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

TRAFFIC INJURY DATA AND PUBLIC HEALTH: PARTNERSHIPS TO REALIZE VISION ZERO IN SAN FRANCISCO

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San Francisco Department of Public Health
TRAFFIC INJURY IN SAN FRANCISCO: A PUBLIC HEALTH PROBLEM

~30 Fatalities per year

$35M in medical costs alone per year

~500 People hospitalized with severe injuries annually in our public hospital

On average, City Trauma Surgeons respond to a serious traffic injury every 17 hours.

~50% of the patients seen at Zuckerberg San Francisco General’s Trauma Center are people injured in traffic collisions.
SAN FRANCISCO ADOPTED VISION ZERO IN 2014

**Saving Lives**
Safety and the preservation of human life is our highest priority.

**Prevention**
Traffic deaths are preventable and unacceptable.

**Equity**
The transportation system should be safe for all road users, for all modes of transportation, in all communities and for people of all incomes, races and ethnicities, ages and abilities.

**Speed**
People are inherently vulnerable and speed is a fundamental predictor of crash survival. The transportation system should be designed for speeds that protect human life.

**Safe Streets**
Human error is inevitable and unpredictable; we should design the transportation system to anticipate error so the consequence is not severe injury or death. Transportation and land use development policies, standards, programs and design decisions should prioritize preserving lives.

**Safe People and Safe Vehicles**
Safe human behaviors, education about and enforcement of safety rules, and vehicle technologies are essential contributors to a safe system.
PEOPLE MAKE MISTAKES, NO ONE SHOULD DIE WHEN THIS HAPPENS

**TRADITIONAL APPROACH**
- Traffic deaths are INEVITABLE
- PERFECT human behavior
- Prevent COLLISIONS
- INDIVIDUAL responsibility
- Saving lives is EXPENSIVE

**VISION ZERO**
- Traffic deaths are PREVENTABLE
- Integrate HUMAN FAILING in approach
- Prevent FATAL AND SEVERE CRASHES
- SYSTEMS approach
- Saving lives is NOT EXPENSIVE
23 TRAFFIC-RELATED DEATHS IN 2018

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Vison Zero adopted in 2013, second-least deadly year in history in 2015, and least deadly year in history in 2018.

*2018 FATALITY COUNTS ARE PRELIMINARY
MONTHLY REPORTING OF TRAFFIC DEATHS

http://visionzerosf.org/maps-data/
VISION ZERO INJURY PREVENTION RESEARCH COLLABORATIVE (VZIPR)

Working since 2014 to develop, institutionalize and utilize comprehensive injury data in support Vision Zero SF’s data-driven, evidence-based approach to saving lives.

Diverse group:
- Epidemiologist funded by SFMTA
- Trauma surgeons
- Nurses
- Geospatial analysts
- & other key staff
## IMPROVING INJURY SURVEILLANCE FOR TARGETED INTERVENTIONS

### Standard Practice: Police Reported Injury Collisions

- Detailed data about **crash characteristics**
- Little data on injury severity (4 levels of injury severity classification)
- **Underreporting** of injuries
  - 21% underreporting of pedestrian injuries (Sciortino et al 2005)
  - 27% underreporting of cyclist injuries (Lopez et al 2012)

### Unintentional Injury: Hospital Medical Records

- Improved **injury severity assessment** and detailed health outcome data
- **Comorbidities** (mental illness, hypertension, etc)
- **Disability** status
- **Demographics** (race/ethnicity, insurance type)
- **Homelessness**
  - Little data on cause, injury location
    - Mechanism of injury code
    - No location info
    - No cause of crash info
LINKING ZUCKERBERG SF GENERAL HOSPITAL AND POLICE DATA

Transportation Injury Surveillance System (TISS)
**Police Definition: Visual Assessment**

- **Severe Injury.** An injury, other than a fatal injury, that includes the following:
  1. Broken or fractured bones.
  2. Dislocated or distorted limbs.
  3. Severe lacerations.
  4. Skull, spinal, chest or abdominal injuries that go beyond “Other Visible Injuries.”
  5. Unconsciousness at or when taken from the collision scene.
  6. Severe burns.

CHP 555 Collision Investigation Manual

**Hospital-Based Definition: Clinical Examination**

- Severe Injury:
  - Admitted to ZSFGH
  - Injury Severity Score (ISS) > 15*

Consistent with:
- American College of Surgeons
- National Trauma Data Bank
- California Dept. of Public Health
- World Health Organization

**Different Severe Injury Definitions**

*Injury Severity Scoring (ISS) correlates linearly with mortality, morbidity, hospital stay and other measures of severity.*

Linked/Reported Severe Injuries
- 60% Remain Severe (also hospital severe)
- 40% Reclassified (not severe per hospital)

Linked/Reported Visible Injuries
- 80% Remain Visible Injury (not severe per hospital)
- 20% Reclassified to Severe per hospital

Linked/Reported Complaint of Pain
- 88% Remain Complaint of Pain (not severe per hospital)
- 12% Reclassified to Severe per hospital

Net Increase in Severe Injuries based on Hospital Data
SEVERELY INJURED WITH EMS TRANSPORT AND IN HOSPITAL RECORDS ONLY

- Severely-injured bicyclists seen at hospital who don’t report to police: 39%
- Severely-injured pedestrians seen at hospital who don’t report to police: 24%
- Severely-injured people in vehicles seen at hospital who don’t report to police: 28%
Vision Zero High Injury Network: 2017 Update
San Francisco, California

13% of City Streets
75% of Severe and Fatal Injuries (2013-2015)

City and County of San Francisco Department of Public Health: Environmental Health Program on Health, Equity, and Sustainability - www.sphcs.org
HIGH INJURY NETWORK (2013-2015, N=1,494): 28% OF SEVERE IN HOSPITAL DATA, ONLY

Severe/Fatal Injuries by Data Source

- Hospital Unlinked/Unreported: 28%
- Police Unlinked/Reported: 9%
- Police/Hospital Linked/Reported: 63%

*Hospital records are only those that were linked to EMS*
DISPROPORTIONATELY CONCENTRATED IN VULNERABLE COMMUNITIES

Vision Zero High Injury Network: 2017 Update - Communities of Concern
San Francisco, California

31% of Surface Streets
51% of the High Injury Network

City and County of San Francisco Department of Public Health: Environmental Health
Program on Health, Equity, and Sustainability: www.sfphos.org
Injury Segments in Priority Areas: ¾ of severe/fatal injuries

- 57% on the VZ High Injury Network
- 35% on Traffic Calm-able Streets

Priority Areas: Where Seniors and People with Disabilities Live and Travel

- Census Tracts with the highest 1/3 of population density
- Senior Centers
- Public Libraries
- Meal Programs, including Department of Agency and Adult Services Nutrition Sites
- Public Health Facilities
- Paratransit Drop Off/Pick Up Locations
- Other Key Services
DEVELOPING SPATIAL ANALYSIS TOOLS

Environmental Data
- Infrastructure
- Transportation
- Community
- Business
- Demographics
- Land Use
- Health
- Education

Injury Data
- Time
- Severity
- Age
- Gender
- Movement
- Collision Factors
- Sobriety
- Code Violation
TransBASE: Linking Transportation Systems to Our Health
PARTNERSHIPS TO ADDRESS EMERGING INJURY DATA NEEDS
NEW VARIABLES IN SF TRAUMA REGISTRY

1. NEW VEHICLE TYPE
   - Congruent with CHP/SFPD categories
   - Balance desire for data with capacity to collect data
   - Specific enough to respond to data and reporting needs
2. WAS AN EMERGING MOBILITY SERVICE OR TECHNOLOGY INVOLVED IN THE COLLISION?

Examples:
- Skip
- Lyft
- Uber
- Scoot
- Ford GoBike
- JUMP Bike
- Lime
- Chariot
- Zipcar
- City Carshare
- Maven
- Waymo

3. WAS AN AUTONOMOUS VEHICLE (AV) INVOLVED IN THE COLLISION?

0 Unknown
1 No, conventional vehicle
2 Yes
METHODS AND REPORTS

https://www.sfdph.org/dph/EH/PHES/PHES/TransportationandHealth.asp
CHP 555 IMPROVEMENTS TO SFPD FORMS

- SFPD utilizing a **custom electronic CHP 555 form that allows collision data to be exported to a local database.**

- Recent Form Improvements:
  - Internal checks to prevent common data entry errors by police officers

**New questions for key Vision Zero issues:**
- Emergency Medical Services (EMS) patient run sheet number (for linkage to ZSFG patients)
- Party disability
- Bicycle Impact Point
- Autonomous vehicles
- Suspected cannabis use
- Transportation company (Uber, Lyft, taxis, etc.)
DATA: CRITICAL BUT NOT SUFFICIENT
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San Francisco Office of the Medical Examiner
San Francisco Fire Department
American Medical Response
King-American Ambulance Company
San Francisco Transportation Authority
San Francisco Department of Public Works
San Francisco Planning Department
Thank you!

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