San Francisco County Transportation Authority

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AGENDA

VISION ZERO COMMITTEE
Meeting Notice

Date: Thursday, June 27, 2019; 1:30 p.m.

Location: Committee Room 263, City Hall

Commissioners: Yee (Chair), Stefani (Vice Chair) and Mandelman

Clerk: Alberto Quintanilla

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1. Roll Call

Consent Agenda

2. Approve the Minutes of the March 14, 2019 Meeting – ACTION* **3**

3. Update on Previous Two-Year Action Strategy – INFORMATION* **11**

Update on the last two-year action strategy to inform how the city performed during that period.

Regular Agenda

4. Vision Zero Legislative Update – INFORMATION* **15**

San Francisco Municipal Transportation Agency (SFMTA) staff will update the committee on the status of Vision Zero related bills and report back on the first meeting of the Zero Traffic Fatalities Task Force which will be held on June 25, 2019.

5. Severe Traffic Injury Report – INFORMATION* **17**

San Francisco Department of Public Health (SFDPH) staff will provide an update on its work with hospital trauma staff to track severe injuries overall, as well as injuries sustained from e-scooter and other emerging mobility and sharing technologies.

6. San Francisco Police Department Report – INFORMATION

San Francisco Police Department (SFPD) will provide an update and report the number of tickets given to vehicles, pedestrians and bicyclists.

7. Quick-Build Vision Zero Safety Projects – INFORMATION* **55**

SFMTA staff will discuss the identification, implementation and effectiveness of strategies to facilitate faster implementation of Vision Zero projects. SFMTA staff will

also provide an update on leading pedestrian intervals and the progress achieved to date.

8. Educational Outreach – INFORMATION* **69**

SFMTA staff will provide an update on educational outreach programs including the in-language outreach for the Safe Streets for Seniors program.

9. Safe Streets Program Evaluation – INFORMATION* **83**

SFMTA staff will give a presentation on the "Reporting the Results" Vision Zero Safe Streets Evaluation Program 2018 Year-End Report.

10. Introduction of New Items – INFORMATION

During this segment of the meeting, Committee members may make comments on items not specifically listed above, or introduce or request items for future consideration.

11. Public Comment

12. Adjournment

*Additional Materials

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DRAFT MINUTES

VISION ZERO/PERSONNEL COMMITTEE
Thursday, March 14, 2019

1. Roll Call

Chair Yee called the meeting to order at 3:32 p.m.

Present at Roll Call: Commissioners Peskin, Stefani and Yee (3)

2. Approve the Minutes of the October 31, 2108 Meeting – ACTION

There was no public comment.

Commissioner Peskin moved to approve the item, seconded by Commissioner Stefani.

The item was approved without objection by the following vote:

Ayes: Commissioners Peskin, Stefani and Yee (3)

3. Vision Zero Legislative Update – ACTION

Michelle Beaulieu, Senior Transportation Planner, presented the item per the staff memorandum.

Chair Yee requested additional information regarding Senate Bill (SB) 59 (Allen).

Ms. Beaulieu said SB 59 would establish an autonomous vehicle working group at the state level to guide policy development for autonomous passenger vehicles. She said that at the February Board meeting, Chair Yee requested that Transportation Authority staff work with the author to add reference Vision Zero in the bill. She noted that staff was working with the San Francisco Municipal Transportation Agency (SFMTA) and the Metropolitan Transportation Commission (MTC) to submit specific language to incorporate Vision Zero goals explicitly into the legislation.

Chair Yee thanked the author for working with staff to include Vision Zero language in the bill. He then asked about the current status of automated speed enforcement legislation, which did not advance last year.

Ms. Beaulieu said that her understanding was that this year, the state had convened a Toward Zero Deaths task force. She said that colleagues at the SFMTA were working with that group as they developed recommendations and policy positions and that there were no automated speed enforcement related bills this year but that there may be in the future.

Chair Yee asked what it would take to reintroduce the bill this year.

Ms. Beaulieu said that the last day to introduce new bills was on February 22, 2019 but that there was a possibility to amend existing bills. Ms. Beaulieu said that she did not know of any conversations to amend an existing bill to add automated speed enforcement.

There was no public comment.

Commissioner Stefani moved to approve the item, seconded by Commissioner Peskin.

The item was approved without objection by the following vote:

Ayes: Commissioners Peskin, Stefani and Yee (3)

4. 2018 Fatality Report – INFORMATION

Shamsi Soltani, Vision Zero Epidemiologist at San Francisco Department of Public Health, presented the item.

During public comment Fran Taylor, Co-Chair of Si Se Puede, said she appreciated the report but thought it was too optimistic to state that 2018 was the second least deadly year because it had not been for pedestrians and cyclists. She asked why seniors and homeless people were not mentioned when discussing communities of concern.

Chair Yee acknowledged that Commissioner Fewer had joined the Vision Zero Committee for Item 4.

Kristen Leckie, Community Organizer at the San Francisco Bicycle Coalition, reported that a woman riding an electric FordGo bike on Howard and Sixth Streets was hit and killed by a truck driver and was the latest victim over the past couple weeks. She said Howard Street was the location of several delayed street safety projects and one of San Francisco's most traveled bicycle corridors. She urged the SFMTA to implement safety projects not just on Howard Street but throughout the city.

Winston Parsons, staff member at the Richmond Senior Center, shared the story of a fatal collision that occurred on February 26th in the Richmond district involving a senior woman. He said that the Richmond Senior Center was near California Street, which had been identified as a high injury corridor but lacked a comprehensive plan for improvements. He requested that the city implement near term improvements and a comprehensive traffic project from 32nd Avenue to Arguello Boulevard within the next three years.

A member of the public [name not provided] stated that his neighbor was killed on 18th Avenue and California Street and that he, as an able-bodied person avoided crossing California Street. He said he feared for seniors trying to cross the street and spoke his support for the Central Richmond safety project draft proposal.

David Bach, member of the public, said that he was concerned that before his retirement that he would be killed on the streets of San Francisco. He requested that the SFMTA appoint a bike czar to be the point of contact for all requests and comments.

Cathy De Luca, Policy and Program Director at Walk San Francisco, reflected on the fatal collision that involved Ted Rothstein and said that the same level of outrage was needed every time someone died on city streets. She advocated for senior women of color who were also victims of fatal collisions and said the city was in a senior state of emergency.

After public comment Chair Yee thanked the public and said the Committee was listening to their comments and taking them very seriously. He noted a slide in the presentation that stated that 22% of the fatalities were homeless persons and asked what the city could do to protect this portion of the population.

Megan Wier, Director of Program on Health, Equity and Sustainability at San Francisco Department of Public Health, said homelessness was being more routinely tracked as a result of the city's work to better understand patterns of traffic deaths. She said the Health Department and other agencies within the city were engaging to better understand the ways in which homeless

people were disproportionately at risk for traffic deaths. She added that the report would help identify where homeless were concentrated in the city.

Chair Yee remarked that the report was revealing a better picture of the data on traffic fatalities. He asked if the report demonstrated any patterns for severe injuries.

Ms. Soltani said there was a portion of a later presentation that focused on severe injuries. She said the report tracked severe injuries and looked how to best reduce the risk of injury.

Chair Yee said patterns that were being identified needed to be incorporated into the educational component of the Vision Zero program. He added that the report needed to look at areas that required further education, like assisting monolingual residents.

Commissioner Fewer asked for the number of fatalities reported in 2019.

Captain Timothy Falvey at the San Francisco Police Department said there were eight fatalities to date.

Commissioner Fewer asked for the number of pedestrian fatalities in 2019 to date.

Captain Falvey responded that there were five pedestrian fatalities.

Commissioner Fewer asked how many 2019 fatalities were bicyclists.

Captain Falvey responded that one was a bicyclist and two were motor vehicle collisions.

Commissioner Fewer requested the numbers of fatalities reported in the severe traffic injury report of 2018.

Ms. Soltani said the 2018 data was a collaboration of Police Department data and San Francisco General Hospital's trauma data. She said that the data had been requested and the hospital had 60 days to close patient records. She said the data would be added to the trends report as soon as it was received.

Commissioner Fewer asked if the serious traffic injury reports included head injuries from scooters.

Ms. Soltani said Public Health was working with trauma staff at San Francisco General Hospital to better track severe and fatal injuries from scooters and hoverboards. She added that the data was currently not available.

Commissioner Fewer asked when the data would be available.

Ms. Soltani said Public Health anticipated a summary in the summer of 2019 and suggested having a hearing at that time when the data was released.

Commissioner Fewer stated that District 1 had two vehicle fatalities in one month and both involved senior Chinese women. She said District 1 needed repaving of uneven crosswalks with potholes and added that the intersection of 18th Avenue and California Street needed to be changed from a four-way stop to a signalized intersection. She shared that her husband was a San Francisco police officer for 35 years and spent his last nine years in the traffic unit riding a motorcycle and could give out tickets repeatedly because people did not stop properly. Commissioner Fewer said that she believed that the proposed traffic island at Park Presidio and 25th Avenue was not enough of a deterrent to slow down vehicles and said she was working with Chief Scott to have more motorcycle police on patrol. Commissioner Fewer requested that the SFMTA repaint faded crosswalks and improve street lighting in District 1 to better illuminate

crosswalks. Commissioner Fewer advocated for Police Department sponsored driver training courses and enforcement to ensure bicyclist adhered to stop signs in addition to motor vehicles.

5. San Francisco Police Department Report – INFORMATION

Captain Raj Vaswani and Captain Timothy Falvey at the San Francisco Police Department, presented the item.

Commissioner Stefani asked how many motorcycle officers were currently employed by the Police Department.

Captain Vaswani said there were 45 motorcycle officers that worked in the city and eight that worked at San Francisco International airport.

Commissioner Stefani asked if the officers were part of traffic enforcement.

Captain Vaswani said the officers were part of traffic enforcement and collision investigation units.

Commissioner Stefani asked what the highest number of motorcycle officers had been at the Police Department.

Captain Vaswani said he had heard of numbers as high as 80 and 90 but did not know what years those levels occurred.

Commissioner Stefani asked if it was correct to state the city was down half the traffic enforcement motorcycle officers compared to where it had been in previous years.

Captain Vaswani said it was a difficult question to answer and that the Police Department was currently conducting a study and analyzing data to determine how to best deploy officers including the ideal number of traffic enforcement motorcycle officers.

Commissioner Stefani said she was concerned that enforcement was not visible on streets and questioned if additional resources were needed to adequately enforce traffic laws. She said her last ride along with a police officer was mostly spent moving along Transportation Network Companies (TNCs) that were double parked or causing traffic issues. She echoed Commissioner Fewer's request for greater enforcement and said it could help change people's behavior if they thought there was a greater risk of getting a ticket.

Commissioner Peskin asked if there was a subset of data for scooter related citations.

Captain Vaswani replied that there was not a subset of data for scooter related citations.

Commissioner Peskin asked if his calculation of 15 enforcement motorcycle officers on the street at any one time was accurate.

Captain Vaswani said the number of enforcement motorcycle officers was less because they were divided up into shifts for days and nights. He said there was around one sergeant and approximately eight to ten officers depending on the squad.

Commissioner Peskin asked if those figures were for the entire city.

Captain Vaswani replied in the affirmative

Commissioner Peskin echoed the sentiments of Commissioners Fewer and Stefani requesting additional enforcement motorcycle officers and noted their effectiveness in slowing down traffic speed when stationed outside the Broadway tunnel. He asked if all other traffic violations came from officers in radio cars or officers walking the beat.

Captain Vaswani said most tickets came from officers in radio cars and noted there were overlaps in shifts when two sergeants and 17 to 20 motorcycles were patrolling city streets. He said enforcement, education and engineering were important but noted the challenges of having TNC drivers commuting from other areas and not being familiar with San Francisco streets. The education premise was important for corridors where people were commuting because it was usually the same drivers. Captain Vaswani said the Police Department needed help from TNCs to educate their drivers.

During public comment Richard Rothman, member of the Park, Recreation and Open Space Advisory Committee, said his goal was to make Fulton Street safer. He echoed the Committee's request for additional motorcycle officers.

David Bach said he frequently biked along Market Street and rarely saw motorcycle officers. He asked that officers not block bike lanes when ticketing vehicles to avoid safety hazards.

After public comment Chair Yee requested that the Police Department provide a report at every Vision Zero Committee meeting showing the number of tickets given to vehicles, pedestrians and cyclists. He said previous written reports to the Vision Zero Committee showed a comparison of tickets given over time and would help support the department's deployment study. He asked what the policy was around hit-and-runs and said people should be cited regardless if an individual was injured or killed.

Captain Vaswani said hit-and-run incidents were not sent to investigation unless there was an injury or fatality. If somebody were to get hit and injured, the case would be assigned to the Traffic Collision Investigations Unit (TCIU). He added that the initial traffic officer had the burden of working up the case before sending it to TCIU.

Chair Yee asked for confirmation that once the hit-and-run perpetrator was caught, regardless of the severity of the incident, legal action was taken.

Captain Vaswani replied in the affirmative and said the perpetrator should be cited or booked if they are located on the day the report was taken.

Chair Yee asked if the police interviewed witnesses or sought footage from stores with cameras along 18th Avenue and California Street when the collision occurred.

Captain Falvey said that following the collision, four officers went to the neighborhood, canvassed a four block stretch of roadway, spoke to witnesses and checked with stores to see if there was video surveillance that would help the case. He added that the Police Department had several officers trained as video retrieval officers.

Chair Yee thanked Captain Falvey for the clarification and asked what forms of outreach and education were being conducted to reach monolingual residents. He suggested a social media campaign to reach a larger and multilingual audience.

Captain Vaswani said the SFMTA had a Vision Zero group dedicated to outreach and education and had numerous videos on pedestrian, senior and bicycle safety, as well as working closely with advocates like WalkSF. He added that there was a social media segment to the outreach as well as police captains providing traffic safety trainings at smaller community meetings.

Chair Peskin asked to what extent there was a citywide practice to have sting operations.

Captain Raj Vaswani said pedestrian decoy sting operations were common practice and were conducted at the discretion of each station captain.

Chair Yee encouraged additional pedestrian sting operations and stated that he visited intersections in District 7 that had been reported as dangerous by his constituents, to be able to give firsthand accounts to the SFMTA.

Captain Vaswani asked Chair Yee to send him a list of problem areas in District 7 to enable further investigation.

6. 2019 Progress Update – INFORMATION

Tom Maguire, Director of Sustainable Streets, and Chava Kronenberg, Vision Zero Task Force Co-Chair and Pedestrian Program Manager at the San Francisco Municipal Transportation Agency (SFMTA), presented the item.

During public comment Richard Rothman said many residents of the Richmond did not feel safe crossing Fulton Street.

After public comment Chair Yee requested a presentation at the next Vision Zero Committee meeting that discussed pedestrian intervals and progress to date with implementing these intervals throughout the city. He noted that seniors needed to have sufficient time to cross intersections.

7. 2019 Vision Zero Action Strategy Update – INFORMATION

Chava Kronenberg, Vision Zero Task Force Co-Chair and Pedestrian Program Manager at the SFMTA and John Scarpulla, Policy & Government Affairs Manager at San Francisco Public Utilities Commission (SFPUC), presented the item.

Chair Yee requested severe injury metrics.

Megan Wier, Vision Zero Task Force Co-Chair and Director of Program on Health, Equity and Sustainability at San Francisco Department of Public Health, said severe injuries were monitored, with a commitment to issue an annual report to the Committee.

Chair Yee said a report was good but what he was requesting were metrics on severe injuries and the steps being taken to reduce them. He also requested that the report provide a summary detailing the results of the previous Vision Zero Action Strategy.

Ms. Kronenberg stated that the findings of the Vision Zero Action Strategy were tracked and shared at previous Vision Zero workshops. She said the findings would be uploaded to the Vision Zero website.

Chair Yee requested an update on the previous Vision Zero action strategy.

Ms. Kronenberg said the SFMTA would be happy to share the findings.

Chair Yee referenced the SFMTA's 20 miles per hour strategy and asked if the city had the authority to lower the speeds in certain areas to 15 miles per hour.

Tom Maguire, Director of Sustainable Streets at the SFMTA, said there were limited circumstances under which cities could set speed limits under 25 miles per hour or use methods that did not simply set the speed at the prevailing speed of traffic. He said the question asked by Chair Yee was one of the circumstances in which the SFMTA was asking the state for guidance. Mr. Maguire said that just because the statewide baseline speed was 25 miles per hour did not mean it was safe for many streets in the city. He added that San Francisco was working in conjunction with seven other California cities to pass Assembly Bill 2363 that would require the Transportation Secretary to establish and convene a Zero Traffic Fatalities Task Force . The cities

want traffic engineers who are familiar with the local issues to be able to make speed limit recommendations.

During public comment Kristen Leckie, member of the Vision Zero Coalition, stated that the city was not on track to reach it Vision Zero goal of 2024. She viewed the Action Strategy as a list of actions not a road map and said the Vision Zero Coalition had drafted a letter outlining how the city could address the concerns to achieve its 2024 goal.

Garret Mitcham requested that safety measures be taken to protect cyclists who used Folsom and Howard Streets and stated that he was in favor of Vision Zero having more of a transit focus.

Kelly [last name not given], Chinatown Community Development Center (CCDC) Campaign Academy youth member, said CCDC was working with Vision Zero staff to improve pedestrian safety for seniors. She said the pedestrian scramble signals in Chinatown were effective to protect senior pedestrians and urged the city to do research to identify streets that could benefit from a scramble system. She added that educating people and releasing useful information about how to best prevent fatalities were essential to achieve Vision Zero by 2024.

Cathy De Luca said the Vision Zero Coalition was comprised of more than 35 community-based organizations and helped advance Vision Zero in the city. She stated that the coalition had submitted an 8 page letter to the Vision Zero Committee that listed steps the city was taking or needed to take at the state level. She added that communities that used transit were much safer and asked what the city's plans and strategies were to get to Vision Zero.

Jodie Medeiros, Executive Director of WalkSF, thanked the Vision Zero Committee and city agencies for their work on the Action Strategy and for working towards long-term changes. She requested that the city speed up the pace to get safety improvements installed throughout the entire network by 2020. She also asked for a cost assessment for Vision Zero and transparency to track the progress on the high injury network. She asked how many projects were completed and how many more streets on the high injury network needed improvements.

Alice Rogers, member of the Vision Zero Coalition echoed the sentiments of the previous speakers and thanked the SFMTA for their outreach to communities. She asked that transit become more central to Vision Zero.

After public comment Chair Yee stated that the letter sent by the Vision Zero Coalition provided helpful action steps and that the city needed to step up its efforts to get to its goal of Vision Zero.

8. Vision Zero Communications and Education Program Update – INFORMATION

Uyen Ngo, Vision Zero Education and Outreach Coordinator at the SFMTA, presented the item.

Chair Yee asked for the status of the city's efforts to display ghost bikes.

Mr. Maguire said he was unaware of city efforts to display ghost bikes but noted that the SFMTA worked with the Department of Public Works to confirm the policy of not removing ghost bikes for those memorializing cyclist fatalities. He said he confirm the status of the program and get back to Chair Yee.

Chair Yee asked the SFMTA for data regarding educational outreach provided to elementary students. He asked how many students were served over the past year.

Commissioner Stefani asked what type of outreach and communications were provided to residents when roadway changes were going to be made like the Euclid traffic circles. She reported that drivers did not always know how to effectively navigate such changes and that she saw a need

for driver safety courses. She added that educational outreach was also important for cyclists and pedestrians to keep everyone safe.

Mr. Maguire said the presentation about driving in today's San Francisco was one of the campaigns that would be launched next year, specifically aimed at those issues. He said the city was on the cutting edge of traffic practices and that these changes would only work if drivers knew how to navigate city streets. He said that would be the subject of their campaign.

There was no public comment.

9. Introduction of New Items – INFORMATION

There were no new items introduced.

10. Public Comment

During public comment Jay Bayne spoke in favor of the city's educational outreach. He said he would like to see more bike share in the outer Richmond and west side of San Francisco and believed it was a great solution with technology and services. He added that having more cyclists and people using multi-modal options would help reduce traffic.

11. Adjournment

The meeting was adjourned at 5:44 p.m.

Item 3. Update on Previous Two-Year Action Strategy

UID	Item #	Action Item	Status	Description of accomplishment
1	SS1	Implement 13 miles of safety improvements on the HIN annually	Completed in time period	More than 70 miles of safety improvements have been completed citywide since January 2015, including more than 20 miles on the HIN. Safety improvements include programmatic treatments such as expanding leading pedestrian intervals (LPIs) citywide, protected bicycle facilities, new traffic signals and other safety countermeasures to reduce traffic fatalities and severe injuries.
2	SS2	Reduce delivery timelines for safety improvements	Completed in time period	SFMTA in 2017 and 2018 substantially advanced the quick-build program, completing quick-build projects on 7th and 8th Streets, Division Street, Upper Market and Turk Street, in addition to other corridor projects, all under Mayor Lee's Executive Directive 16-03 Achieving Vision Zero: Bicycle and Pedestrian Safety. These quick-build projects can be delivered 80% quicker than traditional plan, design, build streetscape efforts, and achieve many of the same safety benefits.
3	SS3	Launch a citywide analysis of bicycle collisions	Completed in time period	SFMTA and DPH completed a full citywide analysis of bicycle collisions, funded by Caltrans Systemic Safety grant funds. The results have informed current capital projects and future corridor efforts.
4	SS5	Evaluate innovative safety improvement designs	Completed in time period	SFMTA completed an evaluation of the city's first protected intersection at Ninth and Division. New evaluations have been completed for: 7th and 8th Street protected bike lanes, Twin Peaks street closure, and Embarcadero near-term improvements. In May 2019, SFMTA released the first Annual Evaluations report, sharing a year worth of evaluations.
5	SS6	Integrate the City's land use policy with Vision Zero	Completed in time period	Vision Zero is being integrated into transportation and land use policy and code through the Citywide Transportation Demand Ordinance, an update to the City's General Plan, the development review process, and the SF Transportation Demand Ordinance Strategy.
6	SS7	Develop design standards for safer streets	Completed in time period	SFMTA is involved in national best practices for designing safe streets, such as through NACTO's Design Guide and Urban Street Design Guide. SFMTA is also involved in efforts around changing speed limits with the California Traffic Control Devices Committee (CTCDC). New design guidance developed during the Action Strategy time-period include new guidance on advanced limit lines, rules regarding slower walking speeds, and guidance on leading pedestrian intervals.
7	SS8	Conduct predictive modeling to understand where injuries occur	Completed in time period	SFPDH developed a predictive model of cyclist injuries, as a part of SFMTA's comprehensive bicycle collision analysis. This initial model will help inform the prioritization of improvements for cyclist injury prevention, and inform potential future models for other transportation modes. This project was completed in 2017.
8	SS9	Develop vehicle speed monitoring system to capture speed data collected citywide	Not completed in timeline	The Vision Zero Data and Evaluation Subcommittee administered a survey to better understand participating agencies' speed data, including SFMTA, SFDPW, SFCTA, and SF Planning. Data aggregation and input into TransBase is currently in-progress.
9	SS10	Evaluate SF street infrastructure projects	Completed in time period	SFMTA completed an evaluation of the city's first protected intersection at Ninth and Division. New evaluations have been completed for: 7th and 8th Street protected bike lanes, Twin Peaks street closure, and Embarcadero near-term improvements. In May 2019, SFMTA released the first Annual Evaluations report, sharing a year worth of evaluations.
10	SP1	Introduce automated speed enforcement legislation	Completed in time period	The SFMTA along with a range of community stakeholders continue efforts to support passage of state legislation that would authorize the use of automated speed enforcement on streets with high documented rates of speed-related injury or fatal collisions. Vision Zero SF staff are exploring next steps to advance a bill in a future legislative session.
11	SP2.1	Safe Routes to School	Completed in time period	For school year 2017-2018, the SRTS Partnership established 5 task forces in Chinatown, Excelsior, Mission, Richmond/Sunset and Bayview Hunters Point to work with engaged parents/guardians of schoolchildren.
12	SP2.2	Safe Routes for Seniors	Completed in time period	In November 2017, SFDPH awarded 8 community-based organizations with funding for work located on the High Injury Network, including education and engagement. These groups worked with seniors and their service providers in multiple languages and cultures to get them involved in Vision Zero.

Item 3. Update on Previous Two-Year Action Strategy

UID	Item #	Action Item	Status	Description of accomplishment
13	SP2.3	Safe Routes for People with Disabilities	Not completed in timeline	Vision Zero staff are engaging on an ongoing basis with Mayor's Office on Disability and community organizations to advance the requested Safe Routes for People with Disabilities program.
14	SP3	Initiate two high visibility education and enforcement campaigns	Completed in time period	Vision Zero has initiated the Safe Speeds campaign, the Motorcycle Education campaign, and the Distracted Driving campaign. A Left Turn Education campaign and study have been funded with the goal to release a public campaign in early 2019.
15	SP4	Administer driver safety training to all new city employees	Completed in time period	MTA administers safe driver training to all new MTA employees.
16	SP5	Focus on the Five enforcement program	Not completed in timeline	The Controller's Office conducted an analysis on top collision factors and developed recommendations for focused enforcement. The Police Department reports citations each quarter; the Department has not met Focus on the Five goals for the last 7 quarters.
17	SP6	Implement e-citations and e- stops	Not completed in timeline	SFPD's e-citation pilot program is underway and will be implemented in phases throughout 2018 and 2019. Half of all district stations have deployed e-citations.
18	SP7	Begin left turns study & campaign	Completed in time period	MTA applied for and was awarded funding to conduct a campaign to address unsafe left turns. Research has started in support of implementation in early 2019.
19	SP8	Advance in-school safety education program	Completed in time period	The City has finalized a plan for in-school bicycle education and a pilot program was initiated for elementary schools. The City has completed a plan for in-school multi-modal education. The revamped SFMTA-led Safe Routes to School program will commence for school year 2019-2020.
20	SP9	Launch coordinated City response for traffic victims	Completed in time period	A Vision Zero SF Inter-Agency Traffic Fatality Response protocol was developed to coordinate the City and County's response to traffic deaths to support the families of victims of traffic fatalities, and to eliminate communication gaps to ensure families receive available support services. The pilot protocol was launched in July 2017.
21	SP10	Increase engagement with Bay Area Families for Safe Streets	Completed in time period	The San Francisco Public Health Department currently provides funding support for Bay Area Families for Safe Streets. Vision Zero and San Francisco Bay Area Families for Safe Streets have worked together to develop a Crisis Response Protocol to better support families of the victims of traffic violence.
22	SP11	Develop ticket diversion programs	Not completed in timeline	MTA currently offers a diversion program for parking tickets and transit citations. The Fines and Fees City Task Force continues to explore opportunities for diversion programs and ability to pay programs for other citations. The City is not pursuing additional ticket diversion programs for tickets given to cyclists at this time due to lack of funding and limited effectiveness of program in improving safety outomes.
24	SP13	Institutionalize the comprehensive surveillance system linking SFPD and Zuckerberg SF General hospital injury data	In progress	The pilot of the surveillance system has been completed, linking 2013-2015 ZSFG and SFPD data, along with data from the Medical Examiner's Office and ambulance companies. SFDPH has since been meeting with the City Attorney, SFDPH Privacy Office, hospital staff and key stakeholders to advance data sharing between City agencies and the public.
25	SP14	Maintain Vision Zero SF website	Not completed in timeline	VisionZeroSF.org includes status updates on projects and programs. A new site is in development and is planned to launch in Summer 2019/
26	SV1	Issue report of citywide telematics data	Completed in time period	The City Administrator's Office is collecting data on city- operated vehicles, including about speed. The City Administrator has access to telemactics data and shares information back with individual departments.
27	SV2	Develop and implement city fleet safety educational/informational campaign	Completed in time period	The City administers safe driver training to all new City employees.

Item 3. Update on Previous Two-Year Action Strategy

UID	Item #	Action Item	Status	Description of accomplishment
28	SV3	Work with fleet managers and private transportation services to prioritize safety	Not completed in timeline	Vision Zero worked with Volpe to conduct a study of Collision Avoidance Technology (CAT) and sideguards. San Francisco is coordinating with 6 other cities on fleet improvements and truck design standards. However, no private fleet managers or transportation services have advanced vehicle safety to improve safety outcomes.
29	SV4	Monitor list of proven safety features for fleet and city vehicles	Completed in time period	SFMTA's Office of Innovation released a request for information on transit collision avoidance systems to inform a potential pilot or deployment on Muni vehicles.
30	SV5	Integrate transit-related collisions into TRANSBASESF	Not completed in timeline	SFMTA and DPH developed a data sharing agreement to incorporate transit collisions into TransBASESF.org that is being reviewed by the City Attorney. Transit-related collisions are not currently tracked in TransBase at this time.
31	SV6	Engage in conversations on autonomous vehicles	Completed in time period	In 2017, SFMTA, with SFCTA and other California cities provided comments to CA DMV and CPUC on proposed regulations for Autonomous Vehicle testing. The comments requested that all applicants for testing have sufficient driving experience in the jurisdiction in which they wish to test, requiring that AVs provide universal accessibility, and requesting additional data to support the City's effort to relieve congestion and to ensure safety for all road users. SFMTA staff continue to monitor and engage on all autonomous vehicle related legislation proposed at the state and federal level.

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ITEM 4. VISION ZERO STATE LEGISLATION

Vision Zero Topic	Bill Number & Author	SFMTA Position	SFCTA Position	Bill Status *(As of 6/19/18)*
Distracted Driving	AB 47 (Daly)	Support	Support	Senate Transportation
Complete Streets	SB 127 (Wiener)	Support	Support	Assembly Transportation
Shared Mobility Regulations	AB 1112 (Friedman)	Oppose	Oppose unless amended	Senate Transportation
Driving Under the Influence	AB 1713 (Burke)	Watch	none	Not moving forward
Active Transportation Funding	SB 152 (Beall)	Support	Support	Not moving forward

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EMERGING MOBILITY INJURY MONITORING IN SAN FRANCISCO, CALIFORNIA UTILIZING HOSPITAL TRAUMA RECORDS: A METHODOLOGY

VERSION 2.0
SAN FRANCISCO, CALIFORNIA
JUNE 2019

Vision Zero SF Injury Prevention Research Collaborative
A Collaboration between the
San Francisco Department of Public Health's Program on Health, Equity and Sustainability
and the Zuckerberg San Francisco General Hospital and Trauma Center

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About the Vision Zero SF Injury Prevention Research (VZIPR) Collaborative

The ***VZIPR Collaborative*** is composed of epidemiologists, physicians, and key staff from the San Francisco Department of Public Health (SFDPH) and Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG). As the city's only Level I Trauma Center, ZSFG treats nearly all patients who sustain traumatic injuries in San Francisco, California. The VZIPR Collaborative thus has a unique opportunity to analyze the full spectrum of severe traffic injuries occurring in our city. VZIPR has been working since 2014 to develop, institutionalize, and utilize comprehensive injury data in support of strategic research and analyses for Vision Zero SF, San Francisco's policy and commitment to eliminate traffic deaths on city streets.

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Acknowledgements

We would like to acknowledge our colleagues at the San Francisco Municipal Transportation Agency (SFMTA) and the San Francisco Police Department (SFPD) for their collaboration and coordination in developing this methodology, including Alex Demisch, Danielle Harris and James Shahamiri of the SFMTA and Commander Teresa Ewins and Captain Raj Vaswani of the SFPD. We would also like to acknowledge Christy Adams, UC Davis Health Trauma Prevention Coordinator, for her contribution to our data.

Related terms

micro-mobility, last-mile transportation, light electric vehicles, shared mobility, short-term rentals, powered scooters, stand-up scooters, e-scooters, electric kick scooters, dockless scooters, transportation network companies

Updates from Version 1.0

This document was originally released in January 2019. The current 2.0 version adds a “Standardizing ICD-10 Codes” section to the Methodology and updates the “Reporting and Next Steps” section to reference interim reporting on preliminary data. It also adds a new point of contact, reformats the “About” section, and reformats and reorders Appendices B and C for clarity.

Background

What are Emerging Mobility Services and Technologies?

Innovations in the transportation industry are drastically expanding the transportation options available within cities. With its proximity to Silicon Valley and reputation as a center for innovation, San Francisco has been an epicenter for the introduction of **emerging mobility services and technologies** (EMST). EMST encompasses both new types of transportation devices and novel technologies that facilitate sharing of these devices. EMST currently available in San Francisco include:

- Electric bicycles (e-bikes): electric assisted pedal bicycles
- Electric scooters (e-scooters, powered stand-up scooters): electric powered stand-up kick scooters
- Motor-driven bicycles and mopeds: gasoline or electric powered sit-down vehicle with a floorboard; or gasoline powered or assisted pedal bicycle
- Electric skateboards (e-skateboards): electric powered board with four wheels
- Hoverboards/unicycles: electric powered vehicle designed to be stood upon while riding, with one or two wheels
- Segway-type vehicles: electric powered, self-balancing stand up vehicle with chest- or knee-height handlebars
- Transportation Network Companies (TNC, e.g. Uber, Lyft): a motor vehicle engaged in ride-hail service provision through a third-party application programming interface
- Autonomous Vehicles (AVs): vehicles with partial or (in future) complete automation of driving activity. With ongoing development of the technology, AVs are expected to have an increasing presence as TNCs, shuttle services, and personal vehicles[7].

Monitoring Injuries Associated with EMST

With the introduction of EMST in San Francisco, it became apparent that existing methods of injury surveillance did not capture sufficiently detailed data to analyze injuries related to these technologies. At the same time, inquiries from trauma centers and transportation agencies throughout the country highlighted the lack of consensus surrounding data collection. The VZIPR Collaborative began efforts to modify its methods of injury surveillance in order to assess the impact of and respond to inquiries regarding injuries related to emerging mobility modes.

Trauma registry data is a critical source of injury data for new modes of transportation and can potentially capture injuries not included in police reports**.** Existing surveillance of transportation-related injuries in San Francisco utilizes San Francisco Police Department (SFPD) collision reports as well as data entered into the trauma registry at Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG). Specially trained trauma nurses abstract transportation mode data from hospital and prehospital patient care records and enter it into the trauma registry. As the sole

[7] Source: https://www.sfcta.org/emerging-mobility/inventory

level I trauma center in San Francisco, nearly all victims with severe transportation-related injuries that occur in the City and County of San Francisco are treated at ZSFG. Recent research conducted by the VZIPR Collaborative found that 29% of patients who were injured in transportation-related crashes, transported by ambulance, and required hospitalization at ZSFG were not reported in police records. Among cyclists, this proportion was even greater at 39%[8]. This finding highlights the importance and utility of hospital data to understanding injury patterns, including for new transportation modes.

Prior to October 2018, the trauma registry data-entry fields allowed for transportation modes to be classified as bicycle, motorcycle, or motor vehicle (e.g. auto, train, etc.). These categories lack the necessary specificity to identify injuries that involve the use of EMST. In addition, a lack of consensus among medical providers about how to categorize EMST made collection of accurate data challenging. Electric bicycles, for example, are categorized as motorcycles, while users of powered stand-up scooters are likely to be categorized as pedestrians. The VZIPR Collaborative developed a new methodology for data collection in order to address these challenges.

Methodology

The VZIPR Collaborative includes the ZSFG Trauma Center, which supplies trauma registry data. Classification of transportation mode within the trauma registry relies on chart narratives entered by healthcare providers, which are then abstracted from patient records by a dedicated team of nurses at ZSFG. This workflow was identified as an opportunity for improvement; by expanding the available options for classifying mode of transportation in the trauma registry database and educating healthcare providers about the importance of accurately identifying EMST in their chart narratives, the data collected at ZSFG would be more useful for tracking and analyzing the burden of injuries related to EMST use.

We began our efforts by identifying stakeholders among Emergency Medicine and Trauma Surgery clinicians, Trauma Program Nurses and Registrars, Emergency Medical Services (EMS) providers, the SF Police Department, and the SF Municipal Transportation Agency. The resulting group created a list of transportation modes that was sufficiently granular to track the vehicle types each stakeholder sees in the hospital and on city streets. These vehicle categories also intentionally align with the California Highway Patrol's (CHP) vehicle categories which will help Vision Zero surveillance data ultimately link hospital, EMS and police (including CHP) data. In addition to identifying new modes of transportation, we took the opportunity to begin collecting data about whether the injury is related to sharing technology—i.e. accessed through an app or sharing service, inclusive of ride hail apps or an automated vehicle.

[8] Source: https://www.sfdph.org/dph/files/EHSdocs/PHES/VisionZero/Vision_Zero_High_Injury_Network_Update.pdf

Adding Variables to the Trauma Registry

Through this process three key questions were identified as additional trauma registry variables:

1. Was a new type of transportation vehicle involved in the collision and, if so, what type?
2. Was an emerging mobility service or sharing technology involved in the collision?
3. Was an autonomous vehicle (AV) involved in the collision?

The allowed responses for each question and guidance regarding classification of transportation devices (including visual aids) are included in Appendix A. We modified the ZSFG trauma registry to include fields for responses to each of these questions, generating three new categorical variables (see Appendix B).

Standardizing ICD-10-CM Codes for New Vehicle Types

Because of the novelty of such devices and services, to date both practice and guidance on how to capture injuries associated with EMST in medical records has lacked standardization across the United States.[9]

The VZIPR team maintains that the ICD-10-CM codes which specify "other pedestrian conveyance" (V00-V09) are the best fit for purposes of tracking e-scooter associated injury– as well as injury related to electric skateboards, hoverboards, electric unicycles, and Segway-type vehicles– within the current ICD-10 system. These codes both represent pedestrian conveyances and exist in a section which includes motorized devices among its examples. The associated ICD-10 codes listed in Appendix C allow for identification of other vehicle types involved in collisions. Combined with the three additional trauma registry data fields shown in Appendix B, this strategy provides the most descriptive and informative data possible, absent ICD-10 modifications to identify e-scooters and other novel vehicle types as unique mechanisms of injury. Given differing and incompatible surveillance strategies in other jurisdictions (including employing codes not designed to reflect a motorized type of conveyance to represent e-scooters) there is a clear need for national or international guidelines on how best to capture EMST for reliable comparisons across health systems and over time.

Outreach and Education on New Methodology

Information on whether an injury involved the use of EMST must be abstracted from patient care records created by EMS, emergency medicine, emergency nursing and trauma surgery providers. These include data on helmet usage and other injury-related factors that are abstracted as a part of the trauma data collection. These data directly reflect the information captured in the patient record by medical providers. Thus, a critical component to this initiative is to prioritize training

[9] Rix, K., & Edwards, C. (2019, February 14). Improving our Understanding of Dockless Motorized Electronic Scooters [Webinar]. American Trauma Society.

and communication with pre-hospital and hospital staff about efforts to improve upstream data collection.

The VZIPR collaborative developed posters to display in the ambulance bay, emergency department and resuscitation rooms (see Appendix D). These posters include visual representations of the types of vehicles within each category. They are particularly useful for providers who are less familiar with the differences between vehicles that look similar but are categorized separately, such as electric and motor-driven bicycles. In order to raise awareness about this initiative, VZIPR representatives have led educational sessions at departmental grand rounds, faculty & staff meetings and at the Bay Area Regional Trauma Coordinating Committee (RTCC) meeting.

SFPD has undergone a similar process to educate officers about existing vehicle-type categories and relevant regulations. They have also created a "cheat sheet" for officers with visual aids similar to those in Appendix D, consistent with state collision reporting categories. SFPD collision reporting forms were updated in April 2018 with new variables to capture the involvement of TNCs and AVs in collisions as well.

Reporting and Next Steps

We implemented the changes described in this methodology in October 2018. We will review our six-month data to report a preliminary analysis of the burden of injury related to EMST in San Francisco, CA in fall 2019. Our 2018 data were employed as a part of a mid-point evaluation of the year-long powered scooter pilot currently underway in San Francisco, which allows two private companies to make e-scooters available for rent on city streets. A more comprehensive look at e-scooter associated collision and injury in San Francisco over the course of 2018 (a VZIPR product, and an appendix to the former document) is presently available.[10]

Regional and National Collaboration

As noted earlier, national analysis of EMST-related injuries is significantly limited by the variability in data collection between individual trauma hospitals. This is additionally compounded by a lack of consensus on how to assign ICD-10-CM External Cause Codes to injuries involving EMST. Through an informal survey of ICD-10-CM coding for e-scooter injuries at 17 trauma hospitals throughout the country, we found that over thirty ICD-10 codes were used to classify injuries involving e-scooters (see Appendix E[11]; codes used locally at ZSFG are enumerated in Appendix C). With the increasing availability and popularity of EMST vehicles in cities, inquiries about the safety profiles of these devices are becoming commonplace. There is a clear need for a coordinated national approach to EMST-related injury surveillance in order to accurately assess the relevant injury burden. The VZIPR Collaborative is engaged in a national dialogue with

[10] Vision Zero SF Injury Prevention Research Collaborative. 2019. E-Scooter Collision and Injury Analysis. San Francisco, CA. Available at: https://www.sfdph.org/dph/EH/PHES/PHES/TransportationandHealth.asp

[11] This work was spearheaded by Christy Adams, UC Davis Health Trauma Prevention Coordinator

stakeholders in public health and injury prevention, trauma surgery and traffic safety to address these issues and inform targeted recommendations for national standards. One forthcoming action is to request the National Center for Health Statistics ICD-10-CM Coordination and Maintenance committee to revise and/or expand ICD-10 codes for incidents involving different types of EMST, with an initial focus on e-scooters and e-bikes.

Conclusion

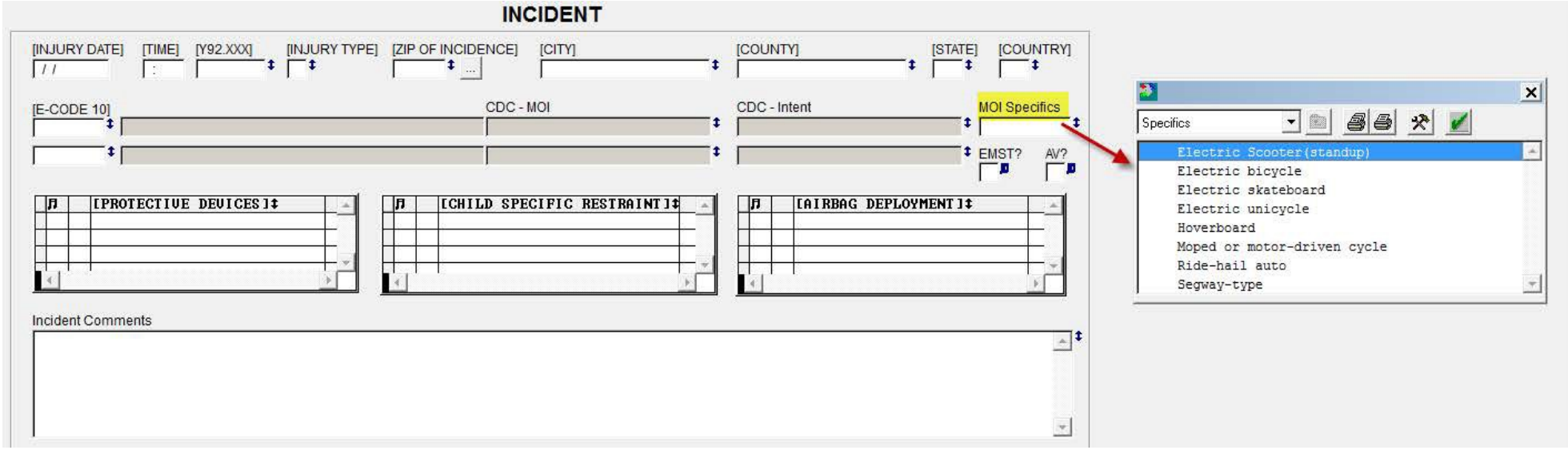
The recent proliferation of EMST in urban centers across the country– and internationally– presents a unique challenge to the local and state governments who regulate them, and the hospitals and trauma centers charged with treating injuries associated with these emerging vehicle types. This methodology is a response to the need for timely and high-quality data to empirically track and better understand injuries arising from use of these formerly uncommon vehicles. It provides an opportunity to study emerging innovations and to inform data-driven injury prevention efforts. The VZIPR Collaborative is well-poised to continue to address future emerging mobility safety concerns with the goal of supporting safe, sustainable and equitable transportation in San Francisco and throughout the nation.

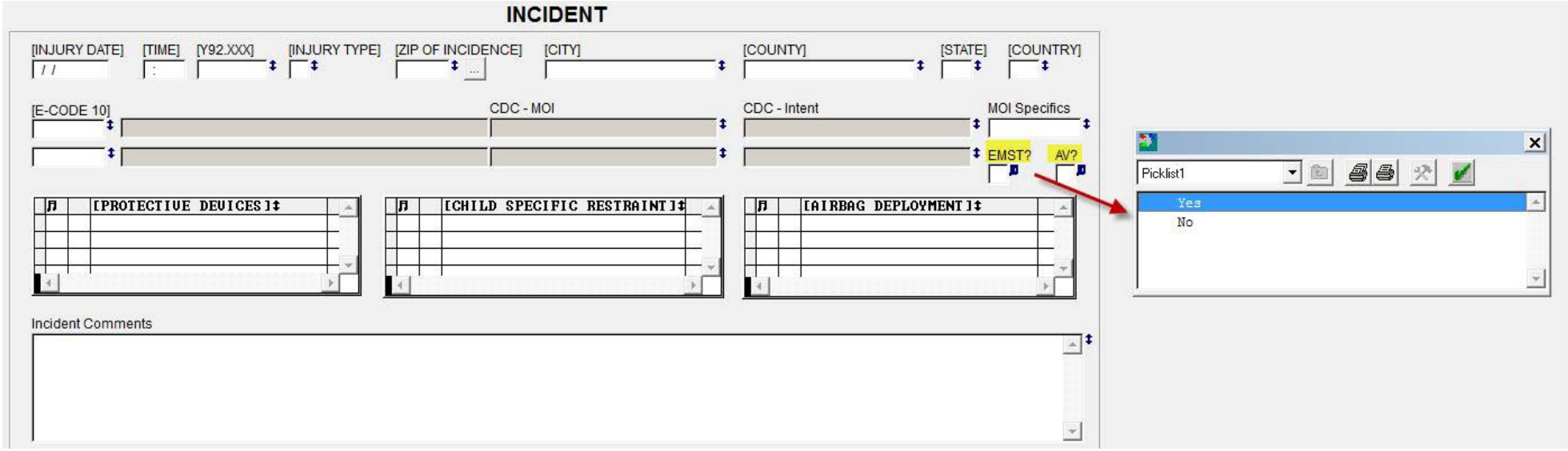
Appendix A: Additions to Trauma Registry Questions

Question	Answer choices	Example Image
1) New vehicle type	0 None (N/A)	
	1 Unknown	
	2 Electric bicycle	
	3 Powered scooter (standup)	
	4 Moped or motor-driven cycle	
	5 Electric skateboard	
	6 Hoverboard, electric unicycle, other electrically motorized board	
	7 Segway-type vehicle	
	8 Ride-hail vehicle, Transportation Network Company car (TNCs; e.g. Uber, Lyft)	
	9 Other	

2)	Was an emerging mobility service or sharing technology involved in the collision? (e.g. Lyft, Uber, Scoot, Ford GoBike, JUMP Bike, Lime, Skip, Chariot, Zipcar, City Carshare, Maven, Waymo, etc.)	0 1 2	Unknown No Yes
3)	Was an autonomous vehicle (AV) involved in the collision?	0 1 2	Unknown No, conventional vehicle Yes

Appendix B: Screenshot of Data Entry into ZSFG Trauma Registry





Appendix C: ICD-10-CM Codes Used Currently at ZSFG for EMST-related Injuries

ICD-10 CM Code	Code description
V00.09XA	Pedestrian on foot injured in collision with other pedestrian conveyance*
V00.891A	Fall from other pedestrian conveyance*
V00.892A	Pedestrian on other pedestrian conveyance* colliding with stationary object
V00.898A	Other accident on other pedestrian conveyance*
V01.09XA	Pedestrian with other conveyance injured in collision with pedal cycle in nontraffic accident†
V01.19XA	Pedestrian with other conveyance injured in collision with pedal cycle in traffic accident (not limited to EMST-related accidents)
V02.09XA	Pedestrian with other conveyance injured in collision with two- or three-wheeled motor vehicle in nontraffic accident†
V02.19XA	Pedestrian with other conveyance injured in collision with two- or three-wheeled motor vehicle in traffic accident
V03.09XA	Pedestrian with other conveyance injured in collision with car, pick-up truck or van in nontraffic accident†
V03.19XA	Pedestrian with other conveyance injured in collision with car, pick-up truck or van in traffic accident
V04.09XA	Pedestrian with other conveyance injured in collision with heavy transport vehicle or bus in nontraffic accident†
V04.19XA	Pedestrian with other conveyance injured in collision with heavy transport vehicle or bus in traffic accident
V05.09XA	Pedestrian with other conveyance injured in collision with railway train or railway vehicle in nontraffic accident†
V05.19XA	Pedestrian with other conveyance injured in collision with railway train or railway vehicle in traffic accident
V06.09XA	Pedestrian with other conveyance injured in collision with other nonmotor vehicle in nontraffic accident†
V06.19XA	Pedestrian with other conveyance injured in collision with other nonmotor vehicle in traffic accident

* "*Other pedestrian conveyance*" includes powered scooter (stand up), electric skateboard, hoverboard, electric unicycle, Segway-type vehicle

† "*Nontraffic accident*" refers to an incident that didn't occur on a roadway or street

Appendix C: ICD-10-CM Codes Used Currently at ZSFG for EMST-related Injuries

ICD-10 CM Code	Code description
V20.4XXA	Motorcycle‡ driver injured in collision with pedestrian or animal in traffic accident
V20.5XXA	Motorcycle‡ passenger injured in collision with pedestrian or animal in traffic accident
V21.4XXA	Motorcycle‡ driver injured in collision with pedal cycle in traffic accident
V21.5XXA	Motorcycle‡ passenger injured in collision with pedal cycle in traffic accident
V23.4XXA	Motorcycle‡ driver injured in collision with car, pick-up truck or van in traffic accident
V23.5XXA	Motorcycle‡ passenger injured in collision with car, pick-up truck or van in traffic accident
V24.4XXA	Motorcycle‡ driver injured in collision with heavy transport vehicle or bus in traffic accident
V24.5XXA	Motorcycle‡ passenger injured in collision with heavy transport vehicle or bus in traffic accident
V25.4XXA	Motorcycle‡ driver injured in collision with railway train or railway vehicle in traffic accident
V25.5XXA	Motorcycle‡ passenger injured in collision with railway train or railway vehicle in traffic accident
V26.4XXA	Motorcycle‡ driver injured in collision with other nonmotor vehicle in traffic accident
V26.5XXA	Motorcycle‡ passenger injured in collision with other nonmotor vehicle in traffic accident
V27.4XXA	Motorcycle‡ driver injured in collision with fixed or stationary object in traffic accident
V27.5XXA	Motorcycle‡ passenger injured in collision with fixed or stationary object in traffic accident
V28.4XXA	Motorcycle‡ driver injured in noncollision transport accident in traffic accident
V28.5XXA	Motorcycle‡ passenger injured in noncollision transport accident in traffic accident
V87.7XXA	Person injured in collision between other specified motor vehicles (traffic)
V87.8XXA	Person injured in other specified noncollision transport accidents involving motor vehicle (traffic)
V87.9XXA	Person injured in other specified (collision)(noncollision) transport accidents involving nonmotor vehicle (traffic)

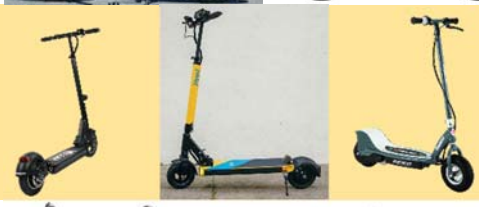
‡ "*Motorcycle*" includes: shared moped or motor scooter and e-bicycle

Appendix D: New Transport Modes Poster

How to Classify New Modes of Transportation

What we're doing: SFDPH and SFPD are working to better **capture and track injuries involving newer vehicle types** and methods of transportation access (e.g. vehicle sharing programs and app-accessed ride hail) to inform injury prevention measures.

The ask: Pre-hospital and ER staff collect crucial information about collisions that patients may not be able to report themselves. To assist **we ask that you include any of the following terms that may apply to a collision in the narrative description**. Example images are included for clarity:

Electric bicycle (or e-bicycle, e-bike)	
Powered standup scooter (or e-scooter)	
Moped or motor-driven cycle	
Electric skateboard (or e-skateboard)	
Hoverboard, electric unicycle, other electrically motorized board	
Segway-type vehicle	
Ride-hail vehicle, Transportation Network Company car (TNCs; e.g. Uber, Lyft)	
Autonomous vehicle	

Please refer questions to shamsi.soltani@sfdph.org
Version 12/12/2018

VISION ZERO SF

Appendix E: ICD-10-CM Codes Currently Used Regionally for e-Scooter Injuries

V00.09XA	Pedestrian on foot injured in collision with other pedestrian conveyance
V00.141A	Fall from scooter (nonmotorized)
V00.142A	Scooter (nonmotorized) colliding with stationary object
V00.148A	Other scooter (nonmotorized) accident
V00.181	Fall from other rolling-type pedestrian conveyance
V00.182	Pedestrian on other rolling-type pedestrian conveyance colliding with stationary object
V00.188	Other accident on other rolling-type pedestrian conveyance
V00.381A	Fall from other flat-bottomed pedestrian conveyance
V00.381A	Fall from other flat-bottomed pedestrian conveyance
V00.382A	Pedestrian on other flat-bottomed pedestrian conveyance colliding with stationary object
V00.388A	Other accident on other flat-bottomed pedestrian conveyance
V00.831A	Fall from motorized mobility scooter
V00.832A	Motorized mobility scooter colliding with stationary object
V00.891A	Fall from other pedestrian conveyance
V00.892A	Pedestrian on other pedestrian conveyance colliding with stationary object
V00.898A	Other accident on other pedestrian conveyance
V01.09XA	Pedestrian with other conveyance injured in collision with pedal cycle in non- traffic accident
V01.19XA	Pedestrian with other conveyance injured in collision with pedal cycle in traffic accident
V03.19XA	Pedestrian with other conveyance injured in collision with car, pick-up truck or van in traffic accident
V04.19XA	Pedestrian with other conveyance injured in collision with heavy transport vehicle or bus in traffic accident
V05.19XA	Pedestrian with other conveyance injured in collision with railway train or railway vehicle in traffic accident
V06.99XD	Pedestrian with other conveyance injured in collision with other nonmotor vehicle, unspecified whether traffic or nontraffic accident
V23.0XXA	Motorcycle driver injured in collision with car, pick-up truck or van in nontraffic accident
V23.4XXA	Motorcycle driver injured in collision with car, pick-up truck or van in traffic accident
V27.0XXA	Unspecified motorcycle rider injured in collision with fixed or stationary object in nontraffic accident
V28.1XXA	Motorcycle passenger injured in noncollision transport accident in nontraffic accident
V28.4XXA	Motorcycle driver injured in noncollision transport accident in traffic accident
V87.7XXA	Person injured in collision between other specified motor vehicles (traffic)
V87.8XXA	Person injured in other specified noncollision transport accidents involving motor vehicle (traffic)
V87.9XXA	Person injured in other specified (collision)(noncollision) transport accidents involving nonmotor vehicle (traffic)
V87.7XXA	Person injured in collision between other specified motor vehicles (traffic)
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E-SCOOTER COLLISION AND INJURY ANALYSIS

SAN FRANCISCO, CALIFORNIA
APRIL 2019

Vision Zero SF Injury Prevention Research Collaborative
A Collaboration between the
San Francisco Department of Public Health's Program on Health, Equity and Sustainability
and the Zuckerberg San Francisco General Hospital and Trauma Center

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[5] University of California, San Francisco
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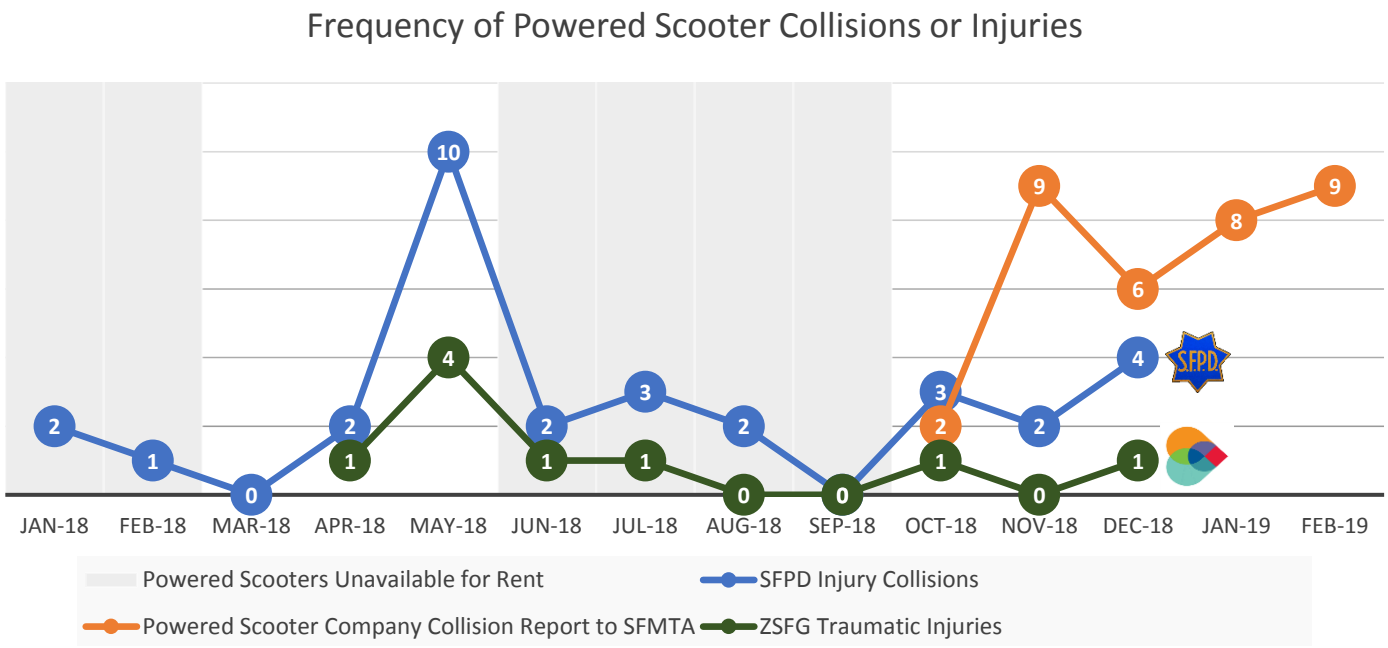
Collision and Injury Analysis

This analysis combines data from several City and County of San Francisco sources to provide available information on the injury impacts of powered scooters in the city. The chart below displays monthly counts of e-scooter injuries treated at Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG, green) and tracked in the trauma registry, alongside counts of San Francisco Police Department (SFPD) reports of collisions involving an e-scooter (blue), and counts of collisions reported by riders and the public to Powered Scooter Pilot Program Companies in orange (which are ultimately provided to the San Francisco Municipal Transportation Agency, SFMTA). Note that ZSFG traumatic injuries represent a subset of injuries treated at the hospital - the more serious ones - and that powered scooter company collision reports did not all involve injuries.



Key Findings

Reports of e-scooter related injury collisions peaked in May 2018 according to both SFPD and ZSFG data sources. As detailed below, May was the month estimated to have seen maximum saturation of e-scooters in San Francisco, with approximately 2,000-3,000 on the streets. After being temporarily prohibited starting in June 2018, two agencies re-initiated powered scooter rental on San Francisco streets under new regulations and a pilot program in October 2018, with a cap of 1,250 total devices for the first six months. While SFPD and ZSFG data are not presently available for 2019, injuries from October 15 through December 31, 2018 indicate that injuries related to e-scooter use continue to occur in San Francisco.

Those reporting collisions and sustaining injuries related to powered scooters are predominantly male, adult, and White or Asian according to both SFPD and ZSFG data sources. Of nine people with traumatic injuries treated at ZSFG in 2018, 44% were injured in crashes with motor vehicles, 22% reported wearing a helmet, and one person was struck and injured by an e-scooter while walking. Of 32 e-scooter related injuries reported to SFPD in 2018, 19% were severe, 7% involved wearing a helmet[7], and 13% were injuries to people walking. Across all data sources, reported or documented rider helmet use is low.

[7] This statistic describes 2 out of 28 non-pedestrian injured parties.

History of Deployment and Injury Monitoring in San Francisco

A summary of the timeline of e-scooter availability in San Francisco is helpful to interpret trends. For context, in March 2018 several companies placed hundreds of dockless powered scooters for rent through proprietary apps on San Francisco streets. In April 2018, San Francisco's City Attorney issued cease and desist letters to three dockless electric scooter companies citing endangerment of public health and safety, and the Board of Supervisors passed a new city law which required e-scooter companies to obtain permits to operate in San Francisco beginning in June 2018. May 2018 likely reflected peak e-scooter saturation in San Francisco, and was the final month of unregulated e-scooter sharing services in the City. SFMTA released a pilot permit application in fall 2018, and selected two companies, Skip and Scoot, for permits. Those companies were permitted to deploy up to 625 devices apiece beginning October 15, 2018.

Given the unregulated history of e-scooters prior to October 2018, reliable counts of how many e-scooters were deployed or ridden on San Francisco streets by month are not available. In the chart above, a notable increase in collisions reported to police, as well as injuries requiring trauma team activation at ZSFG is evident in May 2018. At this time, an SFMTA-estimated 2,000-3,000[8] powered scooters were located on San Francisco streets, while one scooter company reckoned that "tens of thousands of San Franciscans" had ridden their devices[9].

During the period of unregulated deployment, the public voiced concern regarding injuries to people riding scooters as well as to people walking and using assistive devices. In response, the Vision Zero Injury Prevention Research Collaborative (VZIPR) comprised of epidemiologists, physicians, and key staff from the San Francisco Department of Public Health (SFDPH) and ZSFG developed and implemented a methodology to track powered scooter and other injuries via the ZSFG trauma registry[10]. The VZIPR Collaborative worked closely with SFMTA and SFPD to ensure definitions in the methods were as consistent as possible with injury tracking by SFPD and SFMTA recommendations to scooter companies, and that outreach regarding the methods to hospital and emergency medical services staff were aligned with direction given to SFPD officers.

Injury Reporting from Zuckerberg San Francisco General Hospital and Trauma Center

Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG) tracks traumatic injuries associated with various non-traditional vehicle types – including e-scooters. As the only Trauma Center in the City and County of San Francisco, ZSFG treats nearly all patients who sustain traumatic injuries in the city.

In 2018, ZSFG treated ten patients with injuries requiring trauma team activation, sustained from a powered scooter (referred to as "e-scooters" in hospital reporting)[11]. One of these patients sustained injuries in Alameda County. The group of nine patients who sustained e-scooter related injuries in San Francisco had the following characteristics:

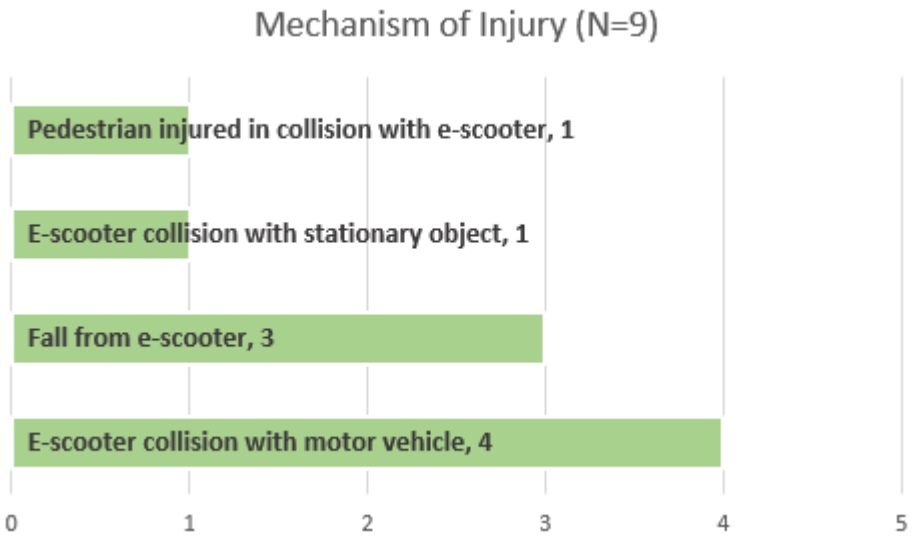
- 100% male (N=9)
- Average age 39 years, including three children (aged 17 and younger) injured and one senior (aged 65 and older) who was critically injured[12]
- 33% Asian (n=3), 67% White (n=6)
- 66% admitted to hospital (n=6) and 22% critically injured[11] (n=2), including one pedestrian struck by an e-scooter
- Peak month of injury was May, with four injuries occurring in that month

[8] This is a conservative estimate per SFMTA.
[9] https://www.cnet.com/news/san-francisco-scooter-law-means-goodbye-to-electric-scooters-for-now/
[10] Methodology available:
https://www.sfdph.org/dph/files/EHSdocs/PHES/VisionZero/Emerging_Mobility_Injury_Monitoring_Methodology.pdf
[11] Note that these numbers are preliminary, as abstraction efforts for 2018 are ongoing.
[12] Critical injury is a subset of traumatic injury reflecting the most severe injuries. This categorization relies upon assessment of an Injury Severity Score by trained medical professionals.

- Causes of e-scooter related injury were e-scooter vs. motor vehicle collision (n=4); rider falling from an e-scooter (n=3); collision with a stationary object (n=1); one pedestrian injured by collision with an e-scooter (n=1)
- Six injuries (67%) included involved injury to the head. Injury to the lower body was also prevalent, particularly to knees (n=4, 44%)
- 22% of those injured wore helmets (n=2)

While data available do not fully capture whether e-scooters involved in injuries are privately owned or accessed through membership with a powered scooter company, they do provide a valuable snapshot of traumatic e-scooter associated injury in San Francisco.

E-scooter vs. motor vehicle collision was the leading cause of e-scooter injury sustained in San Francisco treated at ZSFG, representing 44% of all cases. This mirrors reporting from powered scooter companies, discussed later. The next most frequently seen mechanism of injury was a rider falling from an e-scooter (33%). This category and another— collision with a stationary object (11%)— both fall under the umbrella of injuries not involving a second party. ZSFG data additionally include one critical injury to a pedestrian injured by collision with an e-scooter (11%).



ZSFG's e-scooter associated injury data reflect injuries sustained in 2018. While the methodology improving injury tracking for e-scooters and other formerly uncommon vehicle types was formalized in October 2018, medical charts were reviewed for all of 2018 with the new approach to data abstraction. Notably, data presented here do not include patients with less acute injuries (e.g. those of a person riding or hit by an e-scooter who presented to the ZSFG emergency department but did not require trauma team activation or hospitalization).

San Francisco data reveal a high proportion of e-scooter vs. motor vehicle collisions (44%) in comparison to preliminary injury data from other cities with similarly rapid emergence of shared e-scooters, such as Austin, TX[13]; Portland, OR[14]; and Los Angeles, CA[15]. This is likely in part because the ZSFG data in this report reflect traumatic injuries treated at the trauma center, while the other cities' use of emergency department records tracks patients treated for an e-scooter-related injury

[13] https://www.theverge.com/2019/3/8/18256197/scooter-injury-study-cdc-austin
[14] https://www.portlandoregon.gov/transportation/article/709719
[15] Trivedi TK, Liu C, Antonio ALM, et al. Injuries Associated With Standing Electric Scooter Use. *JAMA Netw Open.* 2019;2(1):e187381. doi:10.1001/jamanetworkopen.2018.7381

irrespective of injury severity. Portland, for example, found that the vast majority (83%, N=176) of e-scooter related Emergency Room (ER) visits followed a fall or other non-collision event.

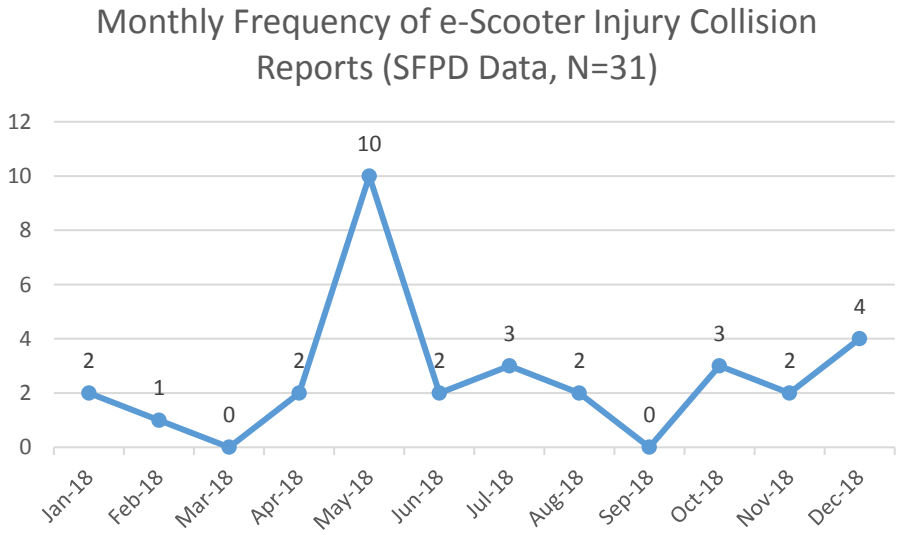
There are limitations to injury reporting data available from ZSFG. First, these injuries reflect only those requiring a trauma team response, and do not represent the full spectrum of injury associated with e-scooter use in San Francisco. This is one contributing factor to the differences in raw injury numbers reported in different jurisdictions – in addition to other differences in e-scooter deployment and ridership. For example, a recent study of two Los Angeles hospitals reviewing one year of ER records found 249 e-scooter related injuries, with 94% discharged home from the ER. Just 6% (n=14) were admitted or transferred to another hospital for further care – indicating severe injury[7]. To address this gap, VZIPR plans to undertake chart review in order to assess the prevalence of the less severe e-scooter associated injuries not represented in trauma registry data.

Second, efforts to train and educate emergency medical services and hospital staff on this data collection effort are ongoing; as this is a rapidly emerging issue, these data potentially underreport e-scooter injury involvement. E-scooters are an unfamiliar device to many, and injury data rely on accurate reporting in medical charts. Additionally, a person who has sustained a traumatic injury may not be in a position to communicate the circumstances or mode of their injury to their medical team.

Collision Reporting from San Francisco Police Department

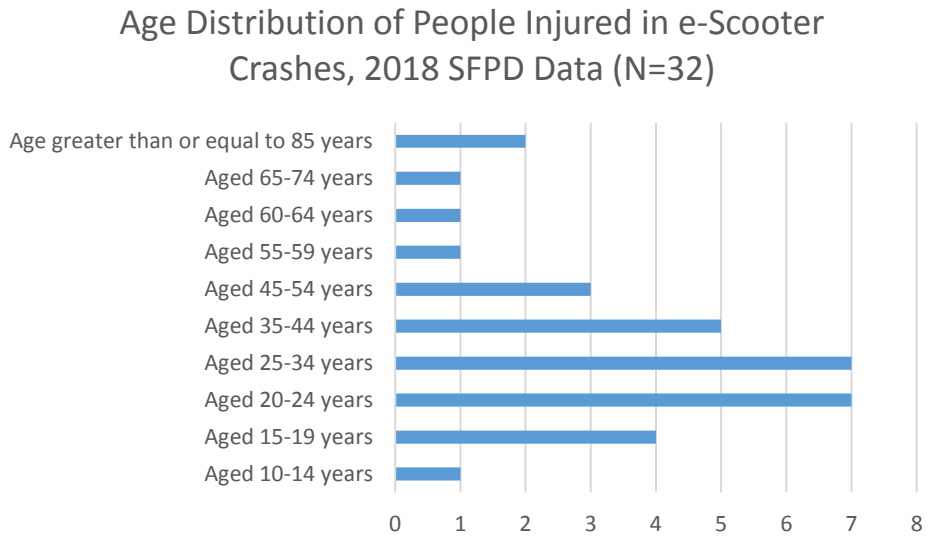
Another important source of e-scooter data is SFPD's collision reports. Collision reporting uses vehicle type categories developed by the California Highway Patrol, which include the classification of "Go-ped, ZIP Electric scooter, Motorboard." This code is employed by SFPD to reflect powered scooter vehicles in collision reports. For this summary, we also included reports with "Electrically Motorized Board" or "Low Speed Vehicle" vehicle type categories that also identified e-scooter involvement in the narrative.

Thirty-two injured parties were reported in 31 collision reports referencing e-scooters in 2018. As discussed elsewhere, reports of collisions were highest in May 2018, the month corresponding to peak e-scooter concentration in San Francisco. While collision reports dropped after May 2018, there has been a rise in the number of e-scooter related collision reports since the Powered Scooter Pilot Program commenced in mid-October 2018 (compared to the 4.5 months immediately prior).

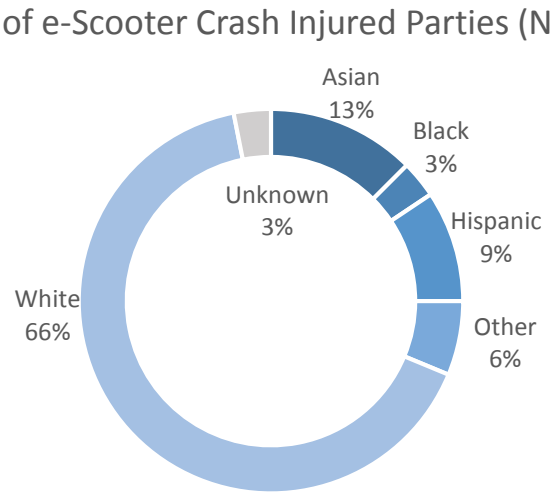


Looking at individuals with injuries referenced in collision reports (N=32), the data show the following:

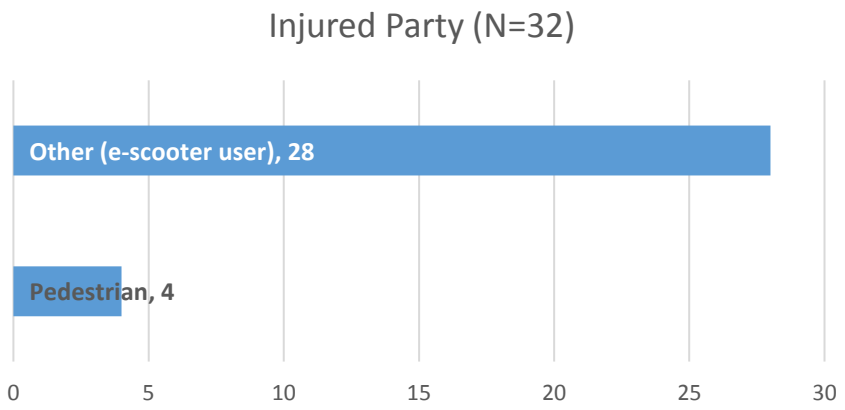
- **Gender:** of 32 injured people in 2018 reporting, 22% were female and 78% were male.
- **Age:** range from 12-86; 4 children (age 17 and under); 3 seniors (age 65 and up).



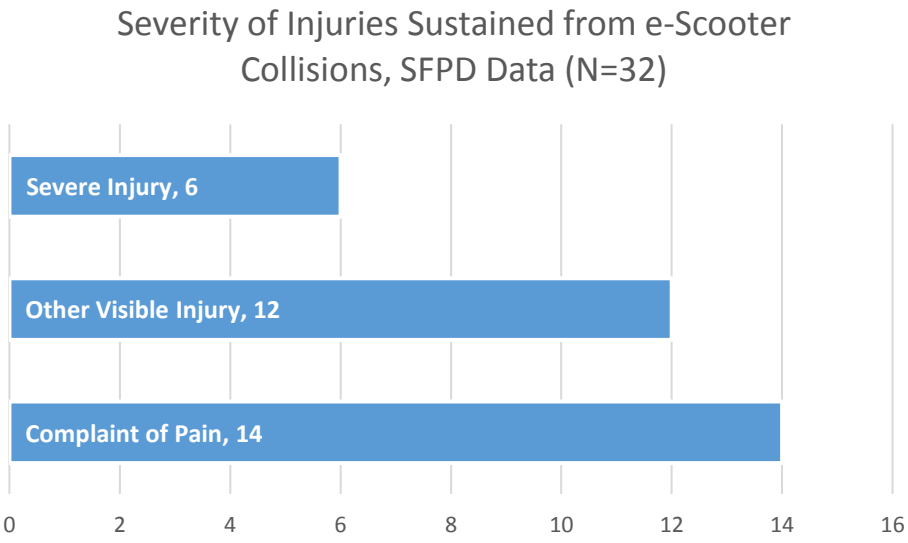
- **Race/ethnicity:** People injured in e-scooter related collisions were predominantly White (66%), and much less frequently Asian (13%), Hispanic (9%) or Black (3%). Nine percent of injured parties' race/ethnicities were either unknown or in another category.



- **Injured parties and Helmet Use:** 4 pedestrians, 28 e-scooter users. Injured pedestrians were older adults (age range 64-86), White or Asian (50% each), and 75% female. A quarter of injuries to pedestrians were described as severe, and 75% as other visible injury. Of injured e-scooter users, two people (7%) reported wearing a helmet.



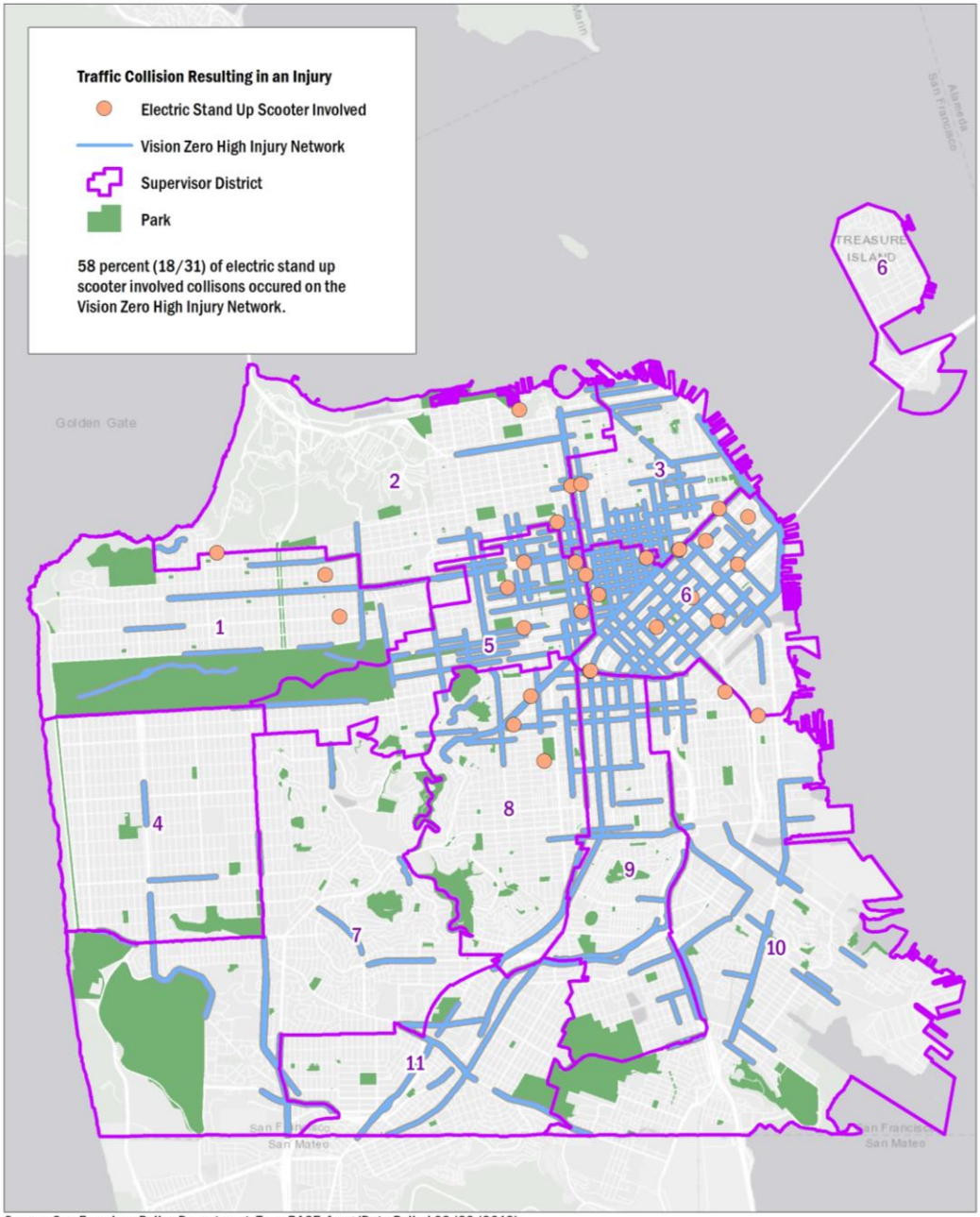
- **Severity:** Nineteen percent of injuries reported to police were severe, and 37% were described as other visible injury. Under half (44%) of reported injuries from e-scooter crashes were complaints of pain.



- **Location of collisions:** Powered scooter collisions reported to SFPD clustered in the northeastern quadrant of the city, particularly in the South of Market, Hayes Valley, and Western Addition neighborhoods. These locations may also reflect higher availability of powered scooter devices. Districts with highest numbers of reported collisions were Districts 5 and 6. A majority (58%) of collisions took place on San Francisco's High Injury Network[16] – the 13% of city streets where 75% of severe and fatal injuries occur.

SFPD Reported Traffic Injury Collisions Involving an Electric Stand Up Scooter

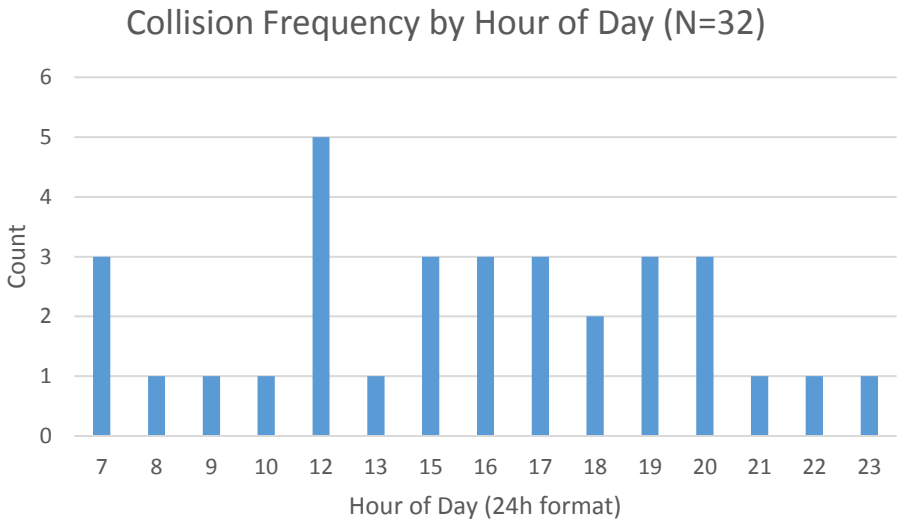
San Francisco, CA (1/1/2018 to 12/31/2018)



Source: San Francisco Police Department, TransBASEsf.org (Data Pulled 03/29/2019)
Created by: San Francisco Department of Public Health on 03/29/2019

[16] More information at: https://sfgov.maps.arcgis.com/apps/webappviewer/index.html?id=fa37f1274b4446f1bdddd7bdf9e708ff

- **Collision time of day:** While collisions took place in a wide distribution of times, the noon hour and early afternoon through early evening (3p-8p) appear to be particularly common times for e-scooter collision. No collisions were reported to have occurred in the nighttime and early morning hours between midnight and 7a.



Collision Reporting from Pilot Program Companies

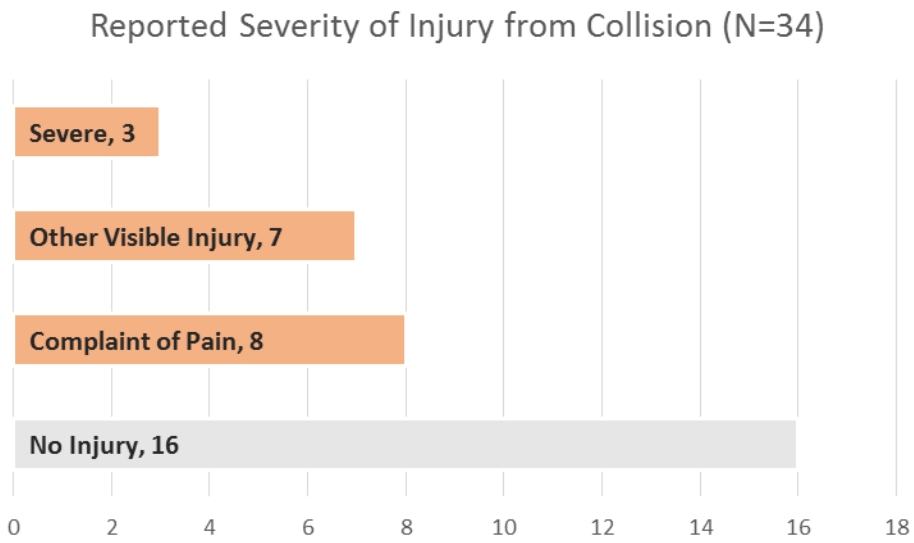
Powered Scooter Share Permit and Pilot Program companies Skip and Scoot submit monthly tracking data to SFMTA, including information on collisions reported by their users.

Scoot has reported zero collisions to date at the time of this report.

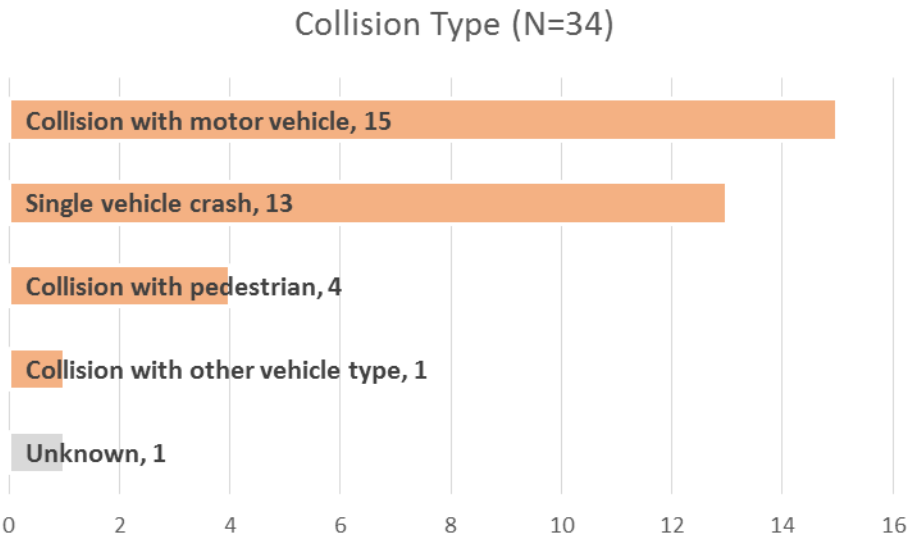
Skip reported 34 collisions over a five month period between mid-October 2018 and mid-February 2019, and the following summary reflects those data.

- **Gender:** of collision-involved users disclosing their gender, 80% were male and 20% were female.
- **Severity:** While a large minority of reported collisions resulted in no injury to the person reporting (47%), more often collisions sustained while riding e-scooters resulted in complaint of pain (23%), severe injury[17] (9%), or other visible injury (21%). These reporting categories are self-reported by the injured person (who may or may not be a powered scooter user) and mirror those employed in state-wide collision reporting by the California Highway Patrol and local police departments, including the San Francisco Police Department.

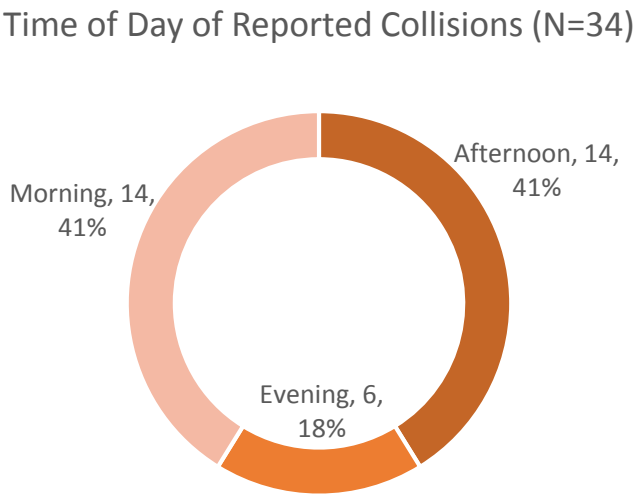
[17]The SFPD classification of severe injury includes broken or fractured bones, dislocated limbs, severe lacerations and unconsciousness, among other injuries.



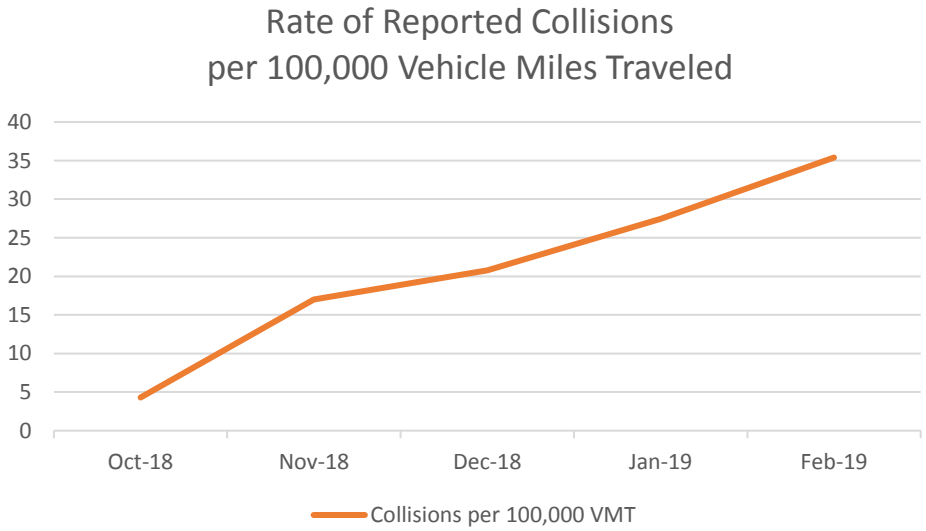
- **Police reports and hospital visits:** Just under 12% of collisions reported to powered scooter companies were made by users who filed or intended to file a police report. Similarly, users indicated they either made or planned to make a hospital visit following 9% of collisions reported to powered scooter companies.
- **Location:** Among reported locations, the most common collision location was the roadway (83%), followed by the sidewalk (10%) and bike lane (7%). Per California law, operation of e-scooters on sidewalks is prohibited. While e-scooter collisions on sidewalks may place pedestrians at particular risk, the level of injury of parties besides the collision reporter is not assessable from these data.
- **Helmet use:** Overall, 12% of users reporting collisions also reported helmet use. Data on helmet use were largely incomplete, with only 21% of reported collision events including this information.
- **Collision type:** The leading collision type reported was motor vehicle vs. powered scooter (44%), followed by powered scooter collisions without a second party (38%) and powered scooter vs. pedestrian collisions (12%).



- **Collision time of day:** Reported collisions were equally likely to take place in morning or afternoon (41% each), while relatively uncommon in evening hours (18%).



- **Collision rate:** The number of vehicles available for rental on San Francisco streets, as well as the actual miles ridden by users fluctuate month to month. Therefore, standardizing the monthly count of reported collisions by powered scooter vehicle miles traveled (VMT) helps compare like values across time. Standardizing reported collisions per 100,000 VMT **reveals a consistently rising trend of collisions**, with more than eight times as many collisions per vehicle mile traveled in February as in October. (Please note: Scoot and private vehicle mile data are not included in this calculation. Vehicle miles traveled include only revenue miles traveled by Skip devices, and not those traveled by gasoline powered trucks or vans or e-vehicles to reposition rental devices).



Collision Reporting via SF311

A total of two e-scooter collisions were reported via SF311, the publicly accessible portal for complaints and concerns citywide. One of these referenced a crash with a privately-owned scooter, while the other was a March 2019 report of a powered scooter company contractor who sustained an injury while riding a device. This injury is not currently reflected in company injury reporting, which has not yet been submitted beyond February.

Recommendations

Based on collision and injury data available, several issues deserve further attention. From an injury prevention perspective we offer the following recommendations:

- **Provide additional information on where it is legal to ride:** operation of e-scooters on sidewalks places pedestrian non-users of e-scooters at risk of injury and violates California vehicle code[18]. Promoting awareness of regulations to e-scooter users is necessary to prevent injury. A SFMTA campaign highlights Do's and Don'ts of powered scooter ridership[19] in brief, easy to read format and is a resource for user education.
- **Increase access to helmets:** Low rates of helmet use across data sources combined with the high prevalence of e-scooter associated head injuries in ZSFG data highlight a prevention opportunity. Recent e-scooter guidance from the American College of Emergency Physicians[20] names helmet use as the "easiest and smartest thing you can do to avoid serious head injury."
- **Monitor youth users of e-scooters:** ZSFG and SFPD injury data indicate that youth age 17 and younger are a population vulnerable to e-scooter injuries. Ongoing enforcement of pilot program companies' age restrictions is important to ensure that these injuries to youth do not arise on rented devices.
- **Conduct additional analysis with more data to assess opportunities for infrastructure improvements:** including on the Vision Zero High Injury Network.

Given the relatively recent popularity of e-scooters as a transportation mode, VZIPR also offers one recommendation from a data perspective:

- **Improve tracking of e-scooter associated injury**: presently, there is a lack of consensus on which International Classifications of Disease, 10th revision (ICD-10) codes should reflect e-scooter collision events in medical records. VZIPR will engage in the national dialog on selecting codes to reliably capture e-scooter related modes of injury. Standardizing ICD-10 code use will improve tracking of both critical and less severe injuries, and allow for better comparisons between hospitals and across the country.

[18] California Vehicle Code Sec. 21235(g)
[19] https://www.sfmta.com/blog/powered-scooters-are-here%C2%A0
[20] http://newsroom.acep.org/2019-02-27-Scoot-Safe-New-Public-Service-Announcement-Shares-Emergency-Physicians-Tips-for-Electronic-Scooter-Riders

San Francisco Severe Traffic Injury Trends: 2011-2017

December 2018

Produced by the San Francisco Department of Public Health,
in collaboration with the San Francisco Municipal Transportation Agency
and the San Francisco Police Department

Table of Contents

VISION ZERO SF

Working together to prioritize street safety and eliminate traffic deaths in San Francisco.

Executive Summary

Vision Zero is San Francisco's initiative to eliminate traffic fatalities and reduce severe traffic-related injury on San Francisco's streets. The Department of Public Health's Vision Zero team monitors severe injuries utilizing hospital data from the Zuckerberg San Francisco General Trauma Center – our City's Level I Trauma Center where the most severely injured patients are seen and treated, and where injury severity is clinically assessed by medical professionals. We track both ***severe injuries*** as well as ***critical injuries*** - a subset of patients that are the most severely injured. This is our best and most reliable data source for detecting severe injuries in our transportation system. We supplement this data with SF police data collected from police traffic collision reports, which has been historically the primary data source for severe injury in San Francisco. The seven years of data presented in this report informs City and community understanding of those most severely injured on streets in San Francisco – and how that picture is shifting over time including since the adoption of Vision Zero in 2014. Vision Zero SF monitors and reports fatality data, which is more readily available, separately and on a monthly basis. This severe injury data helps us to further assess Vision Zero progress, and guide injury prevention initiatives.

MONITORING SEVERE INJURIES IN OUR TRANSPORTATION SYSTEM USING ZUCKERBERG SF GENERAL HOSPITAL AND TRAUMA CENTER (ZSFG) DATA

WHO IS TREATED FOR SEVERE INJURY AT ZSFG?

- People walking comprise approximately one-third of severe and 30-40% of critical injuries in recent years (2015-2017, table 1).
- People in motor vehicles have comprised a growing proportion of severe and critical injuries treated at ZSFG in recent years, making up 33% of severe injuries and 30% of critical injuries in 2017. (See fig. 4, tables 1-2).
- People biking and people on motorcycles have comprised similar proportions of severe and critical injuries in recent years (2015-2017), each of approximately 20%. (See fig. 3, fig.5, tables 1-2).
- People biking and motorcycling have a notably higher burden of injury relative to the proportion of trips they represent on SF streets**.**

WHAT ARE TRENDS IN HOSPITAL SEVERE AND CRITICAL INJURY BY TRAVEL MODE?

OVERALL (See Fig. 1, Page 6)

- **Severe injuries:** Overall **severe injuries** trend upward in hospital data from 2015 on. Notably, implementation of Emergency Medical Services Agency retriage guidelines led to more patients with severe injury being sent to ZSFG and contributed to this increase.
- **Critical injuries:** ZSFG has had relatively stable counts of critically (the most severely) injured patients during that same period, which should be less impacted by the change in retriage practice.

PEOPLE WALKING (See Fig. 2, Page 7)

- **Severe injuries** increased 24% from 2013 – 2016 and may have begun to flatten out in 2017
- **Critical injuries** to people walking declined 40% from 57 in 2013 to 34 in 2017

PEOPLE ON BIKES (See Fig. 3, Page 7)

- **Severe injuries** to SF cyclists declined 22% in hospital data 2013-2017
- **Critical injuries** were relatively flat during that same period, despite reported increases in ridership during that same time.

PEOPLE IN MOTOR VEHICLES (See Fig. 4, Page 8)

- **Severe injuries** to people in motor vehicles noticeably increased 21% in hospital data between 2015 and 2017.
- **Critical injuries** to people in motor vehicles more than doubled between 2015 and 2017, from a low of 14 in 2015 to 33 critically injured people in 2017. Notably, hospital data includes people injured on freeways.

PEOPLE ON MOTORCYCLES (See Fig. 5, Page 8)

- Both **severe and critical injuries** to people riding motorcycles increased in 2015 and 2016 with a dip in 2017.

COMPARISON WITH SAN FRANCISCO POLICE DEPARTMENT (SFPD) DATA

We compare trends in hospital data with SFPD data, which was historically the primary source of severe injury data reported to the public and used by City staff. VZSF is shifting to reliance on hospital data for severe injury monitoring due to the aforementioned strengths. Notably, SFPD implemented a change in reporting of suspected traumatic brain injury in 2014, which likely contributed to increased reporting of severe injuries after that time.

POLICE DATA – WHO IS SEVERELY INJURED?

Among severely injured people in police data, proportions of people injured while engaged in various travel modes are comparable to hospital data. An exception is that police data show lower proportions of people injured in motor vehicles compared to hospital data (tables 1-3). This is likely at least in part due to the fact that hospital data include injuries occurring on freeways, while police data do not.

POLICE DATA – SEVERE INJURY TRENDS

Overall severe injury trends in police data are comparable to that in hospital data, as are trends for people walking and motorcycling. (See fig. 1, 2, 5). Severe injuries to people riding bicycles in police data were relatively flat from 2013-2017, comparable to critical injuries in hospital data (fig. 3). Severe injuries to people in motor vehicles in police data did not see the same increases as in hospital data, potentially in part due to police data not including freeway injuries (fig. 4).

Detailed Findings: 2011-2017 Severe Traffic Injury Trends

Methodology

Hospital data indicate severity using a clinical injury severity score (ISS) ranging from 1-75, as well as whether someone required hospital admission for treatment. Excluding fatal injuries, police data offer three categories of injury severity, assessed at the injury scene: Severe Injury, Other Visible Injury, and Complaint of Pain. This analysis presents severe injuries from hospital data coded as *critical* (ISS greater than 15) and/or *severe* (all traffic injuries resulting in hospital admission), and severe injuries from police data.[1] For hospital data, critical injury is included in severe injury counts and statistics.

Please note: SFPD and ZSFG injury assessments represent overlapping populations and do not compare severity between data sources. We know that some of the injured people in police data are also captured in hospital injury data, while some injured people are included in police or hospital data only. To address this issue SFDPH completed a pilot linkage of SFPD and ZSFG data for 2013-2015, creating San Francisco's Transportation-related Injury Surveillance System which found that 59% of records classified as severe appeared both in police and hospital data. In 2019 SFDPH will complete another linkage of 2016-2018 data. The linked data from 2013-2018 will then become our primary data source to monitor severe injury trends as we will have six years of data, accounting for records in both police and hospital data sources.

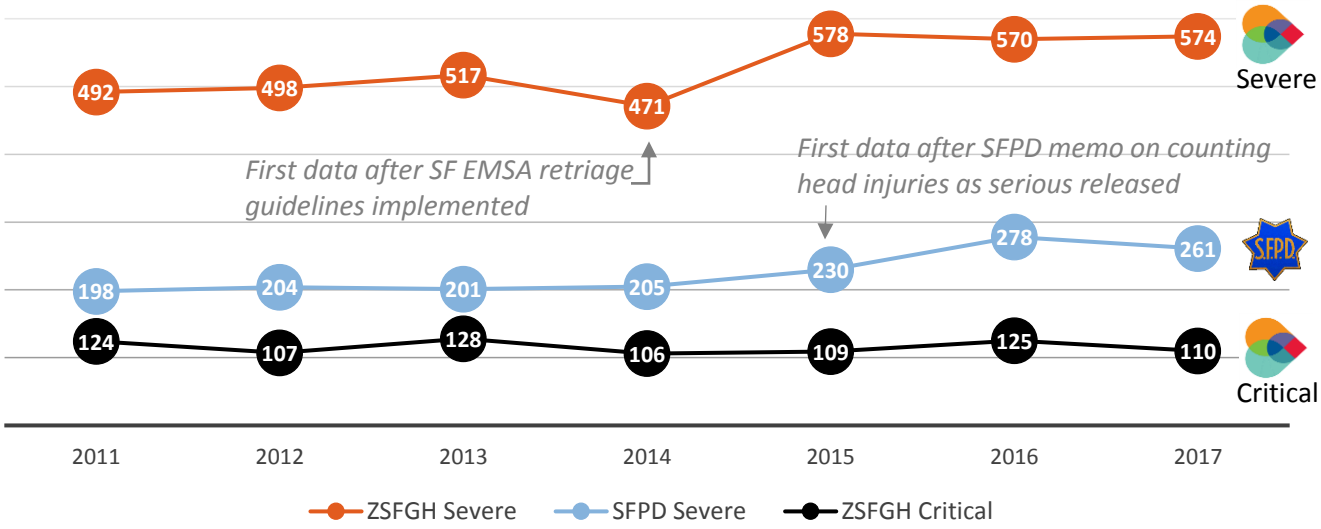
Interpretation Notes

At the end of 2013, the **San Francisco Emergency Medical Services Agency (SF EMSA)** issued **retriage guidelines** to ensure the most severely injured people were treated at ZSFG, even if they initially reported to another hospital. People with severe injury are best served when treated in a trauma center. Recognizing this, the protocol change in the SF EMSA retriage guidelines facilitate the rapid transfer of critically injured trauma patients from non-trauma hospitals to the trauma center with unconditional acceptance. This change helps increase our inclusion of the most severely injured in the ZSFG hospital data – and also likely contributed to the increased but stable number of severe injuries observed from 2015 forward, relative to earlier years (fig. 1). We expect the impact of this change in protocol to stabilize the more time passes. Additionally, a shift to the new International Classification of Diseases medical coding system (ICD-10) beginning with 2017 data affects the categorization of traffic modes, but is not anticipated to have substantially changed number of patients attributed to each mode. Please note – hospital data includes people injured on SF freeways, which makes it distinct from VZSF Fatality data which excludes people on freeways.

[1] Note: Severe injury reporting excludes deaths that occur within 30 days of injury which are tracked separately for Vision Zero fatality monitoring. Distinct from fatality monitoring for Vision Zero SF, hospital injuries *include* those sustained on freeways, underground in MUNI and BART stations and in the Presidio. Police data do not. Protocol available at: https://www.sfdph.org/dph/files/EHSdocs/PHES/VisionZero/Vision_Zero_Traffic_Fatality_Protocol.pdf

Separately, a memo released to SFPD officers in Dec. 2014 advised head injuries be classified as severe to avoid under-reporting of traumatic brain injury. This guidance likely partially accounts for the increase in severe injuries recorded in police data from 2015 onward (fig. 1).

Figure 1: Total Traffic Injury Counts by Year



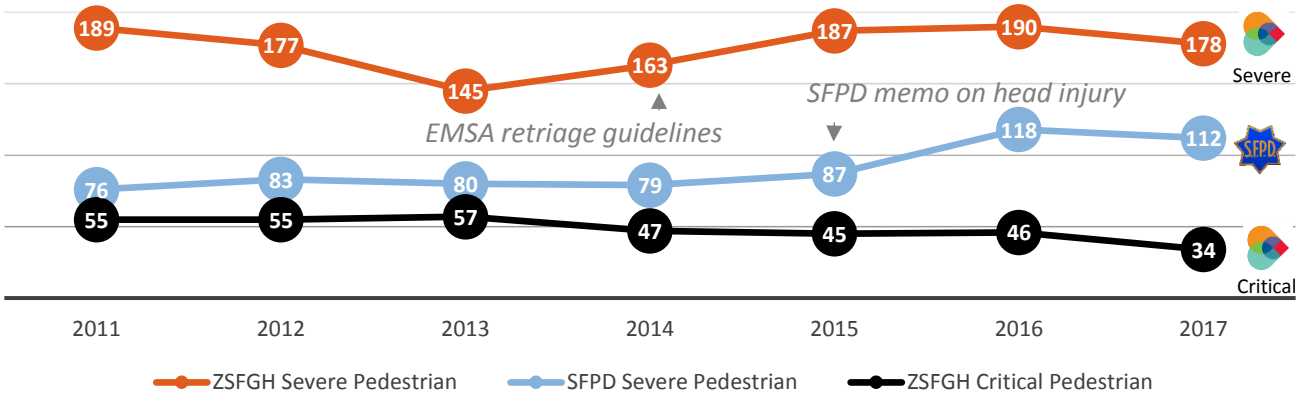
Overall injury trends reflect stable counts of critically injured patients, and elevated numbers of severe injuries in both hospital and police data from 2015 onward.

Note: Several factors must be considered when interpreting trend charts presented here:

- **Retriage guidelines implemented at ZSFG in Nov. 2013** likely contribute to the increased but stable number of severe injuries observed from 2015, relative to earlier years.
- ZSFG severe injury numbers *include* ZSFG critical injury counts.
- Separately, a **memo released to SFPD officers in Dec. 2014** advised head injuries be classified as serious to avoid under-reporting of traumatic brain injury. This guidance likely accounts for some of the increase in severe injuries recorded in police data from 2015 onward.

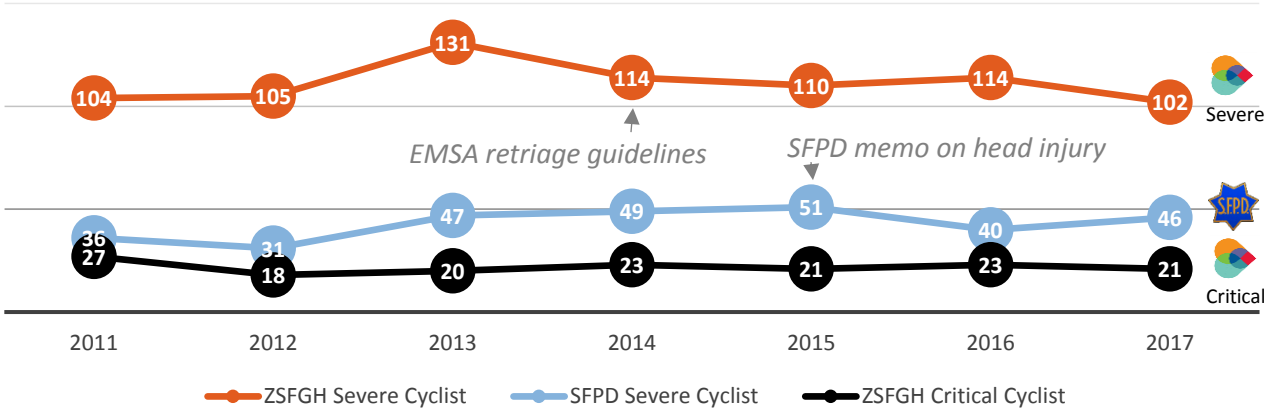
Severe Injury by Mode of Travel

Figure 2: Pedestrian Traffic Injury Counts by Year



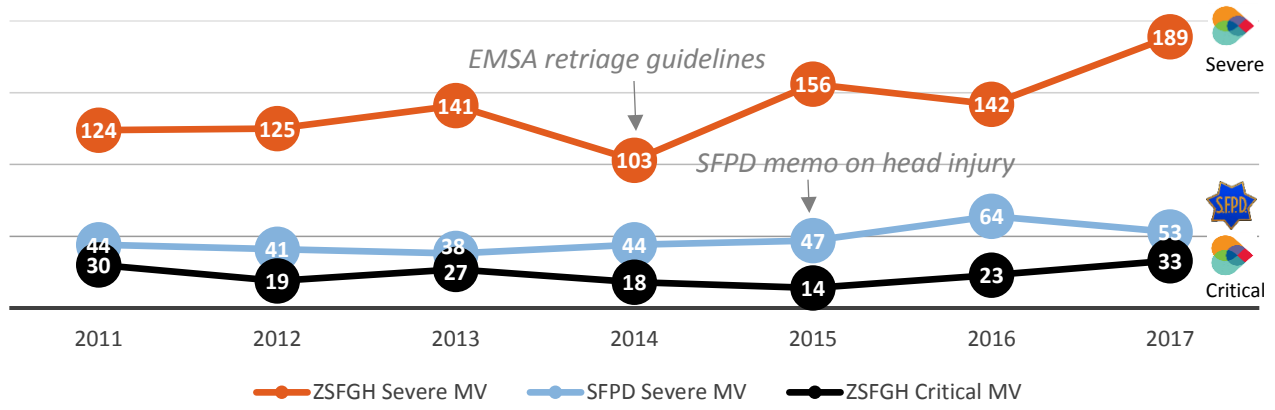
Pedestrian injury is the most common severe traffic injury reported by ZSFG and SFPD. Notably, the annual count of critical pedestrian injuries decreased from 57 to 34 from 2013-2017.

Figure 3: Bicycle Traffic Injury Counts by Year



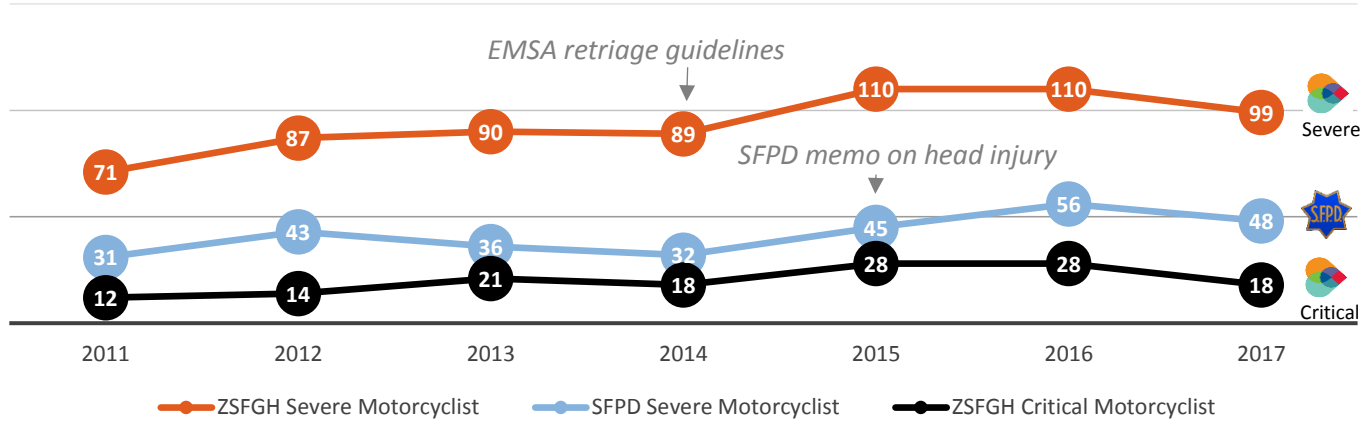
Severe and critical cyclist injury counts in all data sources have been relatively flat since 2013. However, people riding bicycles remain vulnerable road users that are over-represented in severe injury data relative to their proportion of trips on San Francisco streets. It is possible that rising levels of cycling in San Francisco paired with steady critical injury counts among people riding bicycles point to a relative improvement in bicyclist safety over time.

Figure 4: Motor Vehicle Traffic Injury Counts by Year



Severe motor vehicle injury has risen to the levels of pedestrian injury admissions to ZSFG in 2017. Critical motor vehicle injury is also on the rise. Notably, hospital data includes freeway injuries.

Figure 5: Motorcycle Traffic Injury Counts by Year



Motorcycle injury has been on the rise, but appeared to dip in both hospital and police data in 2017.

Table 1: Count of Severe Injuries and Proportion by Travel Mode - from Hospital Data

Year	Pedestrian	Cyclist	Motorcyclist	Motor vehicle occupant	Other/ Unknown	Total
2011	189 (38%)	104 (21%)	71 (14%)	124 (25%)	4 (1%)	492 (100%)
2012	177 (36%)	105 (21%)	87 (17%)	125 (25%)	4 (1%)	498 (100%)
2013	145 (28%)	131 (25%)	90 (17%)	141 (27%)	10 (2%)	517 (100%)
2014	163 (35%)	114 (24%)	89 (19%)	103 (22%)	2 (0%)	471 (100%)
2015	187 (32%)	110 (19%)	110 (19%)	156 (27%)	15 (3%)	578 (100%)
2016	190 (33%)	114 (20%)	110 (19%)	142 (25%)	14 (2%)	570 (100%)
2017	178 (31%)	102 (18%)	99 (17%)	189 (33%)	6 (1%)	574 (100%)

Among severe injuries from hospital data, pedestrian injury frequently ranks as the most prevalent mode of injury, ranging from 28-38% of severe injuries. In 2017 the proportion of severe injuries attributable to motor vehicle collisions rose sharply to 33%, just surpassing the proportion of severe pedestrian injuries (31%).

Table 2: Count of Critical Injuries and Proportion by Travel Mode - from Hospital Data

Year	Pedestrian	Cyclist	Motorcyclist	Motor vehicle occupant	Other/ Unknown	Total
2011	55 (44%)	27 (22%)	12 (10%)	30 (24%)	0 (0%)	124 (100%)
2012	55 (51%)	18 (17%)	14 (13%)	19 (18%)	1 (1%)	107 (100%)
2013	57 (45%)	20 (16%)	21 (16%)	27 (21%)	3 (2%)	128 (100%)
2014	47 (44%)	23 (22%)	18 (17%)	18 (17%)	0 (0%)	106 (100%)
2015	45 (41%)	21 (19%)	28 (26%)	14 (13%)	1 (1%)	109 (100%)
2016	46 (37%)	23 (18%)	28 (22%)	23 (18%)	5 (4%)	125 (100%)
2017	34 (31%)	21 (19%)	18 (16%)	33 (30%)	4 (4%)	110 (100%)

Among critical injuries, the proportion attributable to injured pedestrians has declined from 51% in 2012 to 31% in 2017. However, pedestrian injury remains the leading mode of critical injury. The proportion of critical injury occurring among people riding bicycles has been relatively level over the past few years (~20%), while injury to motor vehicle occupants increased from 18% in 2016 to 30% in 2017.

Table 3: Count of Severe Injuries and Proportion by Travel Mode - from Police Data

Year	Pedestrian	Cyclist	Motorcyclist	Motor vehicle occupant	Other/ Unknown	Total
2011	76 (38%)	36 (18%)	31 (16%)	44 (22%)	11 (6%)	198 (100%)
2012	83 (41%)	31 (15%)	43 (21%)	41 (20%)	6 (3%)	204 (100%)
2013	80 (40%)	47 (23%)	36 (18%)	38 (19%)	0 (0%)	201 (100%)
2014	79 (39%)	49 (24%)	32 (16%)	44 (21%)	1 (0%)	205 (100%)
2015	87 (38%)	51 (22%)	45 (20%)	47 (20%)	0 (0%)	230 (100%)
2016	118 (42%)	40 (14%)	56 (20%)	64 (23%)	0 (0%)	278 (100%)
2017	112 (43%)	46 (18%)	48 (18%)	53 (20%)	2 (1%)	261 (100%)

Among police-designated severe injuries, pedestrian injury consistently ranks as the most prevalent mode of injury – comprising 43% in 2017. The disproportionate burden of injury to motorcyclists and bicyclists compared to motor vehicles seen in hospital data above is also seen in police data, as they each make up 18% of severe injury reports in 2017 yet comprise a relatively smaller proportion of trips in San Francisco.

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Accelerating Vision Zero: SFMTA QuickBuild Program

Jamie Parks, Livable Streets Director

June 27, 2019

SFCTA Vision Zero Committee

Challenge to staff

"the SFMTA will **develop a policy that requires SFMTA staff to move forward with quick, near -term safety enhancements on high injury corridors**, including paint, safety posts, and temporary sidewalk extensions"

- *Mayor Breed, March 6, 2019*

Meeting the Challenge – Proposed Approach

1. Streamline approval processes for nimble and efficient project delivery
2. Increase emphasis on “quick-build” projects (i.e., delivered by city crews and/or small construction contracts)
3. Additional resources to increase project delivery capacity

Current Practice

Staff brings legislation to the MTA Board after months/years of public outreach and consultation

Benefits:

Any resolvable issue has been resolved by our engineers and planners

Challenges:

Can't field-test new street designs for effectiveness or acceptability

Can't implement proven, uncontroversial features of the project quickly

Design adjustments often require further SFMTA Board approvals

Policy Change: QuickBuilds

Limited palette of reversible safety measures implemented iteratively

Pros:

Safety treatments complete months or years before major reconstruction

Public feedback on final project based on real-world observations

Staff could tweak projects more nimbly, and be more responsive to stakeholders

Challenge:

Must be fully accountable to be successful

SFMTA Board Action

- Define quick-build projects
- Modify Transportation Code to broaden City Traffic Engineer approval authority
- Create clear accountability and transparency
- Approve locations for next set of potential quick-build projects

What is a Quick-Build?

- Improvements are reversible/adjustable
  - Paint, posts and signs
  - Meters and curb markings
  - Traffic signal timing
  - Transit boarding islands
- Limited in duration to 24 months

Transportation Code Amendments

- Approval actions granted to City Traffic Engineer
  - Blue zones and red zones (other color curbs already subject to CTE approval)
  - Modify existing bike lanes, including converting Class II bike lanes to Class IV protected lanes
  - STOP signs and turn restrictions
- **No change in ability to appeal decisions to the BOS**

Accountability and Transparency

- Public Hearing required prior to parking and traffic modifications approval
- Clear requirements for project evaluation and soliciting stakeholder input

Accountability and Transparency

- Required report to SFMTA Board prior to the conclusion of 24 months
- SFMTA Board still legislates prior to major construction activity

2019 Quick-Build Projects

Street	Location	Centerline Miles
5th St	Market St to Townsend St	0.9
6th St	Market St to Folsom St	0.4
Alemany Blvd	Congdon St to Bayshore Blvd	1.1
Brannan St	Embarcadero to 9th St	1.4
California St	Arguello to 18th Ave	1.0
Howard St	3rd St to 6th St	0.5
Indiana St	23rd St to Cesar Chavez Blvd	0.3
Taylor St	Market St to Sutter St	0.5
Terry Francois Blvd	Mariposa to Mission Bay Blvd	0.5
Townsend St	3rd St to 8th St	0.9

New Quick-Build Projects – Adopted by SFMTA Board on 6/4

Street	Location	Centerline Miles
7th St	Folsom St to 16th St	1.0
Golden Gate Ave	Polk St to Market St	0.4
Howard St	The Embarcadero to 3rd St	0.7
Leavenworth St	McAllister St to O'Farrell St	0.3
Valencia St	19th St to Cesar Chavez St	0.8

- New project lists adopted every 6-9 months

Additional Resources

- July Prop K Allocation request pending

Item	Cost
Labor*	
Paint Shop: new thermoplastic, curb painting and methacrylate crews	$2.1-2.5M
Sign Shop: new delineator, sign installation and preventive maint. crews	$1.1-1.4M
Engineers, electricians and CAD technicians	$0.9-1.3M
Planning and project outreach support	$0.3-0.5M
Annual cost	**$4.4-5.7M**
Materials and Consultant (One -time cost)*	
Vehicles for Paint Shop and Sign Shop (including new paint trucks)	$1.2M
Materials (paint and signs)	$0.8M
Consultant Support	$0.7M
One-time cost	**$2.7M**

Accelerating Vision Zero: SFMTA QuickBuild Program

Jamie Parks, Livable Streets Director

June 27, 2019

SFCTA Vision Zero Committee

VISION ZERO SF

Through Vision Zero SF we commit to working together to prioritize street safety and eliminate traffic deaths in San Francisco.

VISION ZERO COMMITTEE

JUNE 27, 2019

ITEM 8: VISION ZERO COMMUNICATIONS AND EDUCATION UPDATE

UYEN NGO, SFMTA

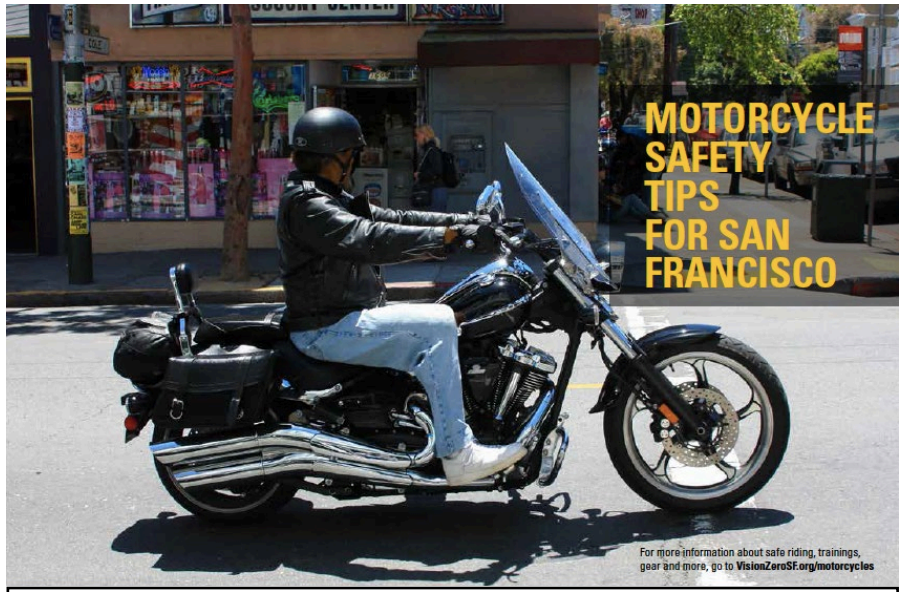
LAST TA COMMITTEE EDUCATION UPDATE

- 2018 Partnership Recaps
  - Safe Speeds Campaign and **DMV** PSA video
  - Supporting **SF Bay Area Families for Safe Streets** World Day of Remembrance
  - **District Attorney's** Senior Pedestrian Safety
  - Update crossing time standards with **Vision Zero Coalition** members
- 2019 Look Ahead
  - Driving in Today's SF
  - Safer Intersections
  - Chinese-focused campaign
  - Motorcycle Safety Year 3
  - Rapid Response Street Team Outreach

APRIL – JUNE METRICS (AS OF 6/14)

Street Team Outreach Events	17
Rapid Response Outreach	2 responses 8 memorial posters
Paid Social Media Campaign (impressions)	Distracted Driving: 512,154 Motorcycle Safety: 375,152 Driving in Today's SF: 984,910 It Stops Here: 400,000
In-language Outreach (events)	19
High Visibility Partnerships	2
In-language Campaigns	2
Social Media Posts	90
Twitter Reach	48,500
Campaign Reach	17,506,500
Outreach Contacts	5,000

APRIL – JUNE CAMPAIGNS

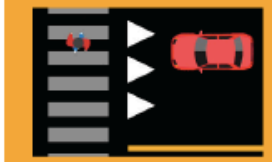


EXISTING MULTILINGUAL MATERIALS: CAMPAIGNS

NEW MULTILINGUAL MATERIALS: CAMPAIGNS

三藩市各處街道都可以看到!

路面標示為所有人創建安全區，維護開車者、步行者以及騎自行車者的安全

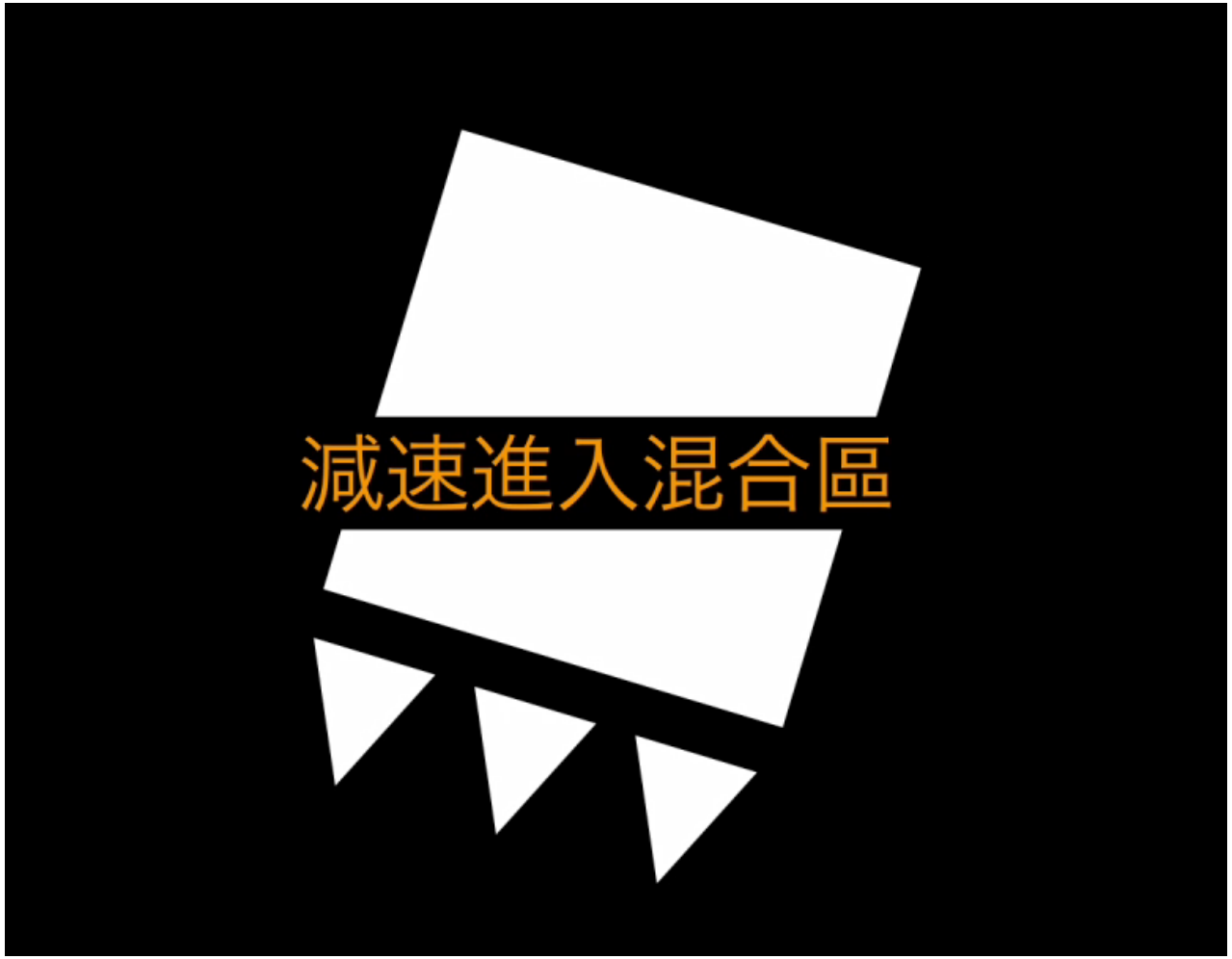


在鯊魚齒標示前停車
給予行人安全的空間橫越馬路

減速進入混合區
注意並禮讓自行車

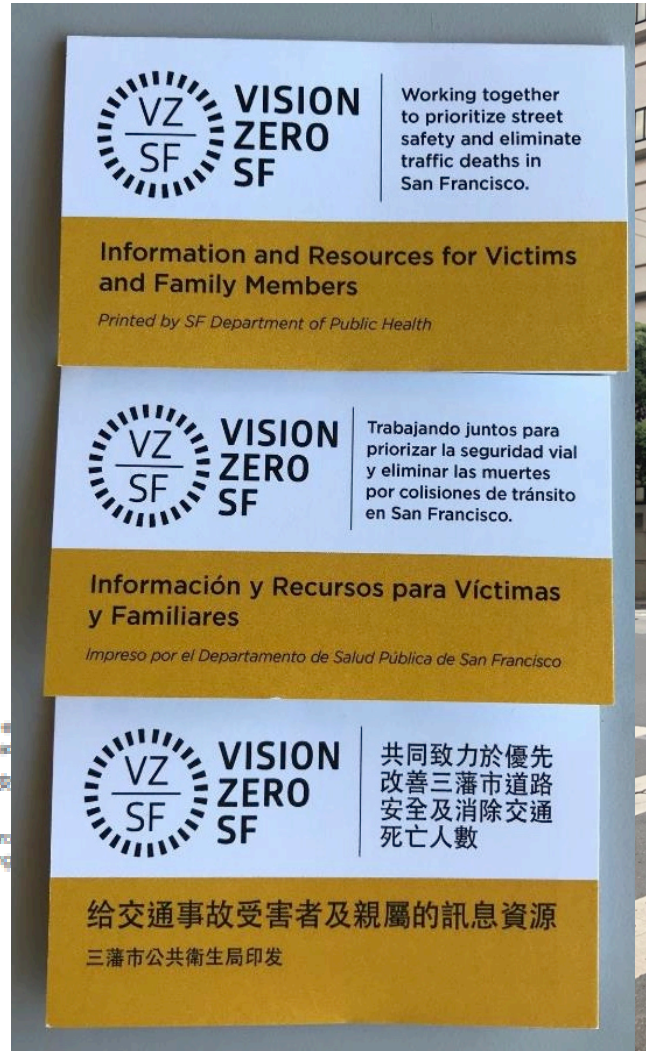
將車停在停車格內
切勿停在自行車道

請前往 VisionZeroSF.org/Streets 觀看影片，來了解這些新特點的作用



VISIONZEROSF.ORG

MULTILINGUAL MATERIALS: PROJECTS



MULTILINGUAL MATERIALS: OUTREACH

VISION ZERO SF
CREATING SAFER STREETS FOR SAN FRANCISCO

Traffic deaths are preventable.

At least 3 pedestrians are hit by cars in our city every day.

Each year, about 30 people are killed and 500 are hospitalized after being hit. These deaths and injuries are unacceptable and preventable.

Vision Zero SF is the City's commitment to eliminating all traffic fatalities and reducing the number of severe injuries. San Francisco is making streets safer for people who drive, bicycle, walk or take transit.

Safety is now a top priority in every transportation project.

We are making progress.

We've made safety improvements on more than 60 miles of streets. Since adopting Vision Zero in 2014, we have:

- Installed 1,500+ street safety features like bike lanes and boarding islands
- Issued 100,000+ citations to drivers for the five traffic violations that most often lead to fatal crashes
- Launched anti-speeding and texting-while-driving campaigns
- Engaged in one-on-one conversations about safer streets with 20,000+ residents

While we are seeing progress, there is still more we can do. The city is working hard to get us to our ultimate goal of zero deaths.

Traffic safety is an equity issue.

Traffic fatalities disproportionately affect our most vulnerable communities.

- In 2017, 40% of fatalities occurred in low income neighborhoods
- In 2017, 50% of people killed while walking were seniors

Our streets must be safe for all road users in all communities and for people of all incomes, races and ethnicities, ages and abilities.

JOIN THE MOVEMENT FOR SAFER STREETS

@visionzerosf

visionzerosf.org

VISIÓN CERO SF
CREANDO CALLES MÁS SEGURAS PARA SAN FRANCISCO

Las muertes por accidentes de tránsito pueden prevenirse.

Al menos 3 peatones son atropellados por un auto en nuestra ciudad cada día.

Cada año, alrededor de 30 personas mueren y 500 son hospitalizadas después de ser atropelladas. Estas muertes y lesiones son inaceptables y pueden prevenirse.

Visión Cero SF es el compromiso de la Ciudad de eliminar todas las muertes por accidentes de tránsito y de reducir el número de lesiones graves. San Francisco está haciendo las calles más seguras para las personas que conducen, andan en bicicleta, a pie, o toman el transporte público.

La seguridad es ahora una prioridad en cada proyecto de transporte.

Estamos avanzando.

Hemos hecho mejoras de seguridad en más de 60 millas de calles. Desde que adoptamos Visión Cero en 2014, hemos:

- Instalado más de 1,500 medidas de seguridad vial, como carriles para bicicletas e islas de embarque
- Emitido más de 100,000 citaciones a conductores por las cinco infracciones de tránsito que más resultan en accidentes fatales
- Lanzado campañas contra la velocidad y contra el uso de mensajes de texto mientras se conduce
- Participado en conversaciones individuales con más de 20,000 residentes sobre cómo tener calles más seguras

Aunque estamos progresando, todavía hay más que podemos hacer. La ciudad está trabajando duro para lograr nuestra meta final de cero muertes.

La seguridad vial es un problema de equidad.

Las muertes por accidentes de tránsito afectan de manera desproporcionada a nuestras comunidades más vulnerables.

- En el 2017, el 40% de las muertes por atropellos ocurrieron en vecindarios de bajos ingresos
- En el 2017, el 50% de las personas muertas por atropellos mientras caminaban eran personas mayores.

Nuestras calles deben ser seguras para todas las personas que usan las calles en todas las comunidades y para personas de todos los ingresos, razas y etnias, edades y capacidades.

VISIONZEROSF.ORG

UPDATE ON CHINESE FOCUSED CAMPAIGN

SAFE STREETS FOR SENIORS

SFDPH is **educating seniors and service providers about Vision Zero** and **gathering input to bring back to City agencies**

- Conduct **multi-lingual presentations to seniors and service providers** on Vision Zero, how to get involved, and how to stay safe
- Reached over **2, 054 seniors and staff** at **62 locations**
- Funded **15 community based organizations** to conduct in-depth education & outreach in their neighborhoods in FY 16-17 and 17-18
- Funded **seven** community-based organizations in FY18-19

COMMUNITY PRESENTATIONS AND OUTREACH

- Conduct presentations and outreach in senior centers, community events in different neighborhoods located near VZ High Injury Network, including Richmond, Chinatown, Bayview, Mission, Tenderloin, etc.

- Audiences are very diverse and most are non-English speaking

- Present and/or interpret in **English, Cantonese, Mandarin, and Spanish** to address language barriers

EDUCATION MATERIALS

- Safe Streets for Seniors brochure (English, Chinese, Spanish, Tagalog)
- Outreach card with lanyard (English, Chinese, Spanish, Tagalog)
- Distributed through presentations, outreach events, and partner agencies.

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reporting the results

VISION ZERO SAFE STREETS EVALUATION PROGRAM

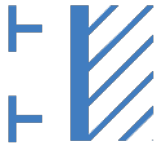
2018 YEAR-END REPORT

VISION ZERO SF

SFMTA

FROM PLANS TO PROJECTS

HOW WE ARE DOING?



People feel safer and more comfortable walking and biking in locations with protected bicycle infrastructure.

Vehicles travel at safer speeds after installation of traffic lane reductions and other traffic calming features.

More people are cycling on the streets with new and upgraded bike lanes, especially protected bike lanes.

Mixing zones help with right hook conflicts, but don’t solve the problem.

FOLSOM STREET

83% of bicyclists reported an increase in comfort.

54% of people feel more comfortable walking along Folsom.

48% of people feel more comfortable driving along Folsom after implementation. **40%** reported no change.

7TH AND 8TH STREETS

16% decrease in vehicle speeds on 7th Street following the project.

9% decrease in vehicle speeds on 8th Street following the project.

TURK STREET

287% increase in bike counts in the peak evening commute; morning commute counts also significantly increased.

FOLSOM STREET

80% of people driving yielded to bicyclists at mixing zones.

4% of all observations at mixing zones were “close calls” or near crash instances.

LOCALIZED TOOLS

ARE SPOT SAFETY TREATMENTS WORKING?

In addition to our corridor-focused bike lane projects, the SFMTA implements targeted safety measures at intersections throughout the city.

When it comes to making pedestrians safer, painted safety zones work.

Flashing Beacons increase yielding to pedestrians in San Francisco, however are not being used by the majority of pedestrians where installed.

Daylighting improves visibility and reduces collisions between drivers and people crossing the streets in the Tenderloin.

PAINTED SAFETY ZONES

Motorists turned corners more slowly.

Motorists yielded to pedestrians more often.

More motorists turned further from the curb, at safer distances from people on sidewalks.

RAPID FLASHING BEACONS

6% increase in vehicle yield rate.

13% decrease in close calls.

34% average use of RRFBs by pedestrians.

DAYLIGHTING

14% fewer reported collisions at intersections where daylighting treatments were implemented in the Tenderloin.

LEADING THE WAY

HAVE INNOVATIVE TREATMENTS BEEN SUCCESSFUL?

The SFMTA continually seeks to install new types of bicycle and pedestrian improvements that offer the chance to solve long-standing issues.

Parking protected bike lanes work.

San Francisco's first protected intersection is well-received by the community and reduces conflicts.

Separated bike signals are a significant improvement over mixing zones.

PARKING PROTECTED BIKE LANES

88% fewer loading violations on Turk Street between Jones and Taylor Streets compared to the before condition.

9TH/DIVISION PROTECTED INTERSECTION

96%
drivers yielded
to bicyclists.

100%
drivers yielded
to pedestrians.

98%
of vehicles turned at speeds at
or below the speed limit.

SEPARATED BIKE SIGNALS

86% of bicyclists comply with signal.

96% of vehicles comply with signal.

Close calls dropped from **17** at mixing zones to **1** at bike signals.

Bike signals reduce the probability of cyclists conflicting with vehicles.

7TH AND 8TH STREET

17TH STREET BETWEEN CHURCH AND SANCHEZ

FOLSOM STREET


DEAD END
WALLER
PIERCE