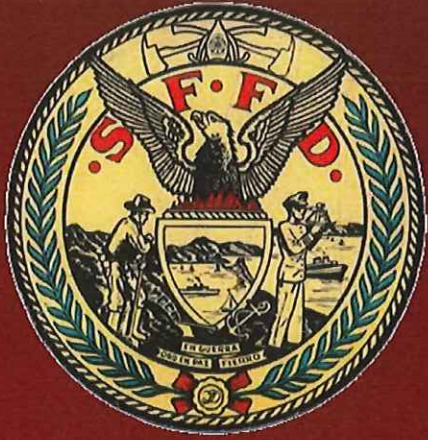


# Update on Street Design/Traffic Calming Changes and Challenges Facing the SFFD

July 27, 2016





# 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







# Possible Conflicts with Some Traffic Calming Measures

1. Response Times
2. Operational Issues
3. Equipment Limitations





# 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





# New Vehicle Spec Reduced Profile

120 accessories shall conform in strength, quality of material and workmanship to recognized  
121 industry standards.  
122

## 1.0.11 INTENT OF SPECIFICATIONS

123  
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

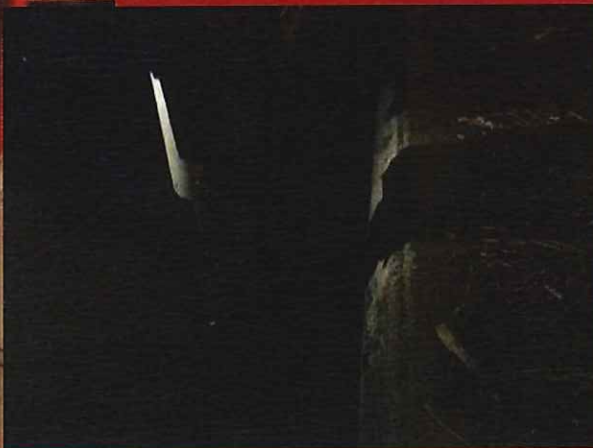


New handles

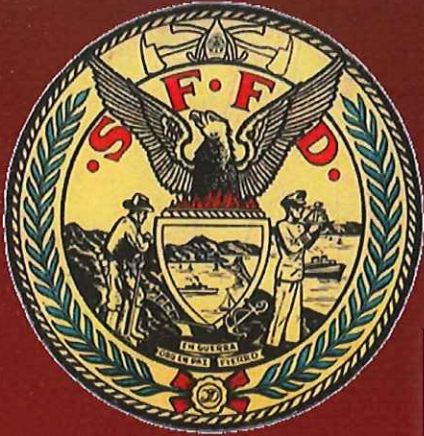




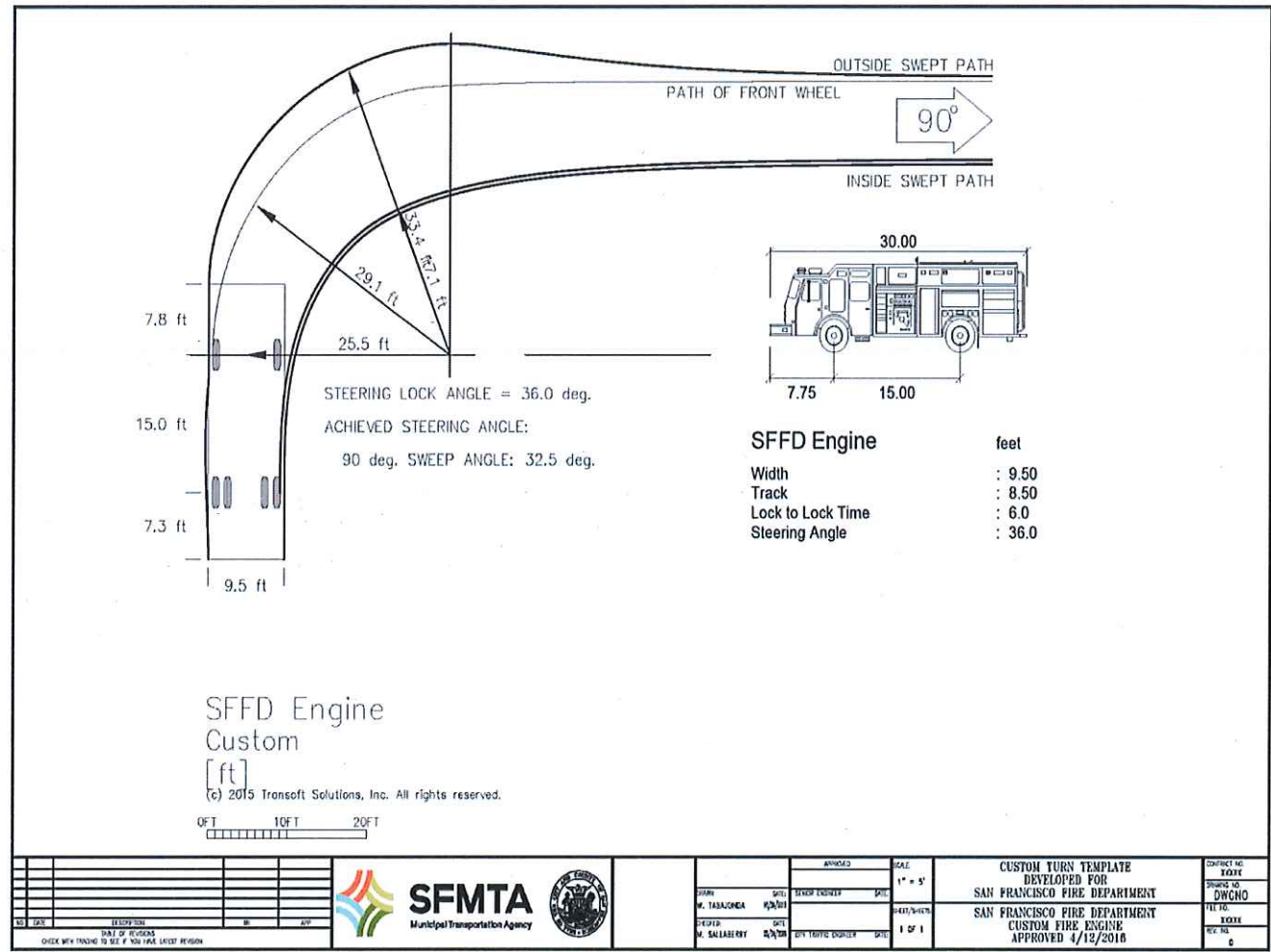
# Operational Issues: Dolores/ Clinton Park

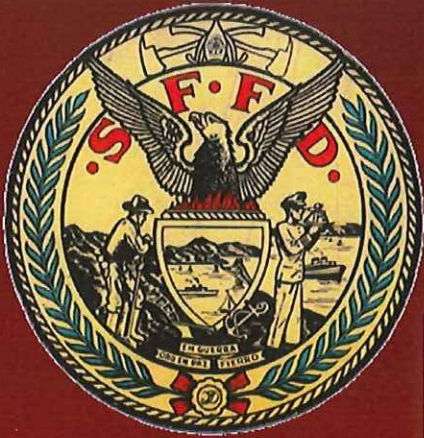




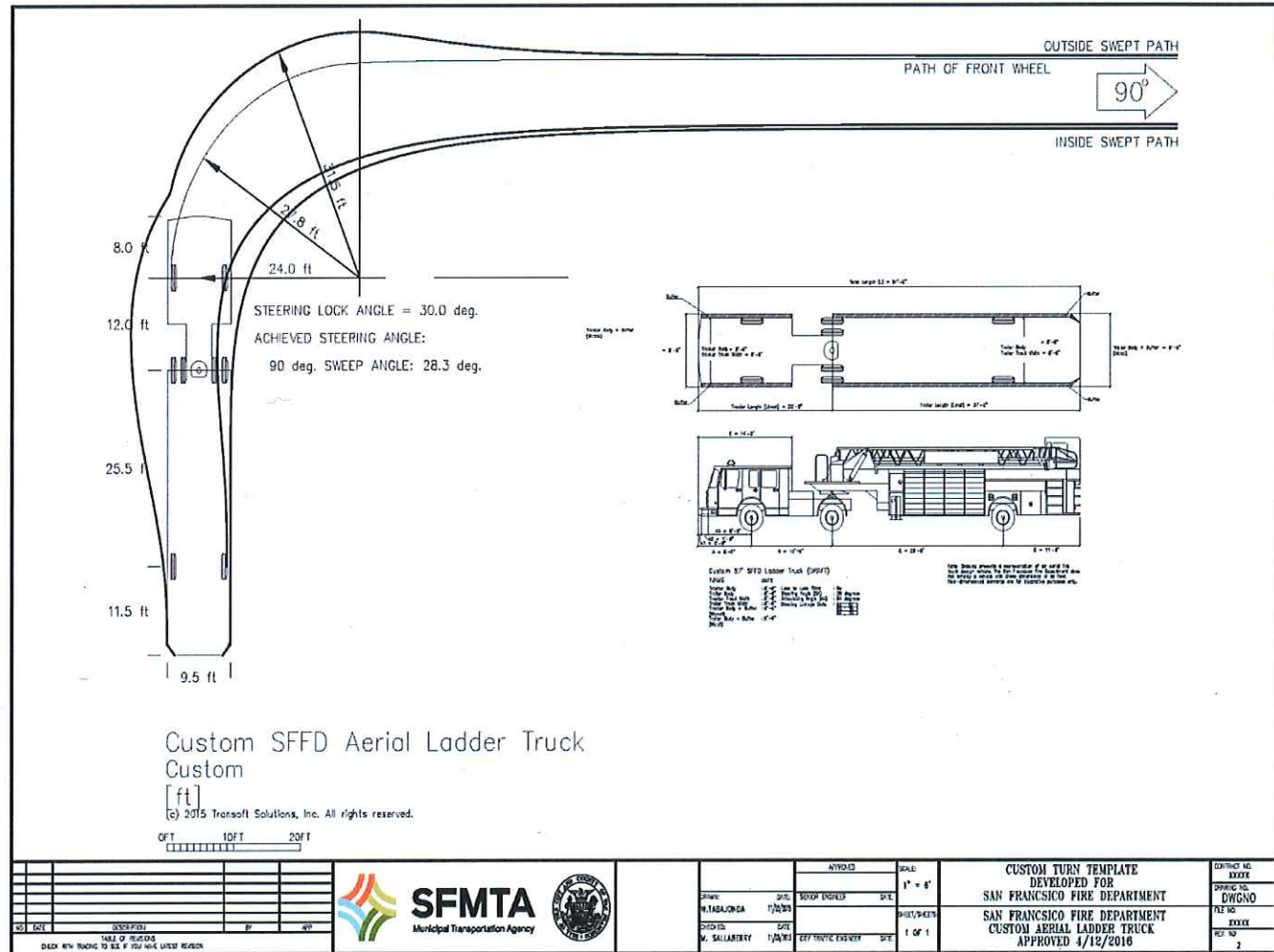


# SU 30 is replaced with custom Fire Engine Turning Template





# WB 40 is replaced with custom Fire Truck Turning Template



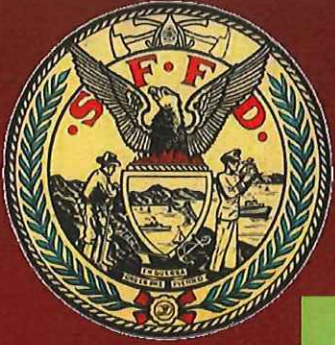




# Traffic Calming Measures

- The SFFD does not support any TCM that would take an existing condition, whether conforming or non-conforming, and create a more hazardous condition by forcing a driver to encroach further into oncoming traffic.
- TCM's forcing additional encroachment should request a variance. These intersections would need to be offset by engineering measures.
- In a new development, where a vehicle turns into oncoming traffic by-design, would also need to be offset by engineering measures.
- Engineering measures should include, but are not limited to:
  - Daylighting (painting curbs red for approximately 20 feet before an intersection)
  - Advance Stop Limits (having vehicles stop further back from the cross walk)
  - Parking Space removal
  - Creating a minimum 7'X20' Clear Zone, between the swept path of the design fire vehicle and the curb line or parking zone, for an opposing traffic area of refuge.
- Any templates should be designed to be tested at 10MPH.





## LARGE VEHICLE TURNS (CALIFORNIA DMV)

“If you must cross into the oncoming lane to make a turn, watch out for vehicles coming toward you. Give them room to go by or to stop. However, do not back up for them, because you might hit someone behind you.”

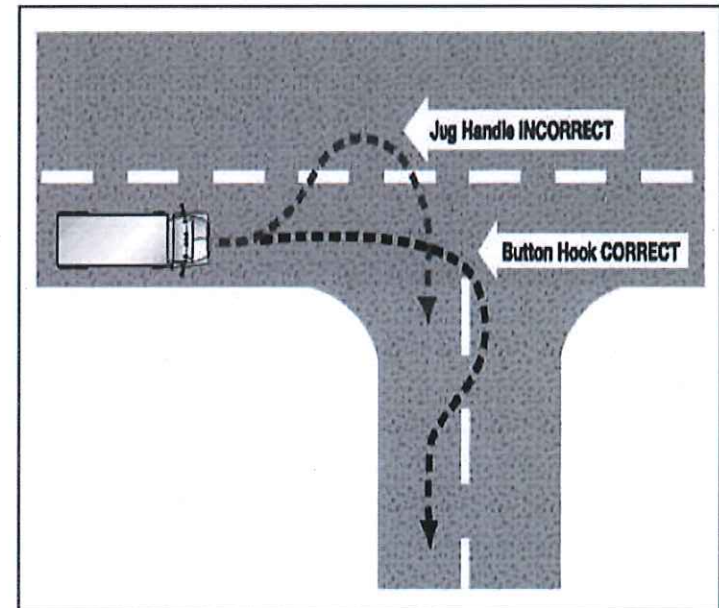


Figure 2.13

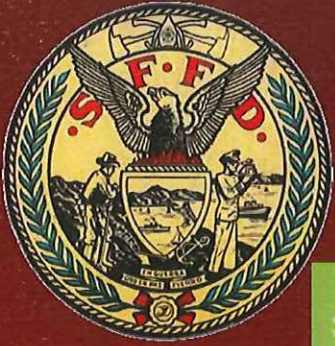




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Municipal  
Transportation  
Agency





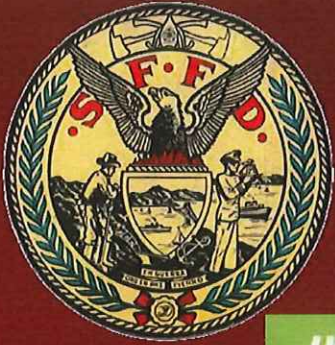


## PAINTED SAFETY ZONES

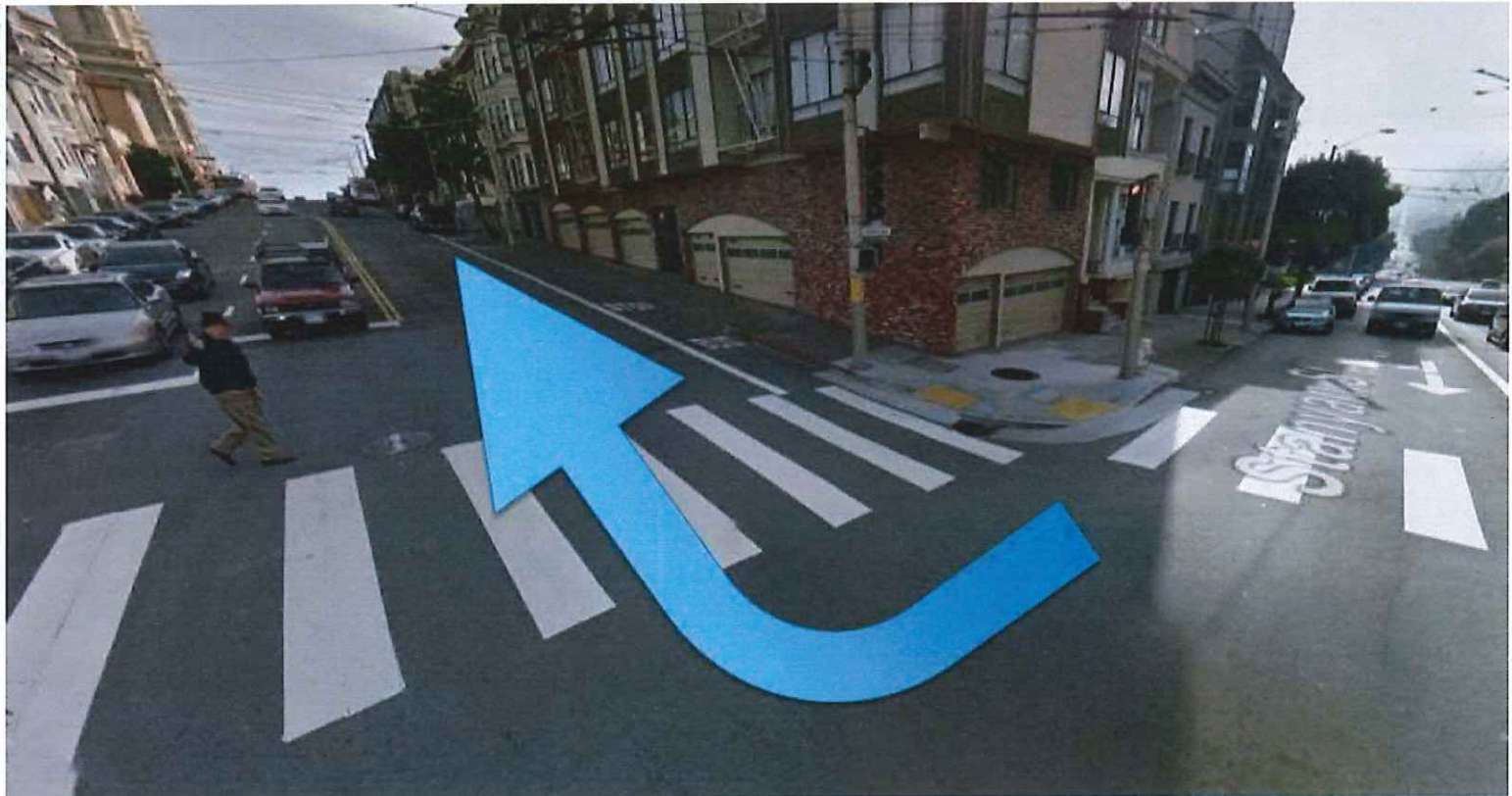
These pilot measures could potentially be a cheaper way to tighten intersection radiuses.



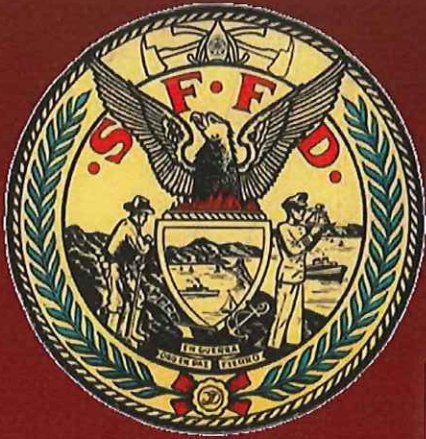




## Example of set-back stop bar: Fulton/Stanyan







# Traffic Circle: (E43) Cone Test, Naples & Russia

SHEET 1 OF 5



San Francisco Fire Department

Division of Fire Prevention & Investigation

## SFFD Emergency Vehicle Access Field Test

DATE: 1/15/16 TIME: 1500 - 1545

LOCATION: NAPLES & RUSSIA  
RUSSIA EAST BOUND TURNING LEFT TO NAPLES NORTH BOUND

AGENCY: SFFD REPRESENTATIVE: CAPT. BALMY (BFP); CAPT. RIVERA (BOE)  
AGENCY: MTA REPRESENTATIVE: PATRICK GOLICA

ALSO: SUPVR. AVALOS

PROPOSED MODIFICATION PLAN ON-SITE?  YES  NO FIELD LAY-OUT PER PLAN?  YES  NO  
TEST: NORMAL OPERATING CONDITIONS?  YES  NO MEDIA RECORDING OF TEST?  YES  NO

TEST VEHICLE	SFFD Company	MAKE / MODEL	YEAR
ENGINE	<u>E-43</u>	<u>145 S30 SPARTAN</u>	<u>1998</u>
AERIAL LADDER TRUCK:	<u>RP</u>	<u>145 612</u>	<u>1991</u>
RESCUE SQUAD:	<u>-</u>		

EXISTING CONDITIONS:	ENGINE	TRUCK	SQUAD
ADJACENT TRAVEL LANE ENCROACHMENT BEFORE TURN	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
OPPOSITE TRAVEL LANE ENCROACHMENT DURING TURN	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

* PROPOSED CONDITIONS: (AGAINST FLOW - CODE 3 ONLY)	ENGINE	TRUCK	SQUAD
ADJACENT TRAVEL LANE ENCROACHMENT BEFORE TURN	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
OPPOSITE TRAVEL LANE ENCROACHMENT DURING TURN	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

IF TRAVEL LANE ENCROACHMENT OCCURRED UNDER EXISTING CONDITIONS, DID THE PROPOSED CONDITIONS CREATE A MORE HAZARDOUS CONDITION? YES  NO  YES  NO  YES  NO

RESULT: THE PROPOSED PROJECT AS PRESENTED DID PASS / DID NOT PASS THE FIELD TEST.

REPRESENTATIVE SIGNATURE [Signature] AGENCY FOR NORMAL CONDITIONS.

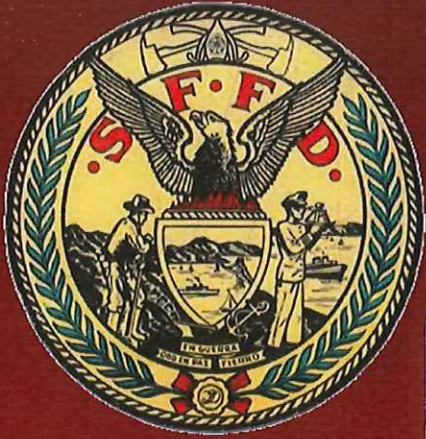
REPRESENTATIVE SIGNATURE \_\_\_\_\_ AGENCY \_\_\_\_\_

Field Test NOTES/COMMENTS/DIAGRAMS on back of sheet? YES  NO

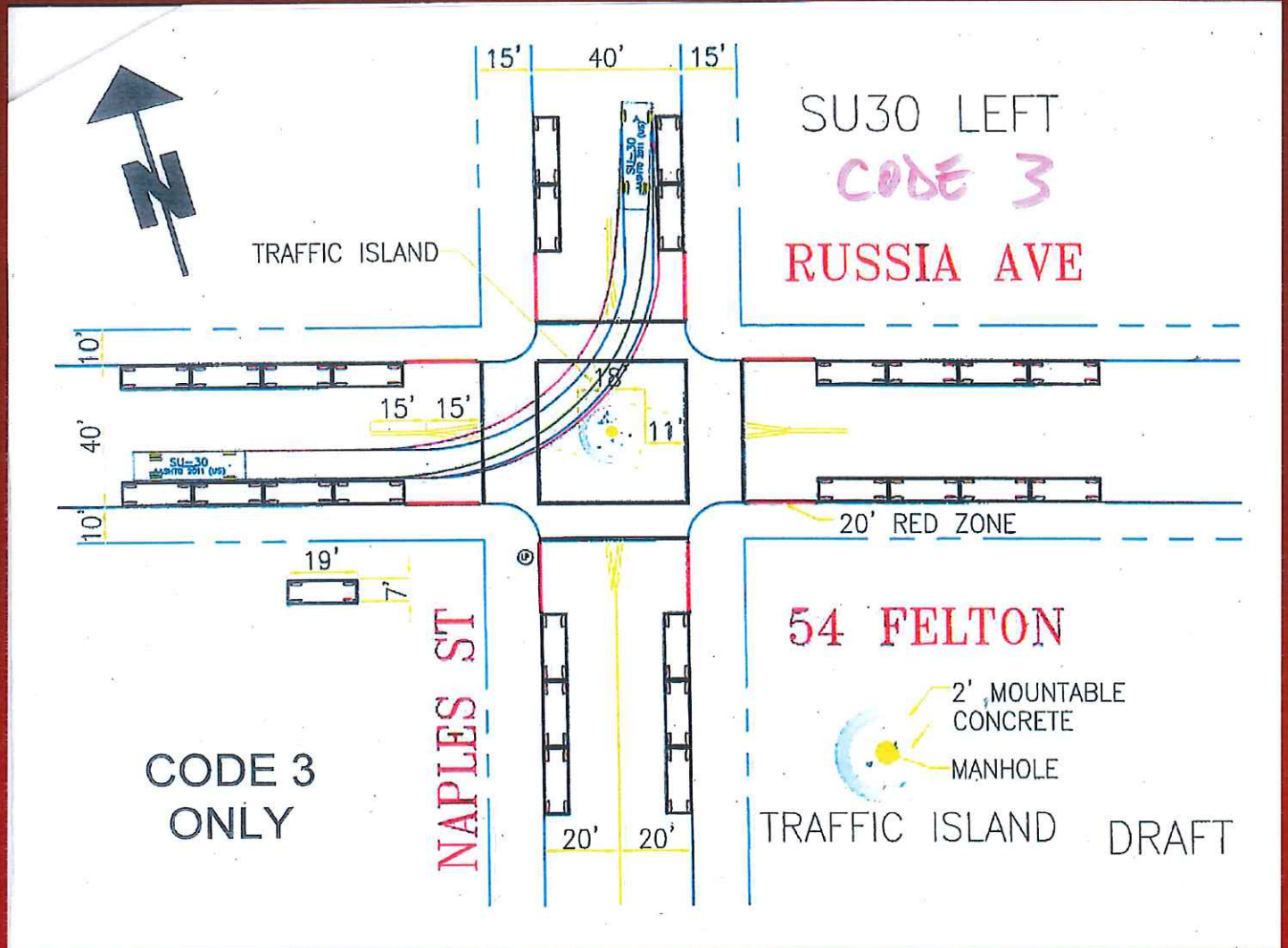
Rev 07.16.15

\*NOTE: PER SFMTA, ENGINE & TRUCK WOULD NOT BE ABLE TO MAKE A LEGAL LEFT TURN AROUND THE CIRCLE, SO WE TESTED A CODE 3 CONTRA-FLOW TURN ONLY.





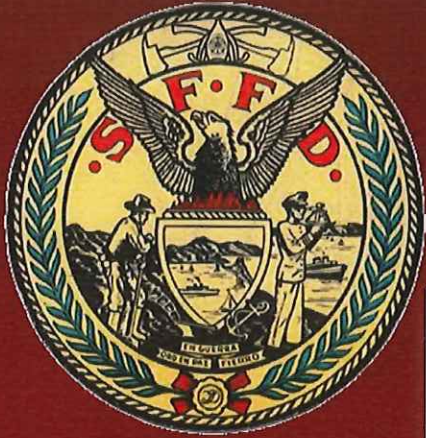
# Traffic Circle: (E43) Cone Test, Naples & Russia



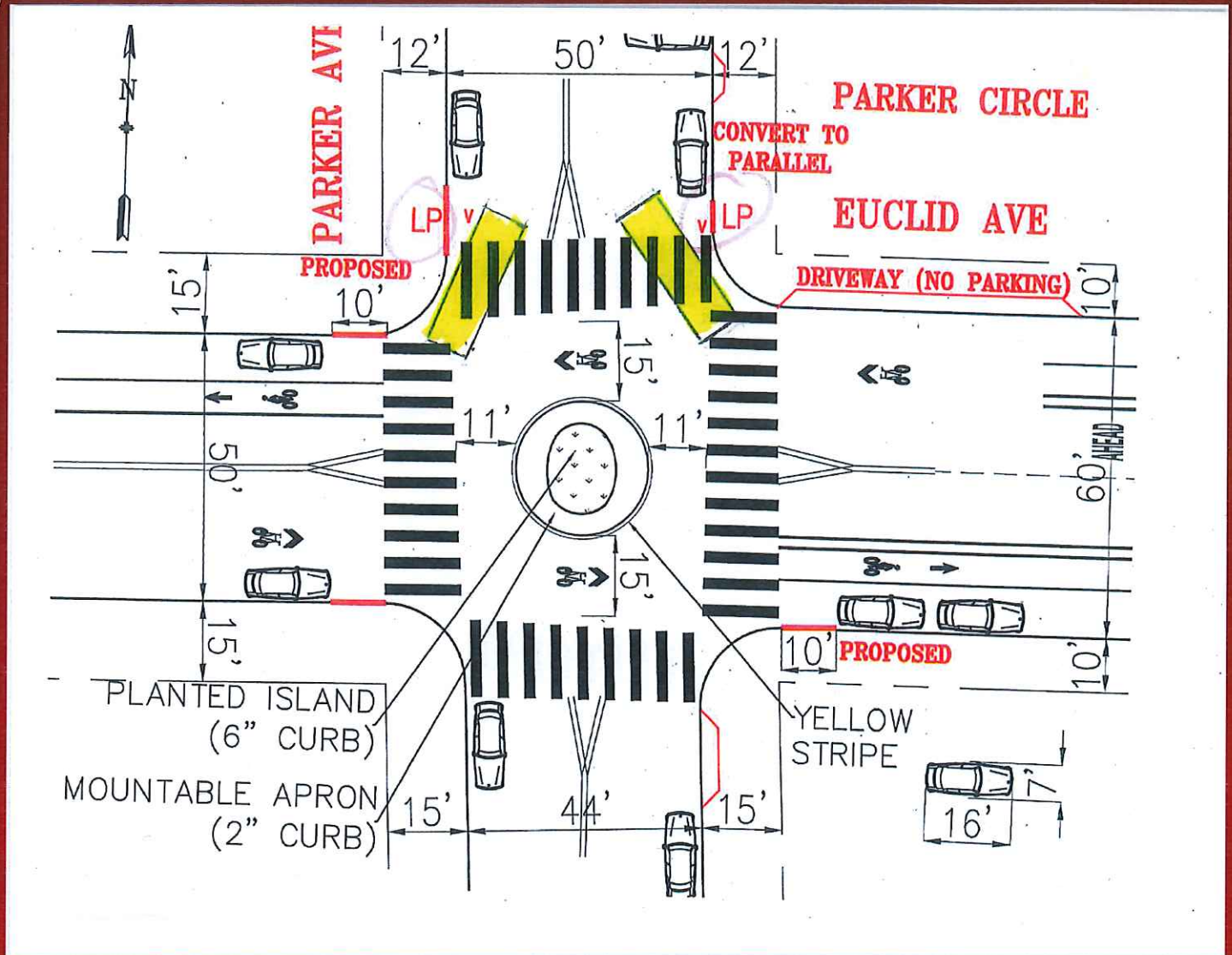








# Euclid Ave/Parker Ave

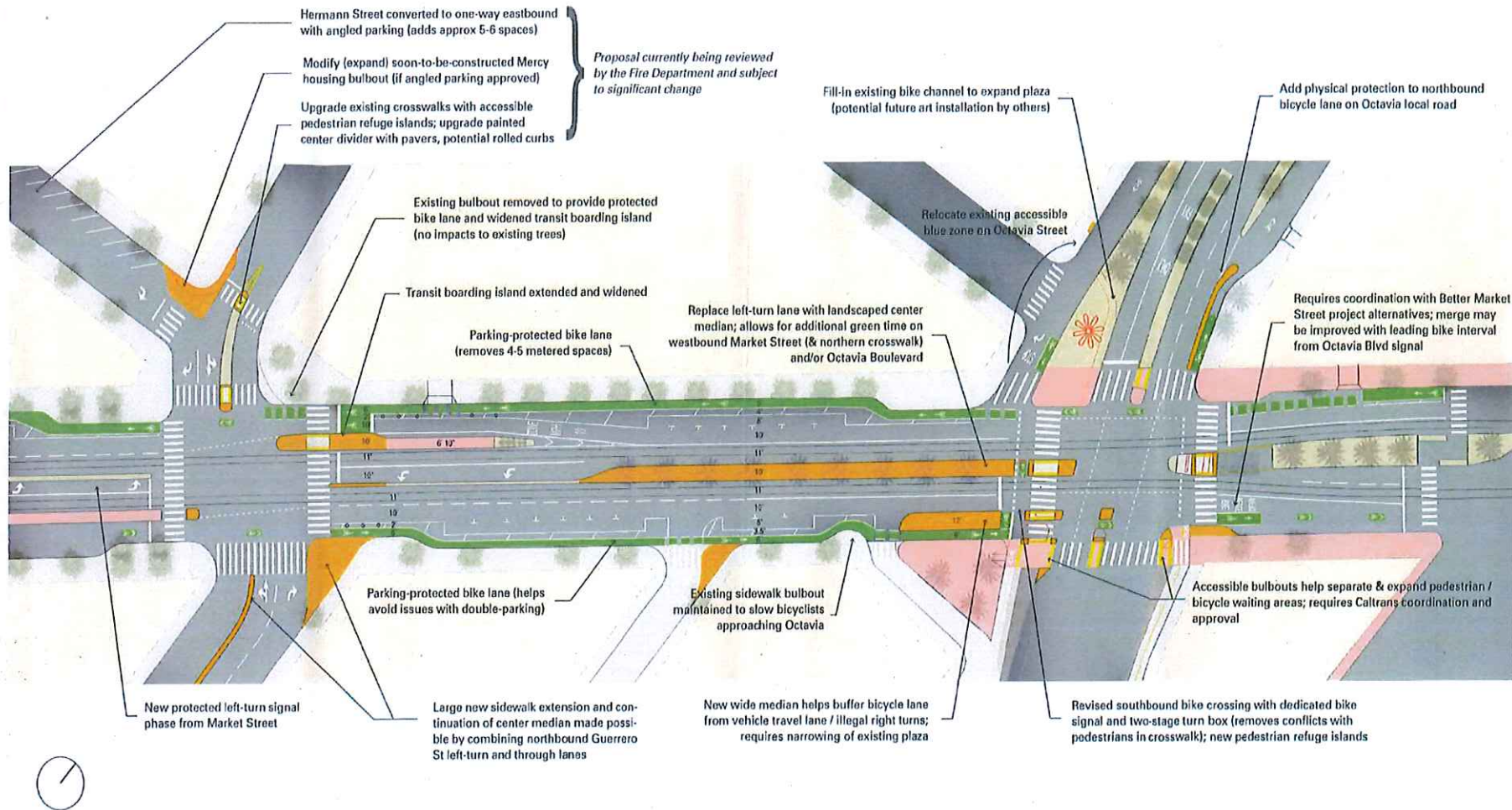






# MTA Proposal @ Hermann/Laguna/Market Street





May 2016

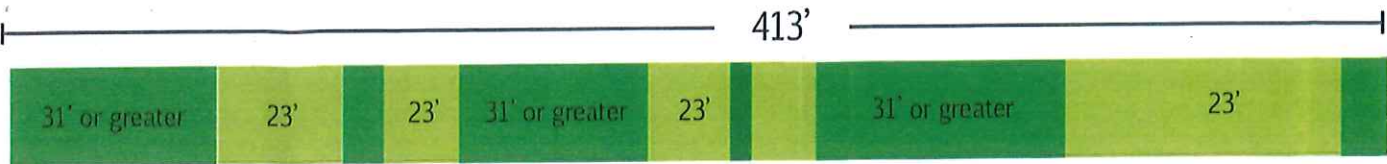
DRAFT - Subject to Revision

**Market-Octavia Safety Project - Alternative A**  
 Inbound & Outbound Protected Bikeways with Center Median Island

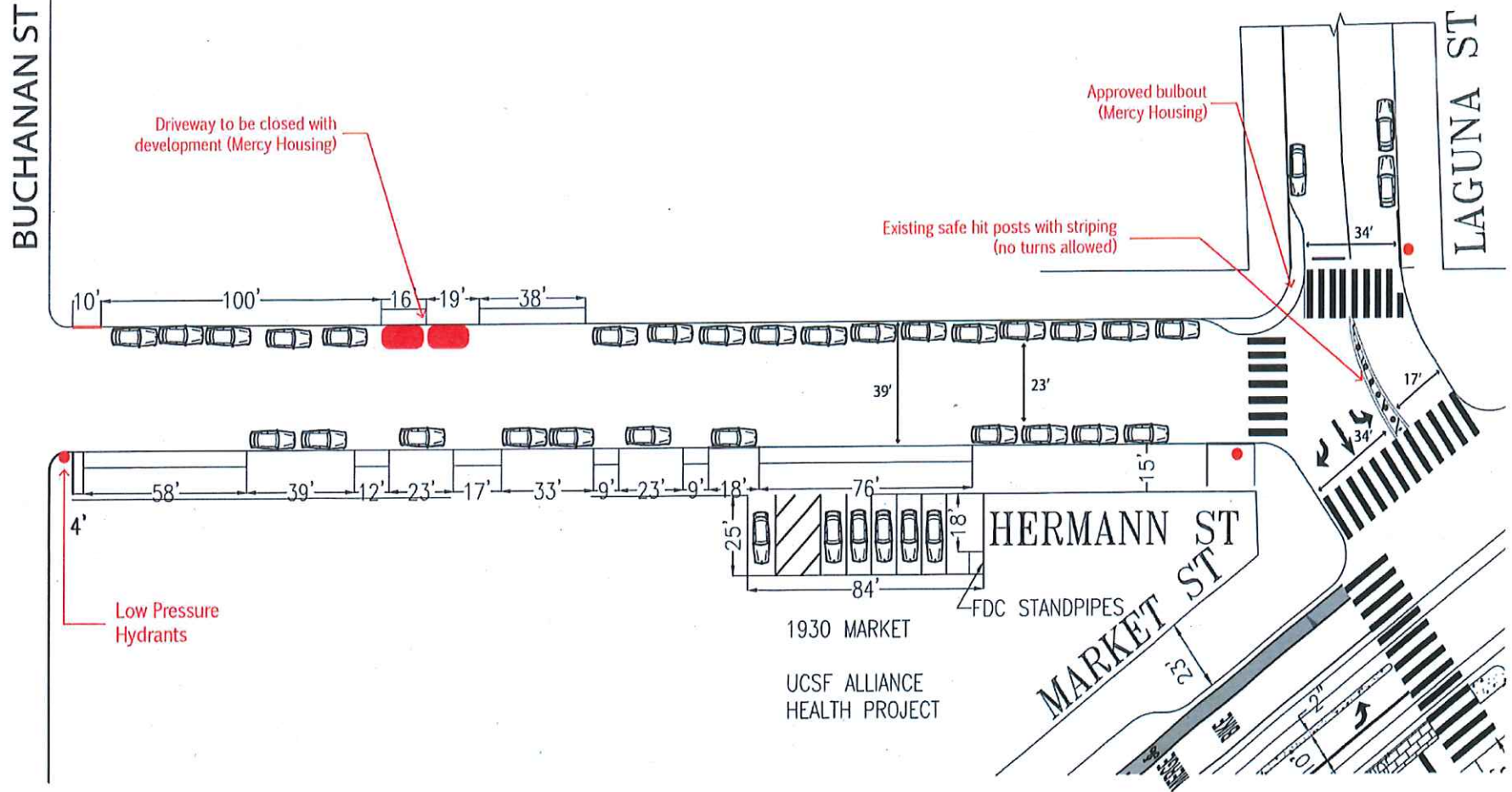
[www.sfmta.com/octavia](http://www.sfmta.com/octavia)



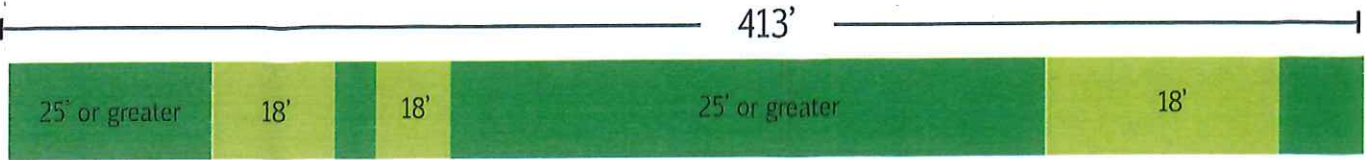




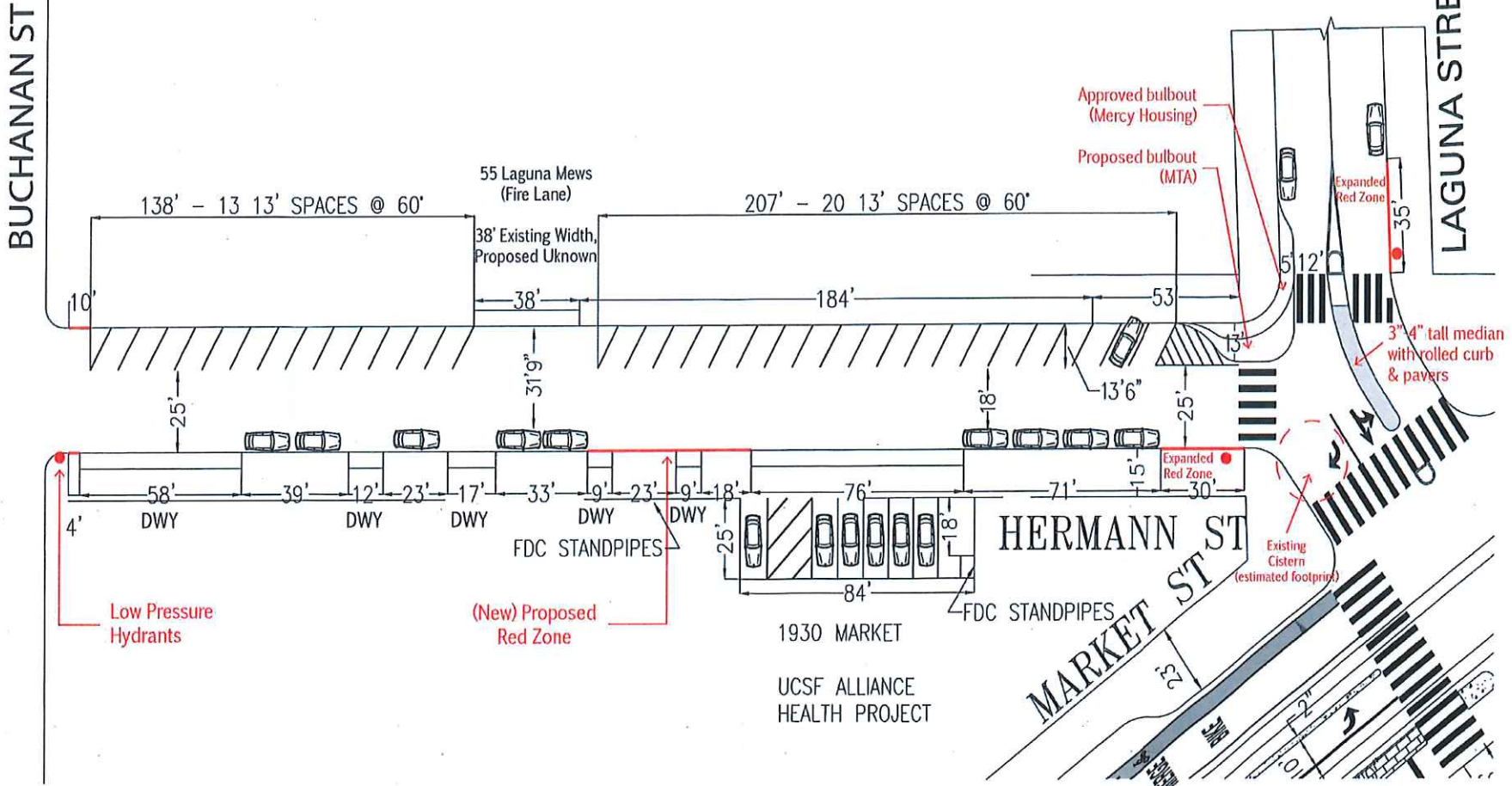
**Hermann Street EXISTING CONDITIONS - Net Width for Clear Path of Travel**





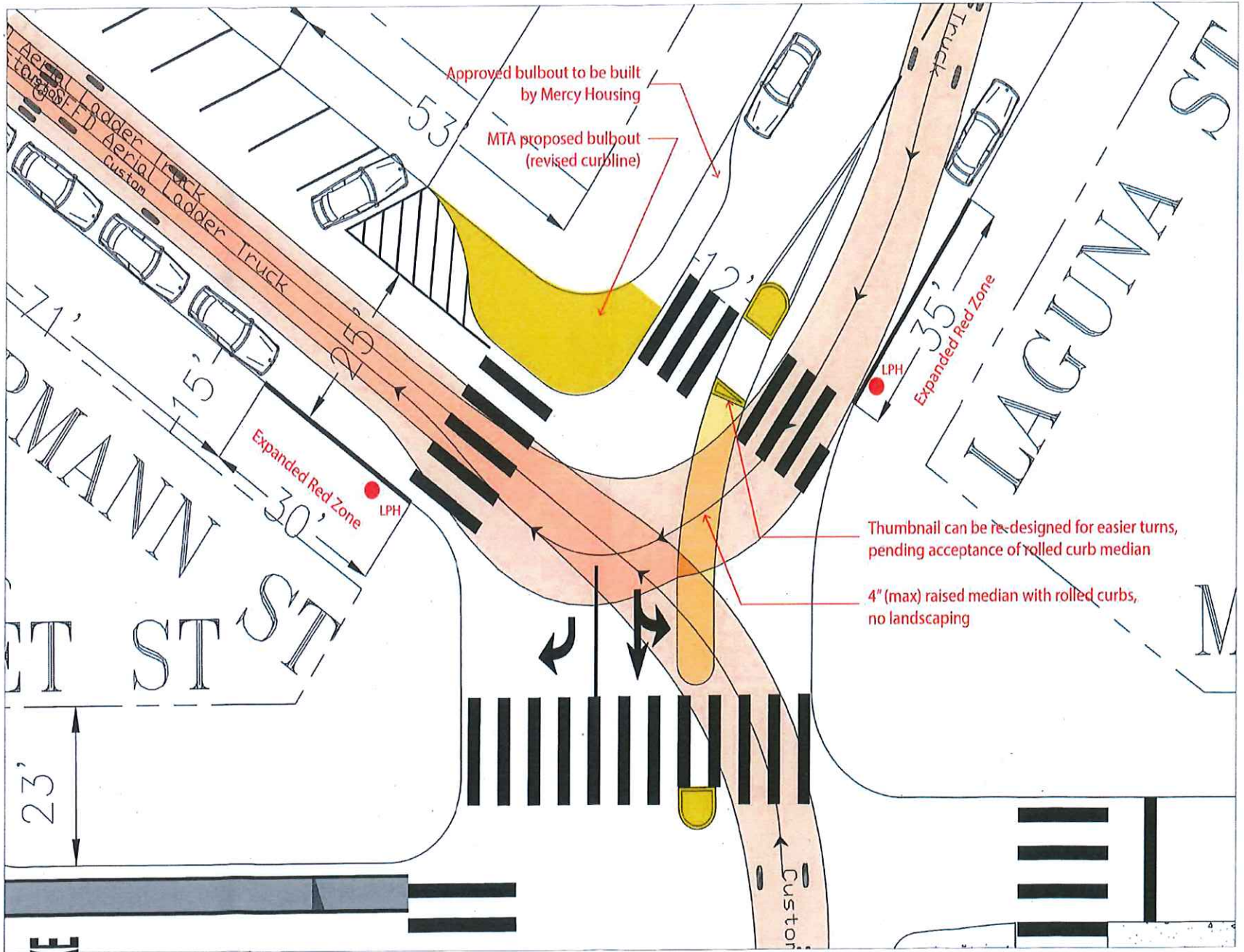


**Hermann Street Proposal - Net Width for Clear Path of Travel**



**DRAFT - FOR SFFD REVIEW**





Approved bulbout to be built by Mercy Housing

MTA proposed bulbout (revised curbline)

Thumbnail can be re-designed for easier turns, pending acceptance of rolled curb median

4" (max) raised median with rolled curbs, no landscaping

Expanded Red Zone

LPH

Expanded Red Zone

LPH

Aerial  
Ladder  
Truck  
Custom

53'

25'

30'

23'

35'

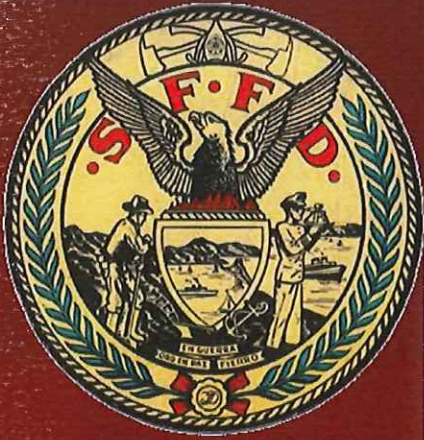
MANN ST

ST ST

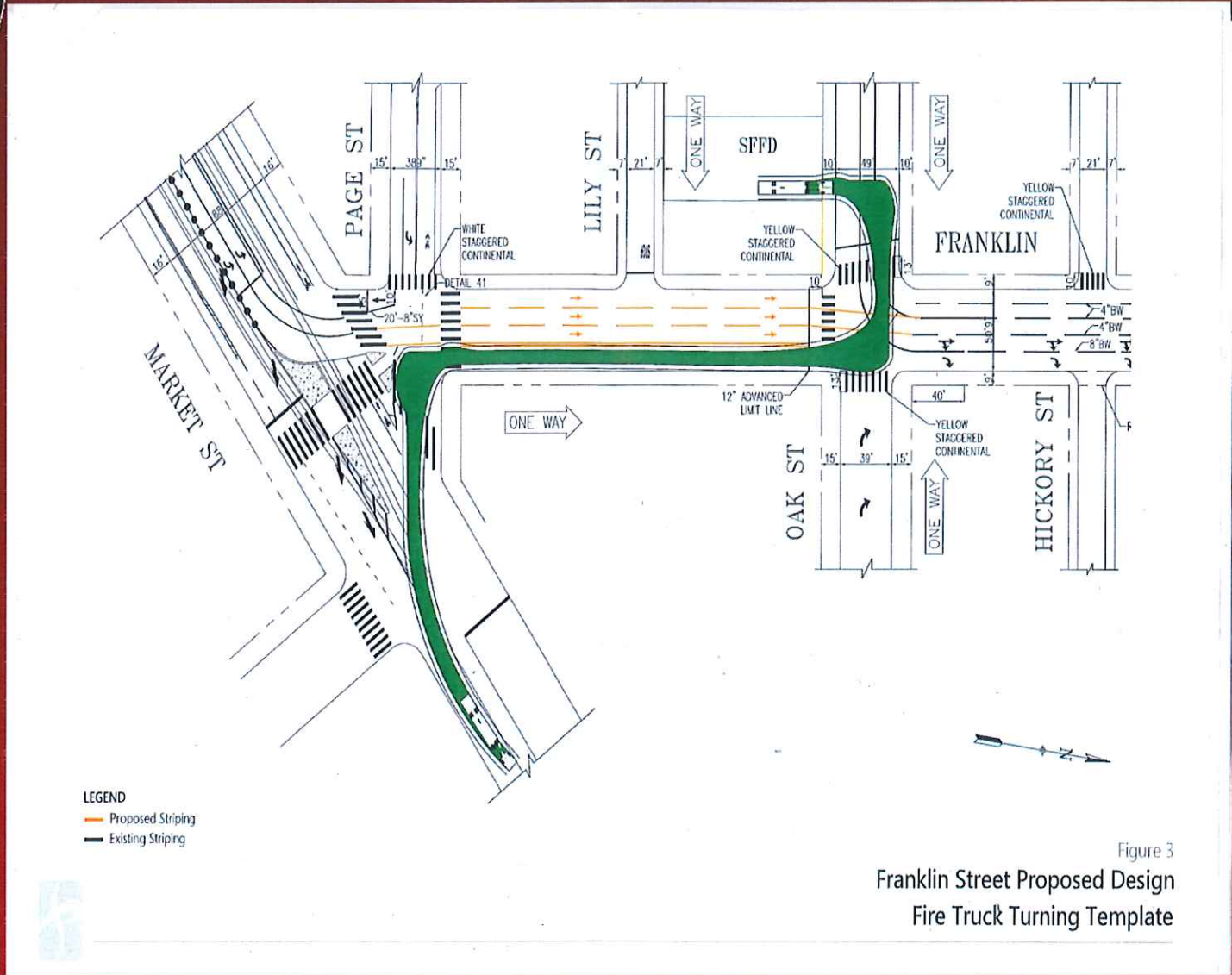
LAGUNA ST

Custom

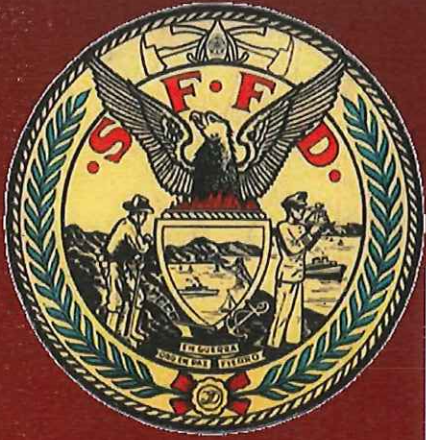




# Franklin Contraflow Lane



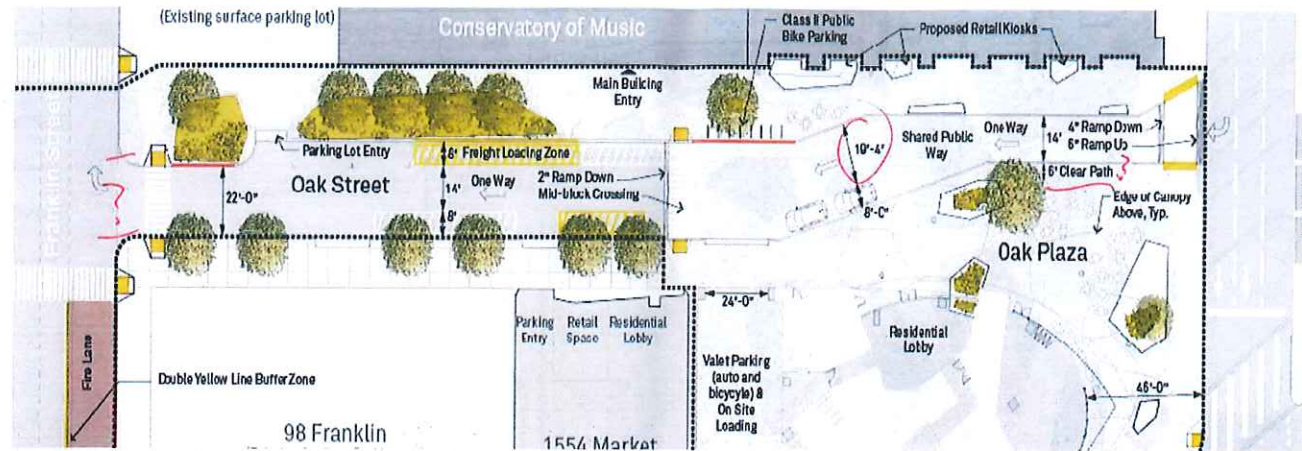




# Oak Street Plaza

Oak Plaza

BUILD INC



Close-up Site Plan of Oak Plaza



Brighton Shared Street. London, England

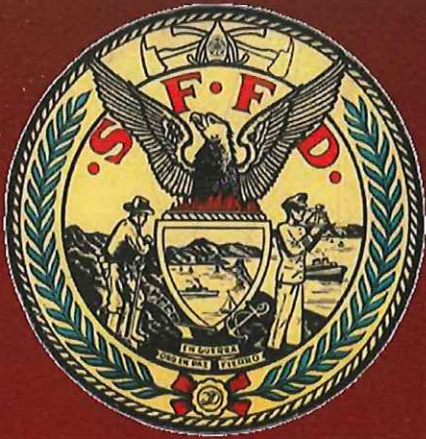


Mint Plaza. San Francisco, CA



Directors Park. Portland, OR





# Speed Hump Applications

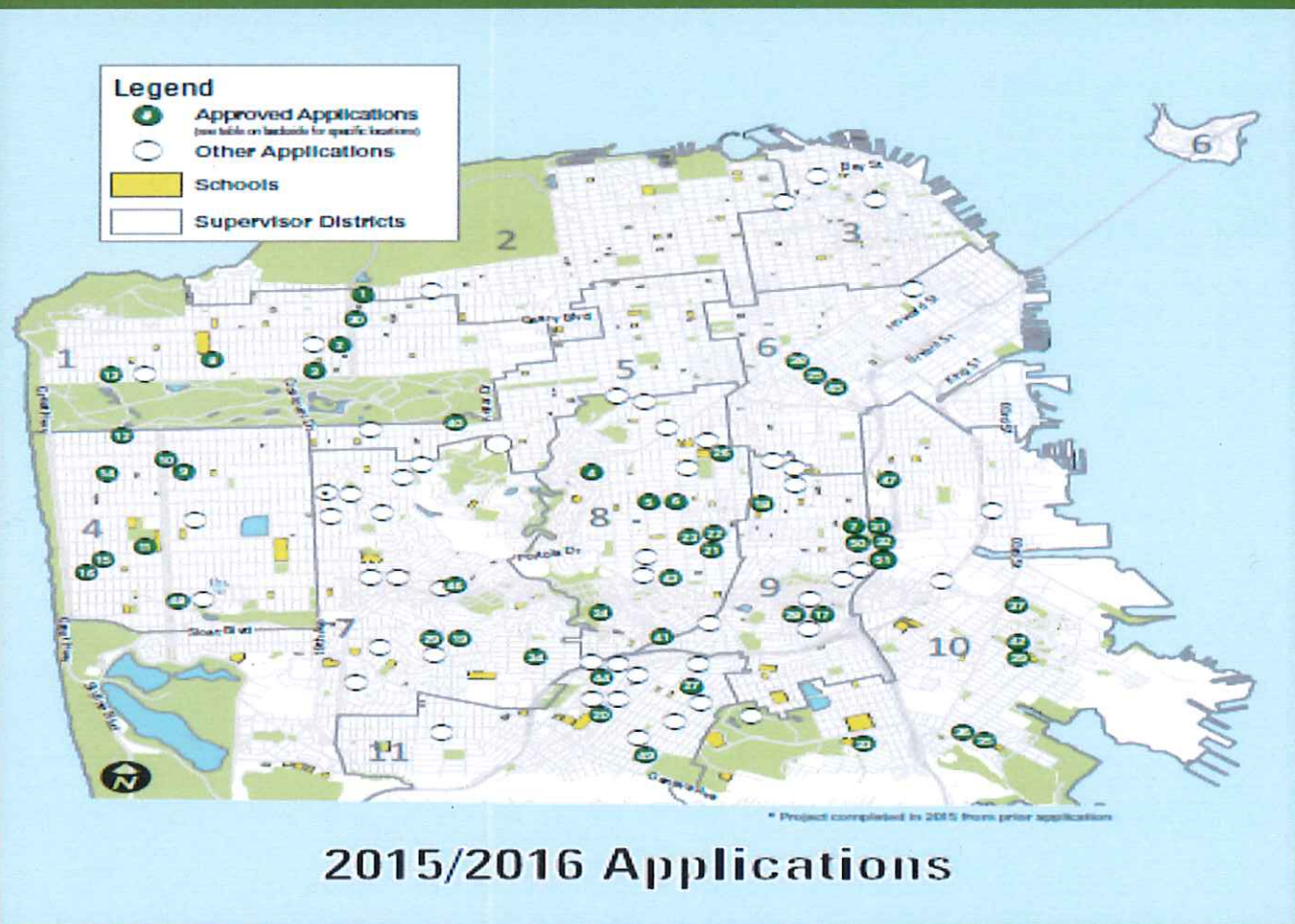


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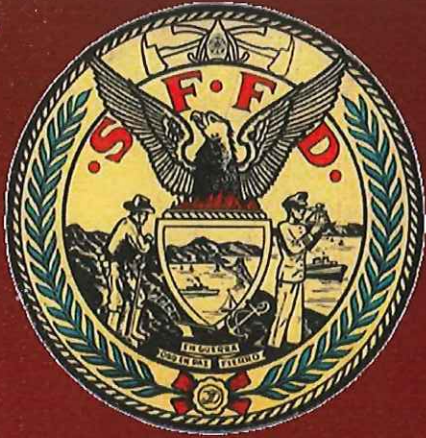
## Residential Streets Traffic Calming Program

March 2016

[WWW.SFMTA.COM/CALMING](http://WWW.SFMTA.COM/CALMING)







# Speed Humps vs Speed Cushions

