

# Street Design and Traffic Calming Measures Update

November 5, 2015



# Mission of the Department

The mission of the San Francisco Fire Department is to ***protect the lives and property of the people of San Francisco from fires, natural disasters, and hazardous materials incidents;***  
***to save lives by providing emergency medical services;***  
to prevent fires through prevention and education programs;  
and to provide a work environment that values health, wellness and cultural diversity and is free of harassment and discrimination.

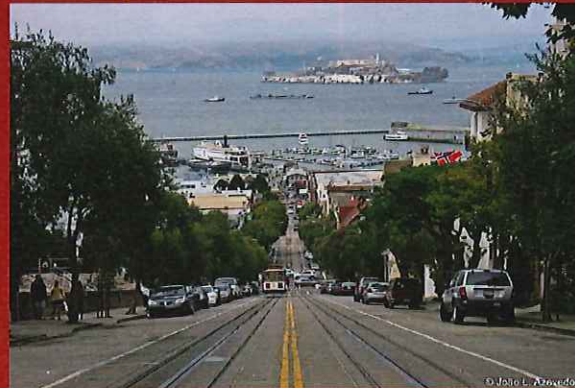


# Challenges of San Francisco

- Topographical
- Wood construction
- Overhead electrical wires
- Zero lot lines
- Narrow streets
- Delivery trucks/ double parking
- Muni wires, buses & traffic
- Wind speed
- Rapid fire spread
- Earthquakes



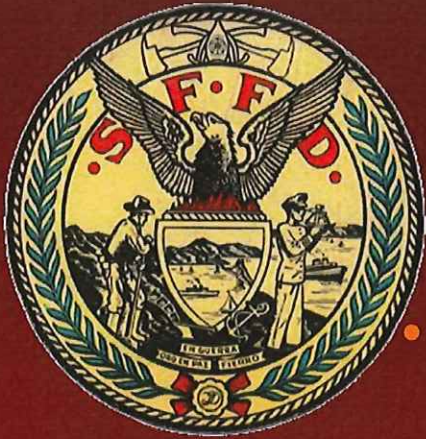
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© John L. Szvedo F.







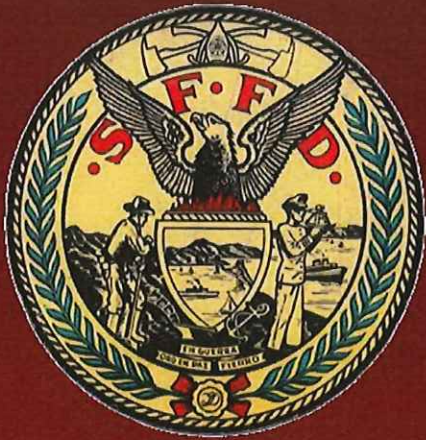
# Fire Response Time

- A house fire can double in size every 30 seconds
- A fire fueled with modern furniture can burn 8 times faster than it would have 50 years ago

Year	Fire/Alarm requiring Fire Response
2010	26,950
2011	27,908
2012	28,762
2013	27,844
2014	28,736

## WHY SECONDS COUNT

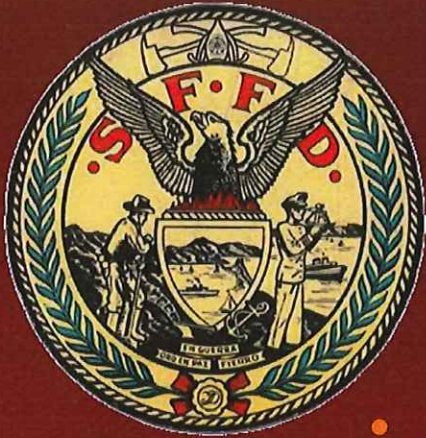




# Response Times: EMS Time Critical Dispatches

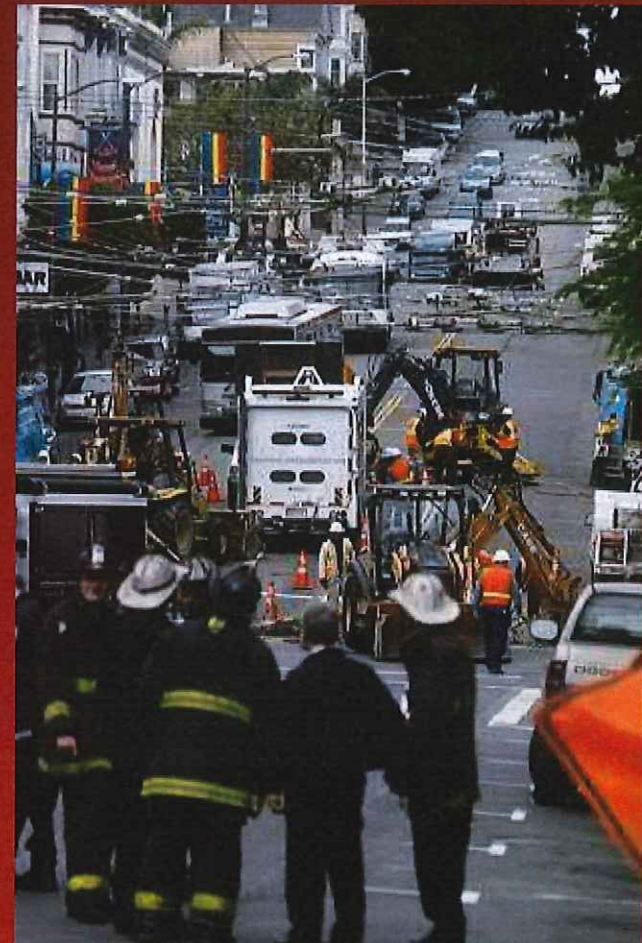
	2014 Frequency	Percent
Breathing Problems	7,739	8.32%
Cardiac	10,376	11.15%
Choking	241	0.26%
Siezuers	3,588	3.86%
Stroke	1,615	1.74%
Trauma	4,736	5.09%
Unconscious	7,777	8.36%
MVA-PED	1,008	1.08%
EMS Other	55,940	60.14%
Grand Total	93,020	

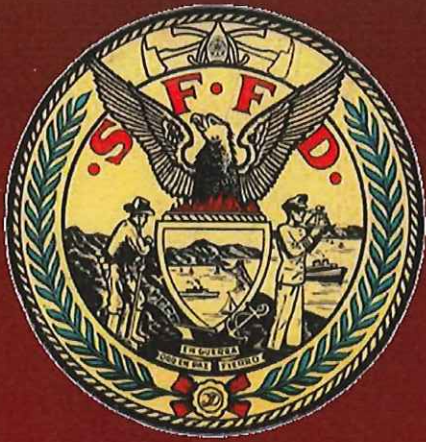
- Cardiac Arrest or choking: After 4 minutes without oxygen, the brain begins to die
- In the event of ventricular fibrillation, survival decreases at a rate of 8% per minute
- Asthma, heart attack, choking & allergic reaction should be assessed within 4 minutes for optimal outcome
- A delayed response in a major trauma can be the difference between disability and death



# Other Hazards with Critical Response Times

- Gas leaks
- Wire down
- Pipe main break
- HAZMAT situations



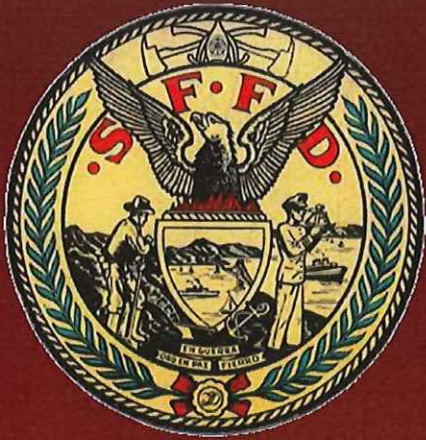


# Operational Issues

- Ladder placement
- Hose leads
- Collapse zone
- Hydrants
- Aerial operations





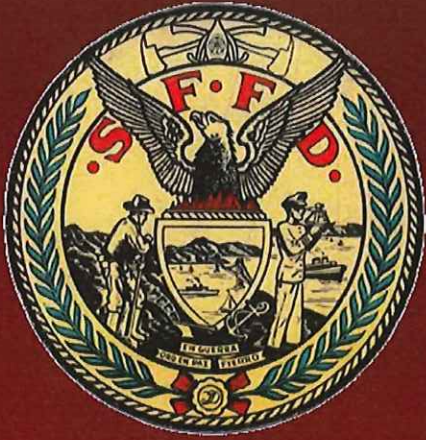


# Fire Operations: Waller St. Fire

Truck with outriggers extended

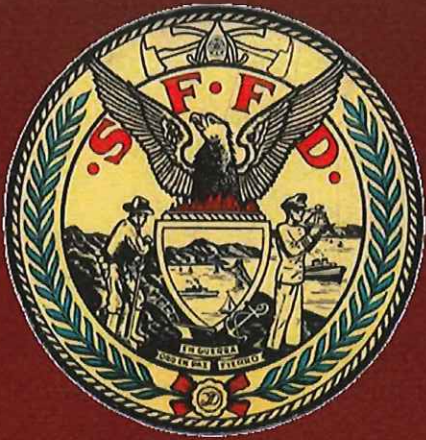


Engine

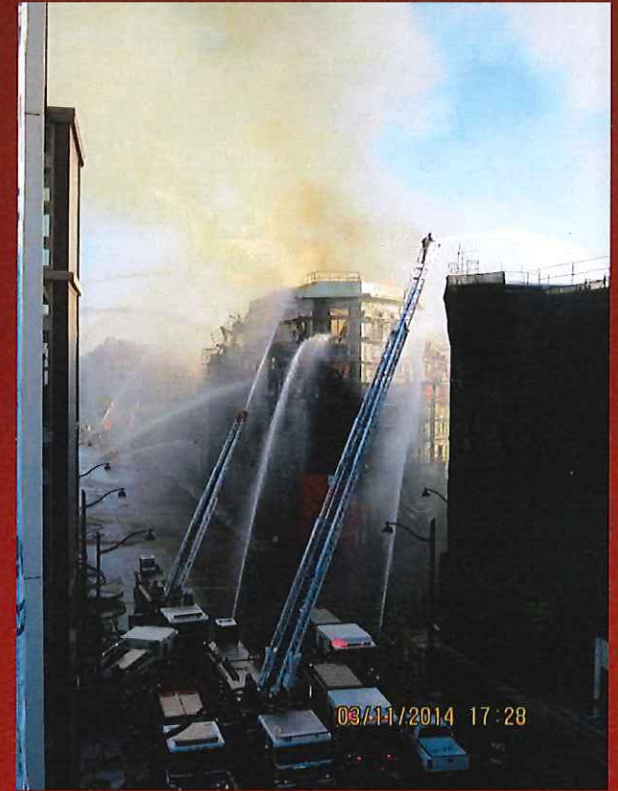
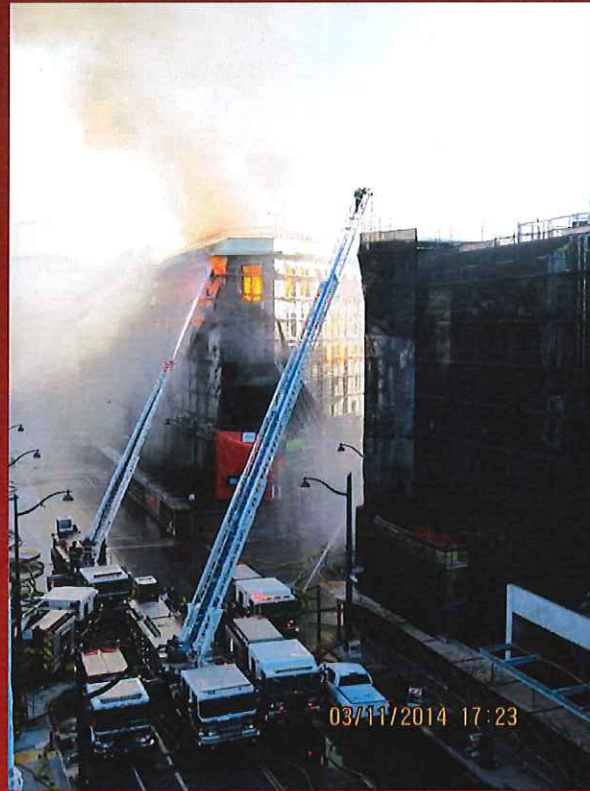


# Fire Operations: Oceanview Fire





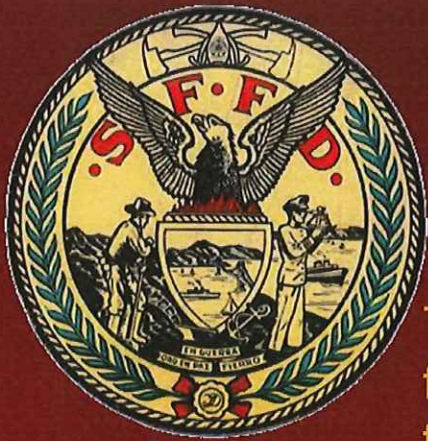
# Fire Operations: Mission Bay Fire





# Operational Issues: Dolores/ Clinton Park





# Equipment Issues: California Administrative Code Title 19

The San Francisco Fire Code (503.2.1) requires a minimum of 20 feet of unobstructed roadway and a vertical clearance of not less than 13' 6" for existing roadways. While a 20 foot wide roadway is permissible, past practice has shown that making ninety degree turns are not possible without the trucks moving into oncoming traffic. The vehicles can make the turn only on one way streets.



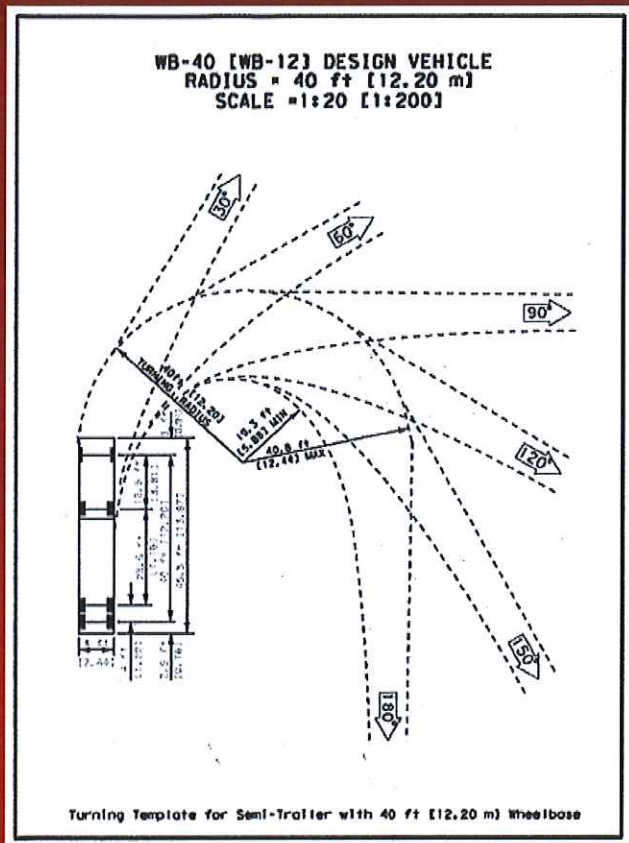
	ENGINES	TRUCKS
Outside tire extremity	8 ft. 2 in.	8 ft. 3 in.
Vehicle width (with mirrors)	10 ft. 1 in.	10 ft 4 in.
Truck width with two jacks extended	n/a	17 ft. 9 in.
Vehicle height	11 ft.	12 ft.
Length of vehicle	30 ft.	57 ft.
Gross vehicle weight	40,400 lbs.	70,000 lbs.
Street grades maximum	26% maximum	26% maximum
Approach and departure	15% maximum	15% maximum
Truck aerial operations	n/a	14% maximum

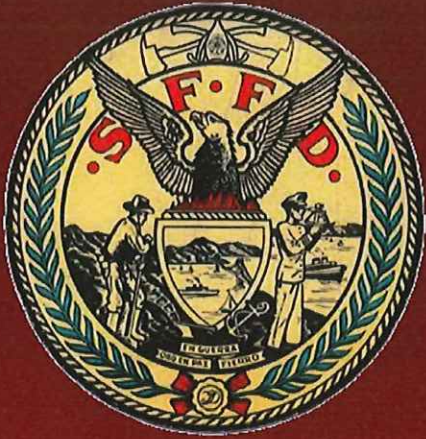


# Equipment Issues: SFFD Turning Radius

## Minimum Street Widths:

- Parking on one side of street - 23' of roadway
- Parking on both sides of street - 30' of roadway
- Turning radius – 37' inside. Inside radius measured from outside edge of curb



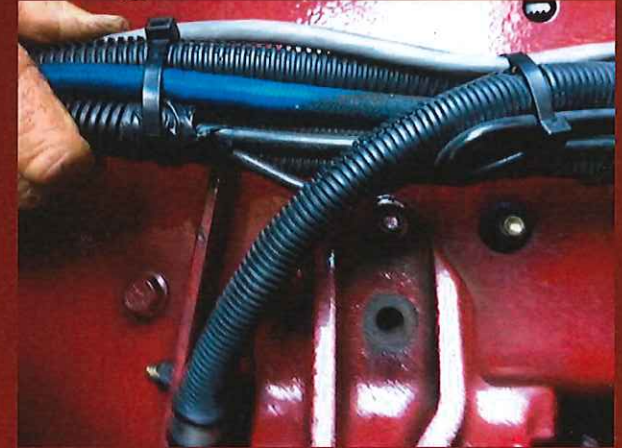


# Equipment Issues: Street & Curb Damage



Bent Frame

Repair	Average Cost \$	Time Out of Service
Steering Arms	800.00 ea. (total 4)	8.0 hrs
Leaf Springs	750.00 ea (total 4)	48 hrs.
Axle	1900.00 to 4000.00	10 days
Shackles	800.00	8.0 hrs
Wheels/ Tires	1000.00 to 1600.00 ea	4.0 hrs
Suspension shocks kingpins bushings	500.00 to 3000.00	48.0 hrs



Shackle w/ a broken mounting bolt



Cracked Leaf Springs

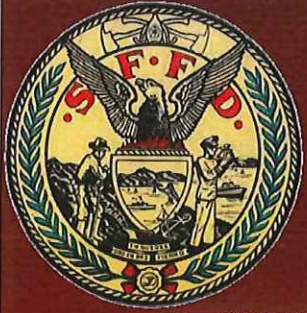


# Smaller Equipment

- Most US residential structures built of wood and therefore a much higher fuel load so engines & trucks need to be able to carry more equipment and water than a small engine can handle
- Engines and trucks need to serve many functions & carry equipment that can handle almost any emergency. This takes space
- The unique topography as well as California Smog requirements make designing a smaller rig extremely challenging







# Vehicle Size: Reducing Profile

120 accessories shall conform in strength, quality of material and workmanship to recognized  
 121 industry standards.

122  
 123 **1.0.11 INTENT OF SPECIFICATIONS**

124  
 125 It is the intent of these specifications to cover the furnishing and delivery to the San Francisco  
 126 Fire Department a complete custom apparatus equipped as specified by this document. These  
 127 specifications cover the minimum requirements as to the type of construction and test to which  
 128 the apparatus, "MUST", conform. These specifications include specific design features,  
 129 especially in powerplant, suspension, and braking, that will increase the effectiveness, hill  
 130 climbing ability, ride quality, handling, and longevity required for the City of San Francisco's  
 131 unique steep hills, uneven roads and terrain. The cab and body are also designed with a practical  
 132 and usable layout for the large amount of firefighting and medical equipment that our vehicles  
 133 are required to carry. The apparatus design utilizes San Francisco Fire Department's past  
 134 experience with vehicle usage and requires the latest technology to produce a vehicle that makes  
 135 up the smallest, "footprint"/ dimensions possible. Overall length, width, and height are  
 136 specifically designed to be as short and narrow as practical in order to operate in areas of high  
 137 traffic congestion, narrow alleyways, and bicycle lanes, while still providing required emergency  
 138 service for the City of San Francisco.  
 139

## APPENDIX A: EQUIPMENT SPECIFICATION FOR HEAVY-DUTY WALK-IN RESCUE VEHICLES



Existing Grab Bars



New Grab Bars



Existing bumpers



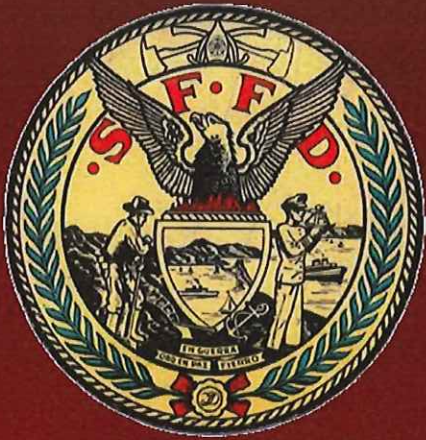
New bumpers



Existing handles



New handles

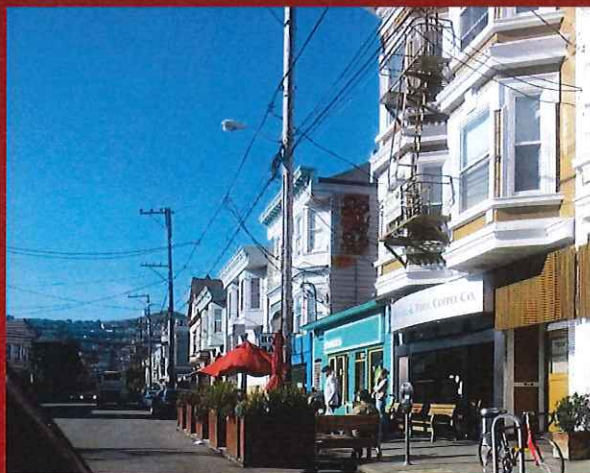


# TCM: Challenges

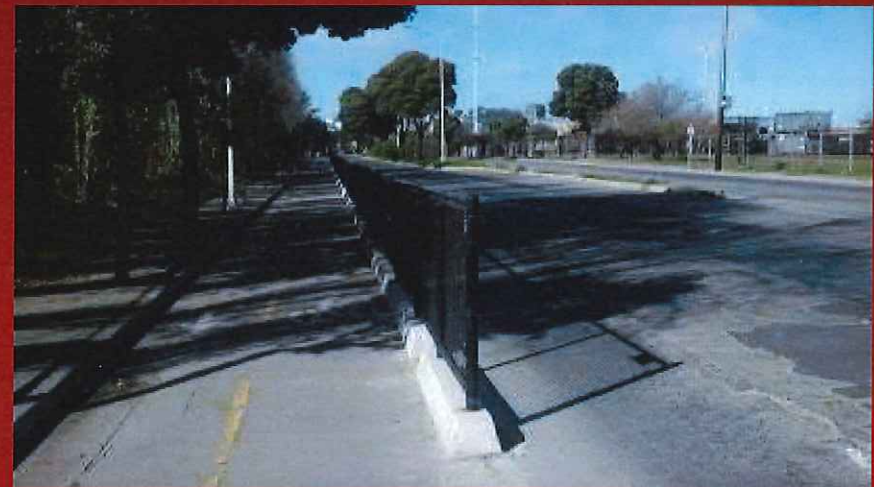
SFFD does not want to take existing non-conforming streets and make them more hazardous



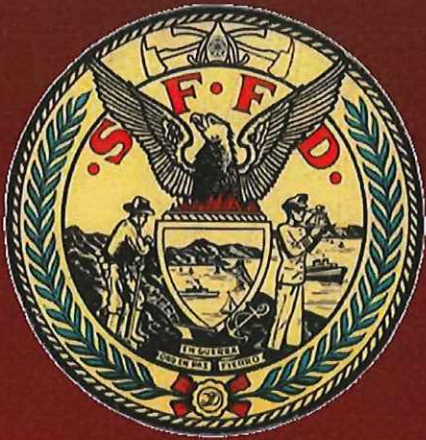
Cesar Chavez @ York



24<sup>th</sup> Street @ Sanchez



Cargo Way



# TCM: Challenges

Some traffic calming measure designs can impede emergency response times and create operational challenges



Duncan @ Tiffany/ Valencia



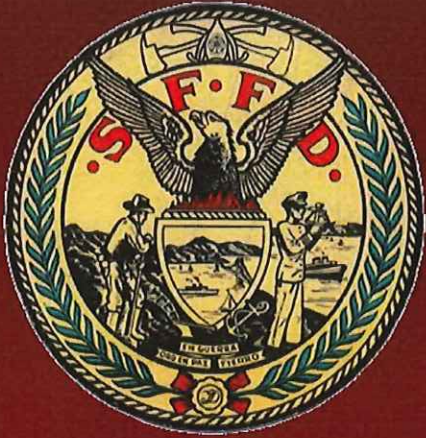
Guerrero @ San Jose



Powell @ Geary



Valencia



# Some TCM's Work for Everyone

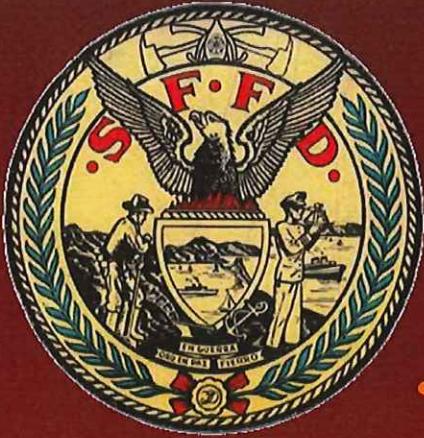
- Painted streets and flashing crosswalks
- Widened reinforced sidewalks with space to deploy outriggers
- Rolled curbs at bulb-outs (prevent costly rig repairs)
- Street "diet" with bike lane (cars have room to pull over for Emergency vehicles)
- Flexible barriers in bike lanes (although this prevents cars from pulling over, response vehicles can use without damaging rigs)
  - Daylighting
  - Raised intersections



Market and Dolores

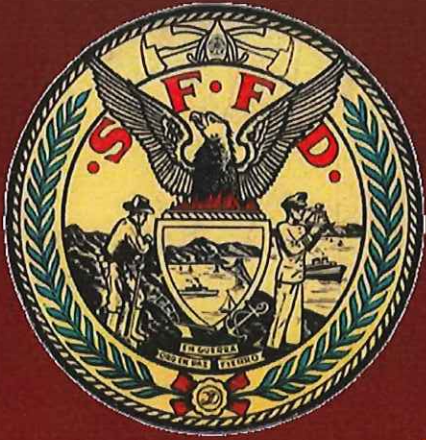


Cesar Chavez



# SFFD Involvement with Traffic Calming over the Past 3 Years

- Worked with MTA and Supervisor Wiener's office on bulb-out size and hydrant locations and shutoff valves
- SFFD met with Directors of MTA, DPW and Supervisors to work out solutions when a Fire Code variance is requested
- SFFD met with Supervisor Wiener at Market and Dolores in October of 2012 to work out a solution for the Whole Foods Market
- SFFD took Supervisor Wiener and members of the Bicycle Coalition and Pedestrian groups on a ride-along in SFFD Apparatus in the Mission and the Castro, October of 2013



# SFFD Involvement with Traffic Calming over the Past 3 Years

- SFFD went for a bike ride along with Supervisor Wiener in November of 2013
- SFFD continues to perform cone-testing on future TCM sites that don't meet code.
- Fire Prevention and BOE are working with MTA to create new turning radius template that accurately reflect our vehicles.
- SFFD working with the Port to develop new open-space projects
- Signed Vision Zero Resolution on January 22, 2015
- Organized a Vision Zero Task Force



# History of Street Design Initiatives

- Transit First Policy, 1973
- Better Streets Policy, San Francisco Administrative Code Section 98.1, 2006
- Mayor's Executive Directive Pedestrian Safety, 2010
- Better Streets Plan, 2011
- Street Safety Bond, 2011
- Vision Zero, 2014
- Vision Zero Commission resolution 2014-03
- Budget and Legislative Analyst Report, 2014
- Green Connections (Planning Dept.)
- Plaza Program
- Sunday Streets
- Complete Streets Policy (Public Works Code Section 2.4.13)
- Pedestrian Strategy
- Walk First
- DPW Subdivision Regulations 2015
- Fire Code (no Appendix D)

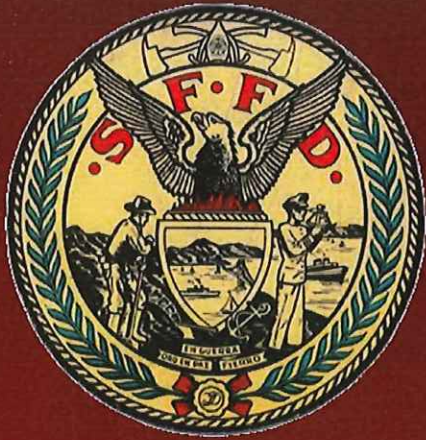


# Approval Process

1. Design by SFMTA, Planning, DPW or Developer
2. Recommendation for approval by Transportation Advisory Staff Committee (TASC), a multi-agency review body
3. Public Hearing with an SFMTA Hearing Officer
4. Approval by SFMTA board







# Vision Zero



## FIRE COMMISSION City and County of San Francisco Edwin M. Lee, Mayor

Stephen A. Nakajo, *President*  
Andrea Evans, *Vice President*  
Michael Hardeman, *Commissioner*  
Francis Covington, *Commissioner*  
Ken Cleveland, *Commissioner*



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Telephone 415.559.3451  
Fax 415.558.3413  
Maureen Conelrey, *Secretary*

### RESOLUTION 2015-01

#### SAN FRANCISCO FIRE COMMISSION VISION ZERO RESOLUTION

WHEREAS, in 2013, 34 people were killed in traffic fatalities in San Francisco; and,

WHEREAS, Over half of traffic fatalities involve people walking and riding a bicycle; and,

WHEREAS, The City of San Francisco adopted a Pedestrian Strategy in 2013 to reduce serious and fatal pedestrian injuries by 25 percent by 2016 and by 50 percent by 2021; and,

WHEREAS, Vision Zero provides a framework for reducing all traffic deaths to zero by the year 2024 through a combination of engineering measures, education, and enforcement practices; and,

WHEREAS, Mayor Ed Lee and the San Francisco Board of Supervisors have endorsed Vision Zero, and San Francisco's Department of Public Health, Municipal Transportation Agency, County Transportation Authority, Planning Department, Police Department and Department of the Environment have formally adopted Vision Zero policies to reduce injuries and deaths from preventable traffic collisions; and

WHEREAS, The Fire Department works with other city agencies including the SFMTA, SFPD, and SFCTA on street design initiatives such as public realm projects to improve pedestrian and bicycle safety in San Francisco;

WHEREAS, The Fire Department is a first responder at the scene of traffic injuries, requiring significant time and resources; and,

WHEREAS, The Fire Department's priority is the safety of the public;

THEREFORE, BE IT RESOLVED, That the Fire Department will continue to work with the San Francisco Municipal Transportation Agency, Planning Department, Department of Public Works, and others to support engineering solutions that prioritize life and fire safety; will continue to support engineering solutions, including traffic calming, that prevent traffic

injuries and fatalities while providing effective Fire Department access and fire ground operations, and

RESOLVED, That the Fire Department will continue to explore smaller apparatus and work with vendors to support the development of apparatus that accommodates safer street design and San Francisco's topography;

RESOLVED, That the Fire Department will continue to train all firefighters on safe large vehicle driving skills in an urban setting;

RESOLVED, That the Fire Department will participate in inter-agency data sharing to provide emergency response and injury-related data to the extent allowable by HIPAA laws for the Transportation-Related Injury Surveillance System being created by SFDPH for Vision Zero monitoring and evaluation

RESOLVED, That the Fire Department will participate in school safety education efforts with other Vision Zero partner agencies;

RESOLVED, That the Fire Department will continue to collaborate with other city agencies and public stakeholders on the Vision Zero Citywide Steering Committee and Task Force;

AND BE IT FURTHER RESOLVED, That the San Francisco Fire Commission adopts the Vision Zero goal to end traffic deaths by the year 2024 and will continue to work with other City agencies and departments to make our streets safer.

Adopted at the Regular Meeting of the San Francisco Fire Commission on January 22, 2015.

Ayes: 5  
Nays: 0

  
Maureen Conelrey, *Commission Secretary*

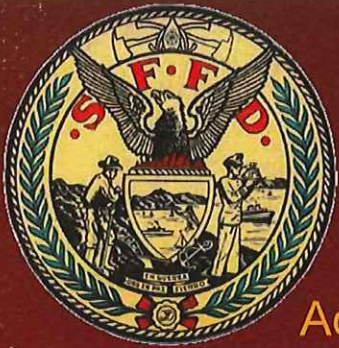


# SFFD Vision Zero Taskforce

- Monthly meetings at Headquarters
- Representatives from the Command Staff, Administration, Support Services, BOE, Fire Prevention, DOT, the Fire Commission and Local 798.
- Focus on the 4 point strategy of Vision Zero, “Education, Engineering, Enforcement & Evaluation
- Discussion around Fire Code, driver education, street design, vehicle specifications & legislative issues.
- Interactions with MTA, DPW, Planning Dept., 798 Executive Board, Walk SF, Bicycle Coalition, City Attorney’s office and Supervisors.



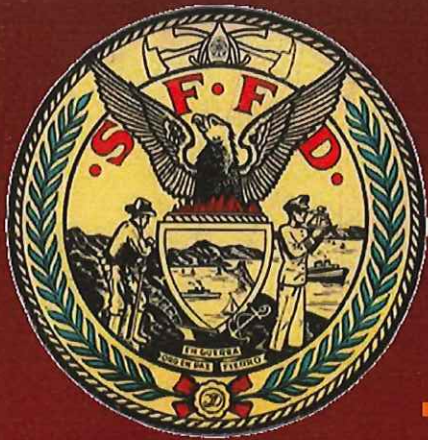
**VISION  
ZERO  
SF**



# SFFD Vision Zero Taskforce

## Accomplishments & Goals Moving Forward:

1. Received an interpretation of the vehicle code from the City Attorney.
2. Requested temporary painting of bulb-out sites with bollards before permanent concrete is poured.
3. Received input from 798 Executive Board.
4. Streamlining approval path for developers and other City agencies.
5. Developing realistic standardized turn-templates for SFFD vehicles.
6. Revising the Fire Code.
7. Developing a simulated Driver Education program for large vehicles, with traffic calming features.
8. Redesigning our vehicles and revising our specs to develop the smallest, most effective Fire Fighting rigs to accomplish our mission.
9. Setting specific guidelines of SFFD requirements for all other Departments and interested parties to follow.



# Common Solutions: Moving Forward



- Continue to work *collaboratively* with other city agencies, community groups and others involved to find common solutions
- Attend interagency task-force meetings to deal with conflicts in a timely manner and to explore new innovations
- Public awareness campaign for motorists, cyclists and pedestrians in collaboration with SFPD and the Mayor's Office
- Opticom Solutions and other Emergency Response time solutions
- SFFD will continue to look at case-studies of solutions in other cities that might work in San Francisco
- Roundabouts and bulb outs with rolled-curbs to prevent vehicle damage and turn-outs into oncoming traffic
- More street traffic lights
- Daylighting
- Raised intersections

