he was looking out and down from the driver's side window to the railroad car floor to appropriately position the truck. The decedent's responsibility was to use a scanner to scan the bar code sticker located in the upper corner on the front passenger side windshield and to verify entry to the computer database. For reasons unknown, the decedent was positioned at the rear of the pickup he had just scanned. The oncoming pickup struck the decedent and pinned him. Another driver unloaded the pickup striking the decedent. Emergency response was called. EMS transported him to the hospital where he died 4 days later despite medical intervention. Investigation found that there were no written procedures developed to establish standards for proper body placement within rail cars during loading and auditing operations and that newly assigned employees were not provided adequate training on the hazards and safeguards pertaining to loading passenger vehicles and working inside rail cars. Training did not cover pinch points created by vehicles and proper body positioning to safeguard employees. In addition, accelerated training was provided to employees to preserve continuity of operations before employees acquired the skills and demonstrated proficiency in safely loading rail cars.

Suicide

107. A male truck driver in his 50s died due to a self-inflicted contact gunshot wound to his head. He was found dead in the sleeping compartment of his parked truck at a convenience store/gas station along a highway.

Toxic Exposure

108. A male courier in his 60s died due to carbon monoxide poisoning while in his van waiting for a repair part to arrive at the repair shop. The van's exhaust manifold had broken in half on the driver's side. Rather than the exhaust traveling down pipes and into the muffler, the exhaust exited to the air of the inner cab area. While he was waiting for a part to arrive at the repair shop, he sat in the driver's seat with the van running and the driver's side window down. As the repair shop workers were closing for the night, they saw the decedent in his vehicle. One of the workers went over to speak with him, but he was unresponsive. The worker told the shop owner, and the owner called for emergency response. EMS arrived and he was declared dead at the scene.

Information (2)

Suicide

109. A male radio broadcaster in his 60s died due to asphyxia due to a self-inflicted hanging. He was found in his office by a coworker who called for emergency response. He was declared dead at the scene.

Other

110. A male cable technician in his 40s died due to multiple blunt force injuries when a tornado picked up his work truck from a road, causing it to become airborne, roll, and land in a wooded area. The decedent was dispatched for a customer service maintenance issue at approximately 11:00 p.m.; he was paid for his travel time. The decedent travel would have been in the vicinity of an unconfirmed EF4 tornado with wind speeds ranging from 166–200 mph at approximately 11:30 p.m. The next morning, a tow truck driver involved in cleanup found a toolbox in the woods, and upon further investigation, found the decedent's vehicle in a heavily wooded area approximately 50 yards off the expressway. The tow truck driver called for emergency responders, who found him seated on the driver's side of his work truck. The truck appeared to have rolled multiple times and came to rest on the passenger side. The decedent was wearing his lap and shoulder belt. It was unknown if the truck's airbags deployed. There was no clear path to the pickup, indicating it was airborne prior to coming to its final rest; there were no skid marks on the cement, tire tracks in the dirt, or any indications to suggest that the decedent drove off the road. It remains unknown whether he was driving or parked on the side of the road when the storm moved through the area. He was declared dead at the scene.

Finance & Insurance (1)

Suicide

111. A male senior investment advisor in his 50s died due to multiple blunt force injuries from a self-inflicted 60-foot fall during work hours from a parking structure where he had a company-issued parking pass. He was declared dead at the scene.

Real Estate & Rental & Leasing (3)

Electrocution

112. A male plumber in his 60s died due to an electrocution while attempting to unclog a basement floor drain at a residential apartment building. The decedent and the owner of a management company arrived at the apartment building to unclog a basement floor drain. There was standing water/sewage in the basement. The decedent brought an electric drain snake that was not approved for use in wet locations into the basement to clear the drain. However, there was no available power source in the basement. On the second floor of the complex there was an available 120-volt electrical outlet. The decedent and the management company owner connected extension cords together to power the drain snake. The electric drain snake was not directly plugged into a ground fault interrupted circuit (GFCI). The decedent handed the management company owner the plug of the extension cord and asked him to plug it in. The management company owner went upstairs to plug in the extension cord and when he returned to the stairway to the basement, he heard the decedent screaming for help. The management company owner indicated that the electric drain snake ran for approximately two minutes when the decedent was heard falling and calling out. The management company owner ran down the stairs but stopped when the decedent told him “don’t come down here”. The management company owner stopped before entering the water, contacted EMS, and could no longer hear the victim. First responders did not enter the basement until the utility company shut down power to the building and confirmed the basement was safe for entry. First responders entered the basement and removed the decedent who was face up in the water. Resuscitation efforts were attempted. The decedent was transported to a local hospital, where he was declared dead. Autopsy revealed a 1-½- x 1-inch electrical burn on his lower right leg.

Homicide/Assault

113. A male groundskeeper/maintenance worker in his 20s died due to a gunshot wound to his head. He had been on the job for two days and was conducting weeding activities at a park within a mobile home community. A resident saw the decedent weeding, and then later saw him on the ground with the gunshot wound. A verbal altercation between the decedent and an unauthorized guest at one of the homes in the community escalated, and the shooter drew his weapon and shot him. Emergency response was called. He was declared dead at the scene.

Machine

114. A male equipment rental specialist in his late teens died due to a traumatic head injury when his head was struck by the arm of a E26 bobcat mini excavator. The decedent was one of three individuals attempting to release the bucket from the mini excavator. The incident took place outside of the garage area of the business near a fixed cement bollard protecting the building near an overhead door. The decedent, a coworker, and the mini-excavator operator were attempting to remove a stuck pin to release the bucket from the excavator. His coworker, and then the decedent held a metal rod against the bollard while the excavator operator swung the excavator bucket arm toward the bollard and the metal rod to push out the pin. While his coworker stood close by, the decedent kneeled and held the metal rod for several unsuccessful pin removal attempts. Security video of the incident showed that the excavator arm came close to striking him a few times prior to the incident. During the pin removal attempts, the decedent’s head moved closer to the bollard. The incident occurred when the excavator operator missed the metal rod and due to the decedent’s

position, hit the decedent's head crushing it between the excavator arm and the bollard. The decedent immediately fell backwards into the garage. His coworkers notified 911 and began CPR. EMS arrived, assumed care but despite lifesaving efforts, he was declared dead on scene.

Professional, Scientific & Technical Services (2)

Homicide/Assault

115. A male entrepreneur in his 20s died from a gunshot wound to his chest in his studio in an industrial building. EMS was called and he was declared dead at the scene.

Suicide

116. A male interior designer in his 40s died due to a self-inflicted gunshot wound. Employees arriving at the business called police because of suspicious circumstances; the blinds were drawn and putty on the door of the interior design business. After police were finally able to enter the business, a police officer came across a locked door. When he announced himself, the officer heard a gunshot. After gaining access to the room, they found the decedent deceased.

Administrative & Support & Waste Management & Remediation (17)

Drug Overdose

117. A male landscape laborer in his 40s died due to the toxic effects of methamphetamine while at work at a homeowner's site cutting grass. The decedent's coworker was cutting grass in the front of the home and when he did not hear the decedent's lawnmower running, he went to check on him. The coworker found the decedent lying unconscious in the grass. His coworker alerted the homeowner, who called for emergency response. Emergency responders arrived, and after resuscitation attempts were unsuccessful, he was declared dead at the scene.

Electrocution

118. A male tree trimmer in his 30s died due to an electrocution when he contacted a 13.2K-volt overhead line. The decedent was part of a 5-person crew hired by the homeowner to trim a tree in the backyard of the residence. No job briefing was held before starting the job next to an energized power line. The decedent climbed the tree using tree spurs and was approximately 20–25 feet from the ground. The decedent was using a saddle type climbing harness with a rope attached to the harness and around a tree branch with an anti-fall device that was being tended to on the ground in case the decedent fell. The decedent was about 6 feet away from the 240-volt secondary power lines that were at the height of the decedent and less than the minimum 10 feet required for 750- to 50K-volt lines. The ground man tied off a non-dielectric 12-foot Stihl HT 105 pole saw and raised it to the decedent. The ground man thought the decedent was analyzing the tree on what limbs to cut. At this time the saw was running. The ground man believed the decedent was maneuvering the saw around some tree limbs and observed the pole saw contact the overhead line. The workers in the backyard heard a "pop". The crew ran over to the rope tied to the saw and pulled the saw out of the decedent's hands. The decedent caught fire on the side of his left leg and sustained electrical burns on both hands. The homeowner called 911. The electrical company shut down power. An electrical company worker climbed up to the decedent and set up a system to lower him to the ground. He was declared

dead at the scene. The company did not have a training program to identify the job hazards and safeguards nor did the company have rescue procedures developed for work positions aloft.

Fall

119. A male tree trimming company owner in his 60s died due to multiple blunt traumatic injuries when he fell approximately 30 feet from a bucket truck. The bucket truck boom was rubbing on the trunk of the tree he was trimming. There was enough pressure to make the bucket bounce when the boom was released from the trunk. He was thrown from the bucket and fell face-first, landing on the truck, partially lodged between the truck cab and the truck boom. EMS transported him to the hospital where he was declared dead in the emergency room.

Homicide/Assault

120. A male liquor store security guard in his 40s died due to a gunshot wound to his chest. An argument had broken out between customers because someone cut in line. The decedent was attempting to diffuse the situation while standing behind a counter when one of the customers pulled out a handgun and shot him. EMS transported him to the hospital where he was declared dead in the emergency room.

121. A male janitorial supervisor in his 50s died due to multiple stab wounds. The company for whom the decedent worked was contracted by a school to perform janitorial services. A janitorial company employee stabbed the decedent in one of the school's custodial closets. EMS transported him to the hospital where he was declared dead.

Motor Vehicle

122. A male delivery driver in his 60s died due to bleeding around his lungs due to a tear in his aorta sustained in a motor vehicle crash. The crash occurred on a wet, not physically divided 2-lane roadway with a posted speed limit of 55 mph. It was raining at the time of the crash. Four vehicles were involved: a motor coach carrying a high school sports team, the decedent's SUV, a semi-tractor trailer, and a van. The motor coach, the decedent and the semi-tractor trailer were traveling southeast; the semi was directly in front of the decedent's SUV. A tree had fallen blocking most of the southeast roadway, causing the traffic to come to a slow stop. The decedent's SUV was traveling approximately 4 mph; he did not have his foot on the brake. The motor coach driver, traveling approximately 65 mph, failed to notice the stopped/slowed traffic. The motor coach driver had received a notification in his hearing aid from GPS which was on his cell phone. He looked down at this phone and then looked back to the road. It was at this time he saw the stopped/slowed traffic and took evasive maneuvers, applying the brakes and swerving to the left. He was unable to avoid the collision. The motor coach door on the front passenger side struck the rear of the decedent's SUV on the driver's side. The impact caused his SUV to rotate clockwise, striking the passenger side of the tractor trailer. The SUV stopped rotating and came to rest against the southeast guardrail on the driver's side. The motor coach crossed the centerline, entered the northwest lane and struck the northwest guardrail. The motor coach then sideswiped a northwest bound van. The motor coach came to its final rest, facing southeast in the northwest lane. Emergency responders transported the decedent to the hospital where he was declared dead in the emergency room. He was wearing his lap and shoulder belt. The SUV's side airbags deployed. All other drivers and motor coach passengers survived the crash.

123. A male truck driver in his teens died due to multiple blunt force injuries sustained in a motor

vehicle crash. The crash occurred on a wet, not physically divided 2-lane roadway with a posted speed limit of 55 mph. It was raining at the time of the crash. The decedent was driving a heavy-duty pickup truck from a jobsite to the shop to pick up some stone. He was traveling westbound at a speed too fast for conditions when he lost control of the truck, ran off the roadway to the right and struck a tree on the front passenger side of the truck. When the truck struck the tree, it rotated clockwise and continued to travel sideways until the driver's side door struck another tree. EMS arrived and he was declared dead at the scene. He was wearing his lab and shoulder belt. The truck's front airbags deployed.

124. A male business owner died due to multiple injuries sustained in a motor vehicle crash. The crash occurred within an intersection on two, dry, not physically divided 2-lane roadways. The north-south roadway had a posted speed limit of 55 mph and had the right-of-way. The east-west roadway had an unposted speed limit of 55 mph. The east-west roadway had double stop signs at the intersection, stop ahead warning placards, and red overhead blinking light. The decedent was driving a work van and traveling approximately 54 mph northbound, entering the intersection. An SUV traveling eastbound at approximately 57 mph failed to stop at the intersection. The SUV entered the intersection and struck the northbound van on the driver's side fender area, pushing it off the road into the northeast corner of the intersection. The SUV driver indicated to responding police she was distracted by personal family issues at the time of the crash. Police determined that the SUV driver did not apply the brakes prior to entering the intersection. Witnesses performed CPR on the decedent while awaiting emergency responders. EMS arrived and the decedent was declared dead at the scene. He was wearing a lap and shoulder belt. The van's airbags deployed. The driver of the SUV sustained non-life-threatening injuries.

Struck By

125. A male garbage truck driver in his 30s died due to multiple trauma when he was struck by an oncoming pickup truck while placing trash bags in the rear of his garbage truck. The incident occurred on the side of the eastbound lane of a dry, 2-lane not physically divided (two-way) highway with a posted speed limit of 55 mph. The incident occurred at dawn. The decedent had activated the 2019 Freightliner MW garbage truck's emergency lights when he stopped the truck in the eastbound lane to collect trash bags. He exited the cab wearing his lime green high visibility coat. He was at the rear of the truck, placing trash bags into the hopper. A pickup truck driver, wearing sunglasses, was traveling eastbound. He was using one hand to help block the sun which was causing windshield glare making it difficult to see ahead. The pickup truck had frost on the windshield. The pickup driver, traveling approximately 38 mph indicated he didn't see the truck until he was in its shadow. He did not apply the brakes or take evasive maneuvers prior to impact. The decedent was just to the right of the middle of the truck. He was pinned between the garbage truck and the pickup truck. The impact was to the backside of the decedent; his upper body was flexed fully at the waist so that his torso was in the garbage bin. Emergency response was called, and upon arrival, declared him dead at the scene.

126. A male groundman for a tree company in his 30s died due to blunt force trauma to his chest when a shock-loaded rigging line snapped while attempting to tow a Ford F650 bucket truck and attached Bandit Model 250 XP woodchipper stuck in a private residence lawn. The decedent was operating a Case SV250 Skid Steer Loader. A Sherrill Tree Yellow Sterling Atlas 5/8-inch Rigging Line was used as a towing cable. The business owner tied the rigging line using a double bowline knot at the tie down loop on the skid steer loader bucket and the tie down loop on the woodchipper. The decedent attempted to pull the woodchipper/bucket truck out but was unsuccessful. The owner then directed the decedent to move the skid steer loader to the front of the bucket truck. The owner

attached the rigging line via a double bowline knot on the front axle of the bucket truck to the tie down loop on the bucket of the skid steer loader. There was approximately 15–20 feet of rigging line between the skid steer loader and bucket truck. A tree and a small barn were directly behind the skid steer loader, so the owner told the decedent to make sure to not to hit them. The decedent moved the skid steer loader approximately 5–6 feet after the knot was tied, causing approximately 5–6 feet of slack in the rigging line. When the decedent reversed the skid steer loader in his attempt to tow the woodchipper/bucket truck, the slack rigging line was shock loaded. It snapped approximately three (3) feet from the tie off point on the front axle of the bucket truck. The line flew into the skid steer loader cab and directly struck the decedent's chest. The owner exited the bucket truck to check on him. Upon seeing his condition, the owner moved the decedent from the skid steer loader, called 911, and proceeded with CPR until the responding authorities arrived. EMS transported him to the hospital where he was declared dead.

127. A male tree trimmer in his 30s died due to multiple injuries due to a falling tree. The tree species was unknown. The decedent was using a chainsaw (brand unknown) to cut trees within a tree line located approximately 100 yards off a road. A witness was standing up the hill and saw the tree the decedent was cutting begin to split down the middle improperly before falling. He did not have an adequate path of retreat and was struck by the tree. The witness called out and hearing no response, went down the hill and saw him under the tree. EMS was called and he was declared dead at the scene. It was unknown how/if the decedent assessed the tree for hazards.

128. A male owner/tree feller in his 50s died due to multiple blunt impact injuries when he was struck by a tree. He was cutting down the tree at the base while the tree was being pulled by a coworker in a truck. The coworker yelled to the decedent to "go" when the tree started to fall. According to the coworker, the decedent ran directly into the path of the falling tree. Per MIOSHA investigation, there was an inadequate path of retreat during the felling of the tree, an inadequate undercut of less than 1/3 the tree diameter which caused improper fall of the tree, and an improper back cut. The coworker called for emergency response. He was declared dead at the scene.

129. A male tree trimming owner in his 80s died due to multiple blunt force injuries when he was struck by a 6-inch diameter tree/tree branch being cut down by others. EMS transported him to the hospital where he was declared dead in the emergency room.

130. A male refuse truck driver in his 50s died due to multiple injuries while emptying a refuse truck at a landfill. A semi-truck with a dump trailer was in position to dump his load at the landfill. The decedent backed his refuse truck next to the semi-truck dump trailer; the driver's side of the decedent's truck was next to the passenger side of the semi's dump trailer. The semi-truck driver, unaware of the decedent's truck location, activated the dump trailer and was watching the trailer rise in the air. As the dump trailer rose up, the semi-truck driver heard a "slight creaking noise" and witnessed the dump trailer start to tip over and tried unsuccessfully to stop it. The trailer broke away from the semi-truck's fifth wheel and came to rest the cab of the decedent's refuse truck. EMS arrived and accessed the decedent from the passenger side of the refuse truck. They found him pulseless. After the arrival of two tow trucks to lift the trailer from the refuse truck, EMS again accessed the decedent, and he was declared dead at the scene.

131. A male scrap metal collector in his 70s died due to multiple blunt force trauma when he was run over by a truck rolling backwards. The decedent had driven his pickup and trailer to a salvage yard. A salvage yard employee weighed his load of scrap, and he proceeded to the unloading area in the yard. After unloading everything but "garage items", he drove back to the front of the building near the office and placed the pickup in Park. It appeared that he did not fully engage the Park shift mechanism. He exited the truck and began to place the garage items in the weigh box. A witness indicated that she saw him loading the cart and then looked up approximately 30 seconds later and saw him under the truck. Responding police hypothesized that when the truck began to roll

backward, the decedent attempted to enter the cab but fell to the ground. The driver's side front wheel rolled across his left hip and came to rest on his chest. Emergency response was called as well as the salvage company manager. When police arrived, the officer placed the truck in Drive and moved the truck from the decedent's chest, but the tire was on the decedent's pant leg, and he could not be moved. The salvage company manager used a forklift and lifted the vehicle from the decedent's pant leg. The decedent was moved away from the truck and CPR was initiated. EMS arrived and he was declared dead at the scene. A mechanic summoned after the incident advised that there did not appear to be anything faulty in the pickup truck's shift mechanism. It was unknown how or why the truck rolled.

Suicide

132. A male landscaper in his 30s died due to a self-inflicted hanging. He was found at his employer's business.

Other

133. A male asbestos abatement worker in his 60s died due to sepsis due to or as a consequence of a pulmonary blastomycosis infection. The firm for which the decedent worked was an asbestos, mold and lead remediation company. The firm was contracted by a paper mill to perform asbestos and mold remediation services. The decedent, over the course of several months, performed asbestos abatement and mold remediation at the mill. Mold remediation was performed using an EPA-registered disinfectant, sanitizer and cleaner and then applying an EPA-registered antimicrobial coating designed to kill residual mold and mildew remaining after precleaning the contaminated surfaces. The paper mill had a documented outbreak of blastomycosis infections among employees, contractors and visitors. Blastomycosis is a disease associated with is an infection caused by *Blastomyces*, a fungus that grows in moist soil and decomposing matter such as wood and leaves. The fungus spores can become airborne if disturbed and inhaled. The decedent tested positive for blastomycosis and 11 days later, he was admitted to a local hospital. He was transferred the same day to another hospital and began anti-fungal medical treatment. One day after commencing treatment, he died.

Educational Services (3)

Homicide/Assault

134. A male university student/cook in his 20s died due to a gunshot wound to the head. He was working at the university's student union hall kitchen area of the student cafeteria at the time of a mass shooting incident. He was declared dead at the scene.

Machine

135. A male groundskeeper in his 50s died due to craniocerebral trauma when he was pinned under the rollover protection bar of a Cub Cadet Pro Z 900 Zero Turn riding lawnmower. The incident occurred at the northeast corner of a track and field facility. The east side of the track is lined by a 3-tier rectangular stone retaining wall, behind which was a steep grass-covered embankment. The lawnmower had a rollover protection bar. The decedent was not wearing the mower's seat belt. The grass embankment appeared to be cut at a southwest to northeast angle. A witness walking on the

track noticed the decedent cutting the grass and thought that the speed of lawnmower travel was “too fast”. The lawnmower traveled perpendicularly over the retaining wall, rotated forward, and came to rest with the front of the mower on the track near the retaining wall and the rollover protection bar facing the track infield. The mower was found completely upside down, not lying on either side, propped up by the safety bar. The decedent’s head was pinned under the rollover bar. When emergency response arrived, they noticed a swarm of hornets nearby and theorized that may have been the reason the lawnmower went over the retaining wall. He was declared dead at the scene.

Struck By

136. A male teacher in his 20s died due to multiple injuries when he was struck by car while changing his vehicle tire on the side of a road. The crash occurred on a wet, divided with a barrier, 3-lane roadway with a posted speed limit of 55 mph. The decedent and his passenger were returning home from a team-building exercise. They were traveling eastbound when his car experienced a flat tire. He parked the car on the right shoulder and partially on the embankment. He activated his hazard lights. His passenger walked to a nearby gas station to wait. An intoxicated driver traveling in the right lane crossed the fog line and her car entered the wide right shoulder striking both the left rear corner of the decedent’s car with right front corner of her car as well as the decedent. The intoxicated driver fled the scene on foot. EMS arrived and he was declared dead at the scene.

Health Care & Social Assistance (8)

Drug Overdose

137. A female caregiver in her 40s died due to an acute exacerbation of asthma due to or as a consequence of intoxication of cocaine with metabolites in her blood. The decedent had been dropped off to babysit a child while the child’s parents were at work. The parents indicated that the decedent was repeatedly using an inhaler attempting to control her asthma when they left for work. When one of the parents arrived home, they found the decedent on the living room couch, cold and unresponsive, with her nebulizer on her chest and the machine, which was turned on, on the floor next to her feet. The child indicated to emergency responders that the decedent had been like that for “quite some time”. She was declared dead at the scene.

Fall

138. A male caregiver in his 70s died due to multiple blunt force injuries after a fall from a 3rd floor balcony. The decedent cared for two elderly individuals with dementia in an assisted living facility. One of the elderly individual’s daughters was with her parents that morning and noted the decedent was doing well and seemed fine. The daughter left and was driving home when she received a phone call from the decedent saying he did not feel well. He said he was having pain in his chest and felt he would need to go to the emergency room. The daughter said she was on her way back to the facility and did try to call the decedent several more times. The decedent was found by a visitor to the facility on the concrete below the room’s balcony. Emergency response personnel were called, and the decedent was declared dead at the scene. The balcony railing was 3.5 feet high. There was a plastic table/stool next to the railing that was 1.3 feet tall. The distance from the top of the railing to the ground was 23.7 feet. The Medical Examiner determined the decedent suffered from multiple

blunt force injuries all consistent with a fall but could not conclusively determine whether the decedent fell or was pushed. The Medical Examiner did note in his report that “it appeared from the scene investigation that it was unlikely he fell off balcony. Other individuals had been in the apartment with him.” Responding police reviewed the video of the incident but due to lighting conditions and camera distance away could not make a definitive determination of the sequence of events. Blood toxicology at autopsy showed the presence fentanyl, norfentanyl and xylazine.

Heat/Cold

139. A male hospital security guard in his 50s died due to an asthma attack when it was triggered by cold temperatures. The decedent placed cones outside of a helicopter landing area and then waited in his work vehicle for the helicopter to arrive for a patient medivac event. He exited his vehicle and was found unresponsive on the ground approximately four (4) minutes after exiting the vehicle by a contractor spreading salt in the parking lot. The outdoor temperature was approximately 32 degrees Fahrenheit.

Homicide/Assault

140. A female nurse in her 20s died due to multiple gunshot wounds when she was victim of domestic violence. She was kidnapped in the hospital parking lot where she worked by an individual she used to date. She had tried to end her relationship with this individual but he “would not let her go”. He disguised himself with a wig, hat, and glasses and awaited her arrival in the hospital parking lot. He forced her into her car at gunpoint. She was later found dead in her vehicle.

141. A female assisted living facility housekeeper in her 40s died due to a gunshot wound to her neck in the parking lot being used by the assisted living employees. She had been in a domestic relationship with the shooter but had broken up with him. EMS transported her to the hospital where she died in the operating room.

Struck By

142. A male emergency medical technician in his 30s died due to multiple injuries when he was struck by a vehicle while aiding a driver involved in a crash. The incident occurred on a dark, lighted, icy 4-lane expressway with a concrete barrier separating northbound and southbound lanes. The expressway had a posted speed limit of 70 mph. The expressway curved in the incident area. The decedent was driving an ambulance from one company location to another to clock out for his shift. The decedent came upon a vehicle that struck a wall and came to rest partially blocking the right lane. The decedent stopped on the right shoulder just north of the crashed vehicle, activated his overhead lights, used his cell phone to call in the incident, and exited the ambulance to check on the status of the vehicle driver. The decedent and the vehicle driver were walking back to the ambulance when a pickup truck traveling in the northbound left center lane started to spin backwards out of control. The pickup truck’s right rear side struck both the decedent and the driver he was assisting, then came to rest on the right embankment in front of the ambulance. The decedent was transported to the hospital and declared dead in the emergency room. The driver he was assisting was declared dead at the scene. The pickup driver was found to have a blood alcohol level of 0.098%.

143. A female nurse at a skilled nursing care facility in her 40s died due to multiple injuries when she was struck by a motor vehicle. The incident occurred on a dark but lit dry, 5-lane roadway which had a continuous turn lane between each two directional lanes. The road had a posted speed limit of 45 mph. A patient at the facility ran out of the building (south), crossed the westbound lanes and

laid down on the eastbound lanes of the road. The decedent and her coworkers ran after the patient and placed the patient in a wheelchair. They began to move the patient north across the westbound lanes to the care facility. A vehicle traveling westbound in the right lane saw the decedent, her coworkers and the patient in the roadway and swerved to left (south) to avoid them. The vehicle hit the decedent, who went airborne over the vehicle, and came to rest in the center turn lane. The vehicle continued westbound and struck two more vehicles in the eastbound lanes. EMS transported the decedent to the hospital where she died several hours later.

Suicide

144. A male chiropractor in his 60s died due to a self-inflicted gunshot wound to his chest. He was found by coworkers in his business office. Emergency responders arrived and transported him to the hospital where he was declared dead on arrival.

Arts, Entertainment & Recreation (10)

Animal

145. A male dog kennel volunteer in his 50s died due to a bacterial infection causing sepsis due to a dog bite to his left hand. The decedent had volunteered to be a decoy wearing a bite suit sleeve at a dog training facility. Before the competition started, a kennel dog bit the decedent's left hand. There were 2 medics at the event who cleaned the wound and told him that he would need stitches. As family members were getting ready to take him to the hospital, the kennel owner stopped them, looked at the wound and put a bag previously containing hot dogs and filled with ice on the wound. The owner then stapled the wound shut with a "medical stapler". He did not seek further medical care. Police and/or animal control were not contacted. Five days after the bite to the hand, the decedent began having medical issues while at home and contacted emergency response. He was transported to the hospital and died in the emergency room while awaiting a hospital bed.

Fall

146. A male landscaper in his 70s died due to respiratory failure with complications several months after falling down 10 stairs. The decedent was employed by a golf course. He was at work and told EMS that he was trying to find the kitchen. When he stepped through a doorway he stepped into a stairwell and fell down the stairs, hitting his head. Despite undergoing several medical interventions, he died approximately 2 months after the fall in a long-term medical care facility.

147. A male marina manager in his 60s died due to blunt head trauma with hypertensive and arteriosclerotic cardiovascular disease as contributory factors when he fell from a standing position, striking his head on the floor. Witnesses to his fall indicated to emergency responders that he lost consciousness for approximately 10-15 seconds. EMS transported him to the hospital where he died the following day.

Homicide/Assault

148. A male smoke shop owner in his 30s died due to multiple gunshot wounds. He was sitting in a minivan outside of his shop when a gunman, who arrived in another vehicle, shot at the minivan, killing him and wounding another individual inside the minivan. He was declared dead at the scene.

149. A male artist in his 40s died due to a gunshot wound to his neck. The decedent had been

contracted to provide painting services at a music studio owned by two individuals. The two individuals went to the hotel where the decedent was staying. One of the owners entered the decedent's room while the other stood outside of the door. A physical altercation ensued over paint supplies. The individual in the room shot the decedent, took the paint supplies, and left. He called police about the shooting. EMS transported the decedent to the hospital where he died later that day.

Machine

150. A male motocross rider in his 50s died due to blunt force injury to his neck during an amateur motocross race. A spotter on the motocross track notified the race supervisor about a "rider down" on the track. Due to trail conditions, the EMS personnel were transported to and from the incident location on a facility-provided vehicle. His crash was unwitnessed. According to the supervisor, it is likely the decedent lost control of his dirt bike on a curve and crashed. He was found "wrapped up" in the dirt bike handlebars. After transfer to the ambulance, EMS transported him to the hospital where he died 2 days later. He was wearing his helmet.

Struck By

151. A male drag way pit crew member in his 70s died due to blunt force injuries when he was struck by a vehicle being operated in reverse. The incident occurred at a sanctioned National Hot Rod Association event. A modified automobile "funny car" was backing up to the starting line after practicing "burnouts" on the drag strip. The decedent was on the passenger side and a coworker on the driver's side were on foot, facing the vehicle, walking backwards, guiding the reversing car to the starting line. While in reverse, the car experienced an unexpected engine issue which caused the car to quickly accelerate out of control. The decedent and his coworker could not get out of the way in time and were struck by the vehicle. The vehicle continued in reverse and caught fire, then struck another "funny car" in the staging area. The decedent was wearing high visibility clothing. EMS transported him to the hospital where he was declared dead in the emergency room. The coworker who was also struck sustained minor injuries.

Suicide

152. A male maintenance worker in his 20s died due to asphyxia from a self-inflicted hanging in the maintenance shop at the amusement park where he worked.

153. A male horse trainer in his teens died due to asphyxiation from a self-inflicted hanging. He trained horses at home. He was found in a barn at his home by family members who called for emergency response. He was declared dead at the scene.

154. A male sports center owner in his 50s died due to a self-inflicted intoxication by the combined effects of oxycodone and morphine. He was found by a family member behind the counter at his business. He was declared dead at the scene.

Accommodation & Food Service (6)

Drug Overdose

155. A male hotel manager in his 40s died due to acute fentanyl toxicity. He was found by a coworker lying on his right side, with his feet on the second to the top step on the outdoor stairs leading to

the second floor of the building. The coworker moved him to his back to assess the situation, yelled for help, and began CPR. A hotel guest heard the yell for help and called for emergency response. EMS arrived and he was declared dead at the scene.

Fall

156. A female fast food restaurant prep cook in her 60s died due to a subdural hematoma sustained when she hit her head when she slipped and fell at work. The decedent declined medical attention while at work. Several hours after returning home, she began having a debilitating headache and nausea/vomiting, so she called 911. Emergency response arrived and transported her to the hospital. She underwent surgery to remove the hematoma, but despite medical intervention, died 4 days later in the hospital.

157. A male fast-food cook in his 40s died due to complications of a subdural hematoma sustained in a fall at work. Coworkers saw him “shaking” for several seconds while standing at a flat-top grill and then fall to the floor, striking his head. Coworkers called for emergency response, and he was transported to the hospital emergency department. Against medical advice, he left the hospital before being treated. He proceeded to have headaches, dizziness, nausea and vomiting at home. A family member found him unresponsive and called for emergency response. EMS transported him to the hospital where he died 2 days later.

Homicide/Assault

158. A female bartender in her 30s died due to a gunshot wound to her head when she was caught in the crossfire between two parties in their vehicles. Per a witness, the decedent heard the shots and stood on a counter and was shot through the establishment’s front glass. She was declared dead at the scene.

159. A male fast food restaurant worker in his teens died due to multiple gunshot wounds while sitting in his car in the restaurant’s parking lot. The perpetrator waited for the decedent to take his break when he approached the car and shot the decedent. He was declared dead at the scene.

Motor Vehicle

160. A male sous chef/assistant manager died due to blunt force injuries sustained in a motor vehicle crash. The crash occurred on a dry, not physically divided (2-way traffic) 5-lane roadway with a posted speed limit of 50 mph. The roadway had 2 lanes each of eastbound and westbound travel, with a turn lane between the eastbound and westbound lanes. The decedent left the restaurant to pick up some supplies and was traveling in the left eastbound lane on his motorcycle at the time of the crash. An eastbound school bus was in the right lane preparing to turn right into the business driveway. A pickup truck was in the business driveway, waiting to exit to make a left turn to enter the middle turn lane/westbound lanes. The police report indicated that the school bus driver waved to the pickup driver to exit the business driveway. As the decedent passed the school bus, the pickup truck entered the eastbound roadway. The decedent’s motorcycle struck the driver’s side of the pickup. It was unknown if the school bus lights were activated and flashing. The decedent was not wearing a helmet. EMS transported him to the hospital where he was declared dead in the emergency room. Post-mortem blood toxicology identified quantifiable levels of marijuana and marijuana metabolite.

Other Services (except Public Administration) (9)

Drug Overdose

161. A male handyman in his 40s died due to toxic effects of fentanyl and acetyl fentanyl with hypothermia as a contributing factor. The decedent was hired to clean up some branches that had fallen in the yard where vehicle parts were stored at used car dealership. A coworker saw him around 1500 hours. The coworker left work but was called back by the establishment's owner to look for the decedent because he had not picked up his paycheck. As it was dark, they used flashlights to search for him; they were unsuccessful. Searching again in daylight, he was found deceased, wedged between some car doors and some tires.

Fire/Explosion

162. A male automotive mechanic in his 60s died due to multiorgan failure due to or as a consequence of thermal injuries and smoke inhalation and complications thereof. The decedent was in his pole barn, with the overhead door shut and a man door partially open working on a vehicle on a hoist. It appeared that the fire started by the east wall of the pole barn near the driver's door of the vehicle on the hoist. A determination of the cause of the fire could not be determined by fire investigators due to overlapping issues, such as a variety of flammable liquids, various electrical wires and electrical outlets, vehicle gas tank, etc. A passerby reported the fire. EMS arrived and extracted the decedent from the burning building and extinguished the fire. He was transported to the hospital and died later that day.

Homicide/Assault

163. A male non-partisan political group director in his 60s died due to a gunshot wound to his head. He was going door-to-door on behalf of a candidate when he was shot by a teenager who had asked him for a dollar. EMS transported him to the hospital where he was declared dead in the emergency room.

Struck By

164. A male concrete contractor in his 40s died due to asphyxia due to compression injuries of his chest and torso by his flatbed truck's left front tire. The truck, which was used for work, was known by friends and family to have starter and transmission problems. Several weeks prior to the incident, the decedent was observed under the truck using a screwdriver to start the vehicle. On the day of the incident in an outdoor auto repair lot, the decedent crawled under the running truck with a flashlight. A screwdriver was found on the driver's side floor and one in the driver's side door pocket. A friend found him with the truck running and the reverse lights on. He apparently did not chock the tires; EMS reported that, based on the tire tracks, it appeared the truck rolled 2–3 feet before coming to a stop. There were signs of struggle; marks on the ground indicated he had been kicking trying to free himself. His friend called 911, reported the incident, and asked dispatch if he could move the truck off the decedent, which he did, moving it forward and turning it off. His friend indicated that the dash lights did not work so he was not sure what gear the truck was in but did not believe it was in Park. EMS responded and the decedent was declared dead at the scene.

165. A male automotive repair technician in his 40s died due to traumatic asphyxia when an automobile he was working under fell and crushed him. He utilized jack stands, the location of which

were unknown, to elevate and stabilize the car as he worked on repairing the car's rear axle. He was positioned under the back passenger side of the vehicle with head and shoulders on the curb/grass, his body under the vehicle and his feet sticking out past the rear bumper near where the license plate was affixed. The car became dislodged from the jack stands and fell onto him; the car frame landed on his chest. A family member discovered him and called for emergency response. The family member also attempted to use a jack near the rear driver's side tire to lift the car from him but was unsuccessful. Fire responders were able to lift the vehicle and extricate him. He was declared dead at the scene.

166. A male truck driver/mechanic in his 60s died due to multiple blunt chest and abdominal injuries when he was struck by a vehicle. A gore between an eastbound, single lane, icy ramp with a posted speed limit of 45 mph (Ramp A) and another eastbound ramp was the site of the fatal injury. An early season snowfall the night before caused roadways to be icy and covered the grass in the gore. While on scene responding police identified that the incident ramp shoulders were difficult to walk on due to the ice. Ramp A was a single lane eastbound ramp and had three types of yellow/black advisory signs: a 45mph sign, "Bridge ices before road", and then several indicating a lefthand curve. The truck driver involved in an earlier crash called the decedent for help to tow his vehicle. The decedent brought a tow dolly and a spare tire to the area. The truck driver indicated that several tools, including a socket needed to change a flat tire on the truck must have fallen from the truck in the crash. The decedent, wearing a high visibility vest, was looking for the socket in the gore on the right side of Ramp A while the truck driver was on the left side of Ramp A. A vehicle (Vehicle 1) on Ramp A lost control of the vehicle on the icy bridge deck. Vehicle 1's driver indicated to police that the vehicle began to slide, going from one side to the other. Ramp A's guard rail on the right shoulder ended just beyond the bridge deck leaving the right shoulder unprotected from a vehicle sliding into the gore. The vehicle left Ramp A, entered the gore, and struck the decedent as he attempted to escape. Responding police determined the vehicle's speed was above 45 mph as it traveled on the ramp. Emergency response was called. EMS transported him to the hospital where he was declared dead.

167. A male handyman in his 50s died due to complications of traumatic asphyxia when a car he was working on fell onto his chest after it fell from a car jack. The decedent, who had performed various jobs in the past for this individual, was, on the day of the incident, working on a car in his employer's driveway. The driveway sloped down toward the road and the decedent had chocked the rear tire with a rock. The type of work being performed was unknown, although the two front tires had been removed and were on the cement in front of the car. The front end of the car had been supported by a Daytona brand vehicle floor jack; the location where the decedent had placed the jack was unknown. The upper half of the decedent's body was under the vehicle body. The decedent was using various tools, located in front of and under the car when it fell from the floor jack. A neighbor heard a crash and investigated. Finding the decedent under the vehicle, the neighbor called 911 and then ran to another neighbor's home for help. While awaiting further help, the neighbor returned to the vehicle and 911 advised the neighbor to use the car jack by the driver's side wheel to raise the car. When the second neighbor arrived, the two neighbors were able to extricate the decedent. They began CPR while awaiting emergency response arrival. EMS assumed care and transported him to the hospital where he died 11 days after the incident. The decedent had measurable blood levels of fentanyl and cocaine metabolite in his system at the time of his injury.

168. A male auto mechanic in his 70s died due to mechanical asphyxia when the car he was working on in the backyard of a residence fell and landed on his upper chest. The incident was unwitnessed. The decedent had the resident's permission to come and go as he pleased when the residents were not there. On the day of the incident, the residents returned to the home and heard a generator running, which was not unusual. As it was getting late, one of the residents went to the backyard to

see why the generator was still running and found the decedent under the vehicle. He was declared dead at the scene.

Toxic Exposure

169. A male automotive prototype product development company owner in his 60s died due to carbon monoxide toxicity in the business's garage. Two possible sources of carbon monoxide were identified: a Jeep and a forklift. A coworker left the previous day and spoke with the decedent on his way out. When he arrived at work the next morning, he found the lights on, which was unusual. He heard the decedent's cell phone ring a couple of times and it was not answered, which he again found unusual. He looked around the building and found the decedent between the forklift and a wall, leaning toward the wall. He called 911, who told him to place the decedent on the ground and begin chest compressions. Emergency response arrived and he was declared dead at the scene. Another company employee indicated to the responding police that the HVAC systems were serviced regularly but noted that the forklift had problems and the user had to throttle the gas to keep it running. Responding police observed jumper cables attached to the forklift and postulated that the decedent had been working on the forklift at the time of the exposure. While still on site, the worker who found the decedent began to feel light-headed and began to vomit. Responding police also began to feel light-headed. Suspecting carbon monoxide, the police called the local utility company which found carbon monoxide levels of 800 ppm. Fire department personnel found carbon monoxide levels between 500-600 ppm in the building. At these levels, carbon monoxide becomes fatal with 2-3 hours of exposure. Postmortem toxicology revealed a high level of carbon monoxide (70%) in his blood.

Public Administration (3)

Electrocution

170. A male volunteer firefighter died due to an electrocution when a 14,000-volt primary line fell onto him when a tree branch snapped. The decedent was a member of a 3-person crew responding to a smoking tree branch which had come down onto a high-voltage primary powerline due to an ice storm. Collectively, the crew secured the scene with tape. One coworker (#1) returned to his vehicle while the decedent and his coworker (#2) walked approximately 100 feet south of Coworker #1's vehicle, off the roadway, and onto a trail in a wooded area. They were standing approximately 5-6 feet apart when Coworker #2 heard a branch snap approximately 200 feet north of their position. The next thing he heard was a whipping noise followed by grunting. Coworker #2 turned toward the decedent and observed the decedent on the ground with a high-voltage primary powerline on him. Coworker #2 called Coworker #1, who had also heard the branch snap; Coworker #2 ran to the location. When he saw what happened, he called 911, returned to his truck and gathered a fire extinguisher as the decedent was on fire. When other units arrived, the crews used 2 "pike poles" to remove the decedent from the power line. Lifesaving measures were attempted at the scene. EMS transported him to the hospital where he was declared dead.

Homicide/Assault

171. A male county court officer in his 60s died due to multiple gunshot wounds sustained when he was following up on a previously served eviction notice to an individual in a residence. The decedent had been escorted to the home by police when serving the eviction notice. The individual was

ordered to be moved out on the day of the incident, and that was the purpose of the decedent's visit to the residence. Police were called by the court when family members contacted the court indicating that the decedent was not answering his phone. When police arrived, they saw the decedent's vehicle and contacted the individual inside of the residence. The individual told the police that he shot the decedent and where he could be found. He was under a tarp near the home and was deceased. Holding the individual at gunpoint, police entered the home, and the individual was taken into custody without incident.

Medical

172. A male firefighter in his 40s died due to hypertensive and atherosclerotic cardiovascular disease within 24 hours after fighting an arson fire at a mobile home park. The decedent and his two fellow firefighters were first on scene. There was heavy fire throughout the mobile home and smoke conditions were determined to be moderate. The decedent and his two fellow firefighters were first on scene. The decedent was the firefighter on the nozzle of a 1 3/4-inch fire attack hose and began fighting the fire from the exterior of the building. Another engine arrived also having three firefighters. Together, with the decedent acting again as the firefighter on the nozzle, they entered the mobile home and fought the fire for approximately 20 minutes. While extinguishing the fire, one of his coworkers stated that the decedent indicated he was tired and needed a break. His coworkers told him to take a break. They observed the decedent walk over to the front bumper of a vehicle and sit down. While sitting down, the decedent removed his air pack from his back. Following this, the decedent began pacing around and climbed up into the back of fire engine in which he arrived at the fire. One of his coworkers then observed the decedent's fire helmet fall onto the ground and walked over. He picked up the decedent's helmet and attempted to hand it back to him. When the decedent did not immediately reach out and grab it, his coworker looked inside the cab and observed the decedent to be slumped over and shaking while facing the jump seat. His coworker removed the decedent from the cab, laid him onto the ground and checked for a pulse and breathing. Finding neither, he immediately began removing the decedent's fire gear and initiated resuscitation efforts. EMS arrived and assumed care as they transported him to the hospital. Despite resuscitation efforts, the decedent was declared dead in the hospital emergency room.