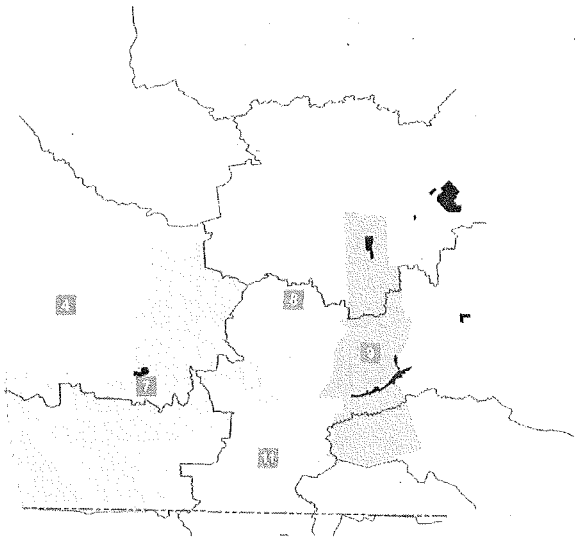
Flood Resilience:
Programmatic Strategies for San Francisco

Review of Proposed Strategies

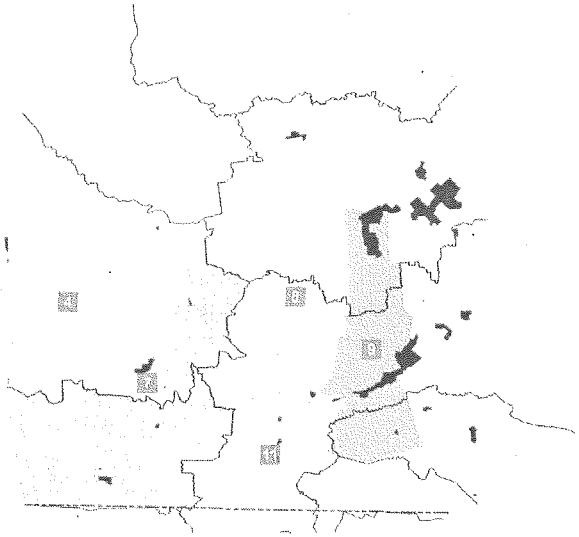
SF Board of Supervisors
Public Safety and Neighborhood Services Subcommittee
November 8, 2017

Core Flood Risk in Various Design Storms



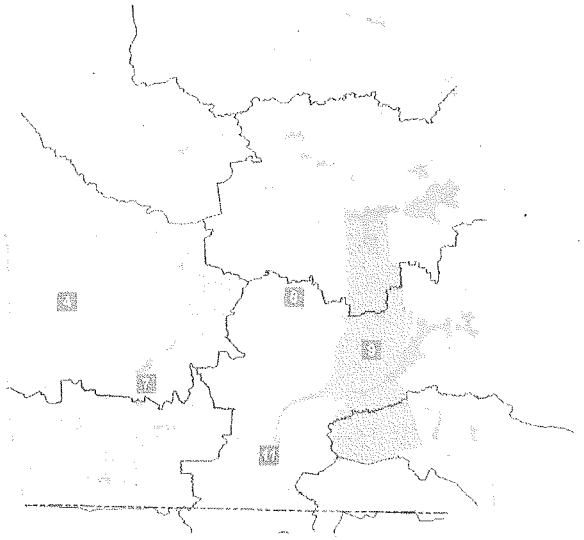
5-year Design Storm (1.3" in 3h)

- Use: Identifying Capital Projects (using Flood Risk metric)
- $1.6B in 2017$ to address high flood risk Citywide



25-year Design Storm (1.8" in 3h)

- Use: Programmatic Strategies Eligibility and Requirements
- <5-yr storm: before capital projects
- 5-25-year storm: where capital projects are not planned



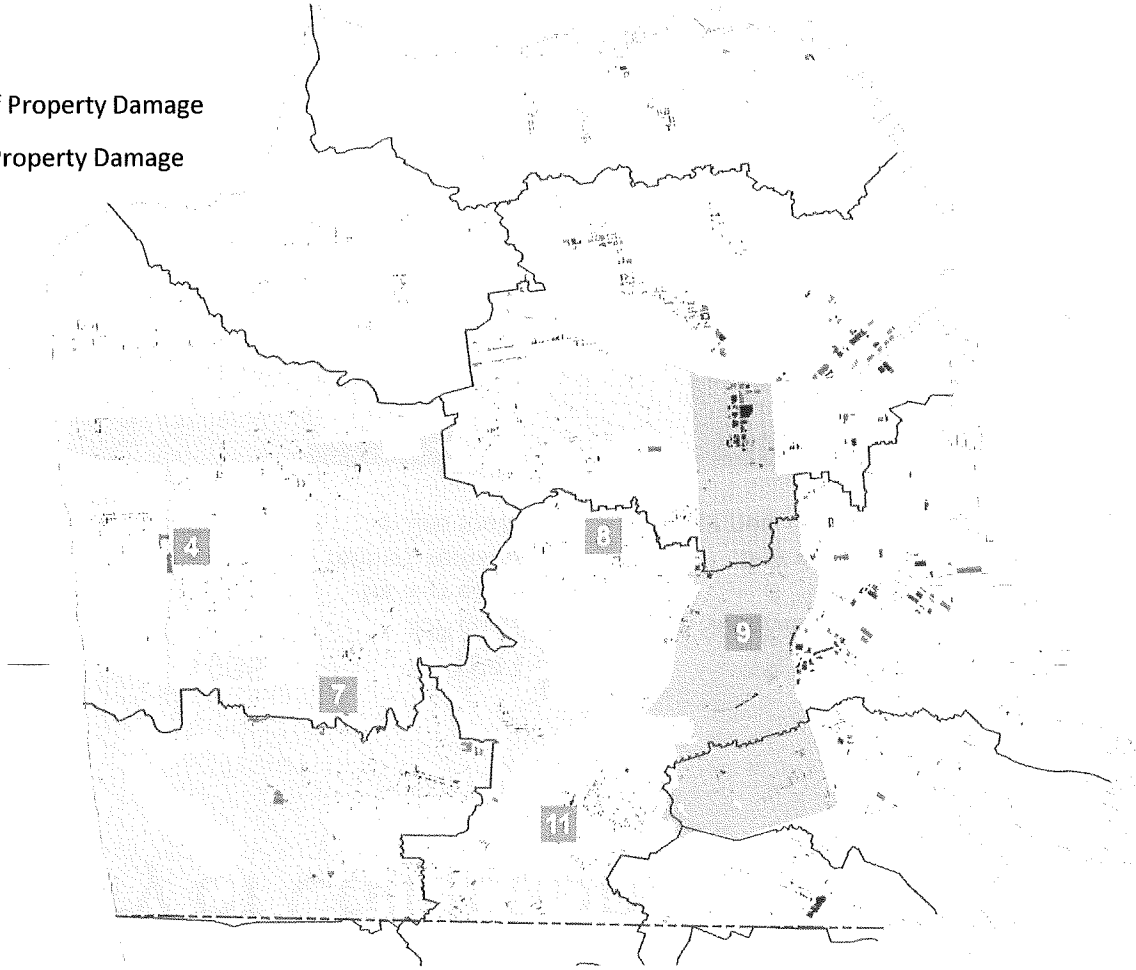
100-year Design Storm (2.3" in 3h)

- Use: Notification (Disclosure at Point-of-Sale, general information)

5-year design storm

High and Very High Risk of Property Damage

Low and Medium Risk of Property Damage



History of Collection System Design

1840s
Construction of City's collection system begins

1908

1936

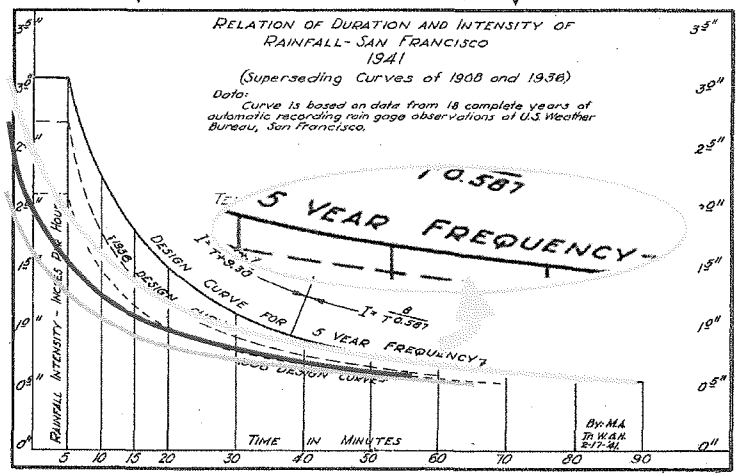
1941
IDF curve for 5-yr storm refined; remains in use today

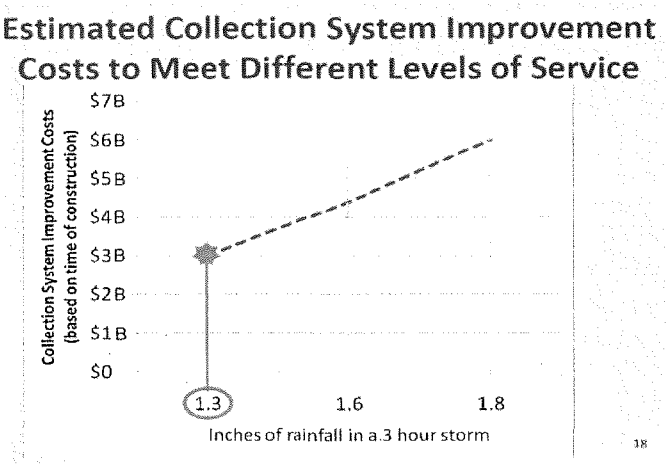
1952 & 1982
Subdivision Regulations affirm 5-yr design storm (for new development only)

2010, 2012, 2016
Commission endorses 5-yr | 3-hr storm as Level of Service, further specifying design storm

PIPE SIZING GUIDELINES EVOLVED

5-YR STORM PIPE SIZING REQUIREMENT DOCUMENTED





SFPUC's Level of Service Goal for Stormwater Management

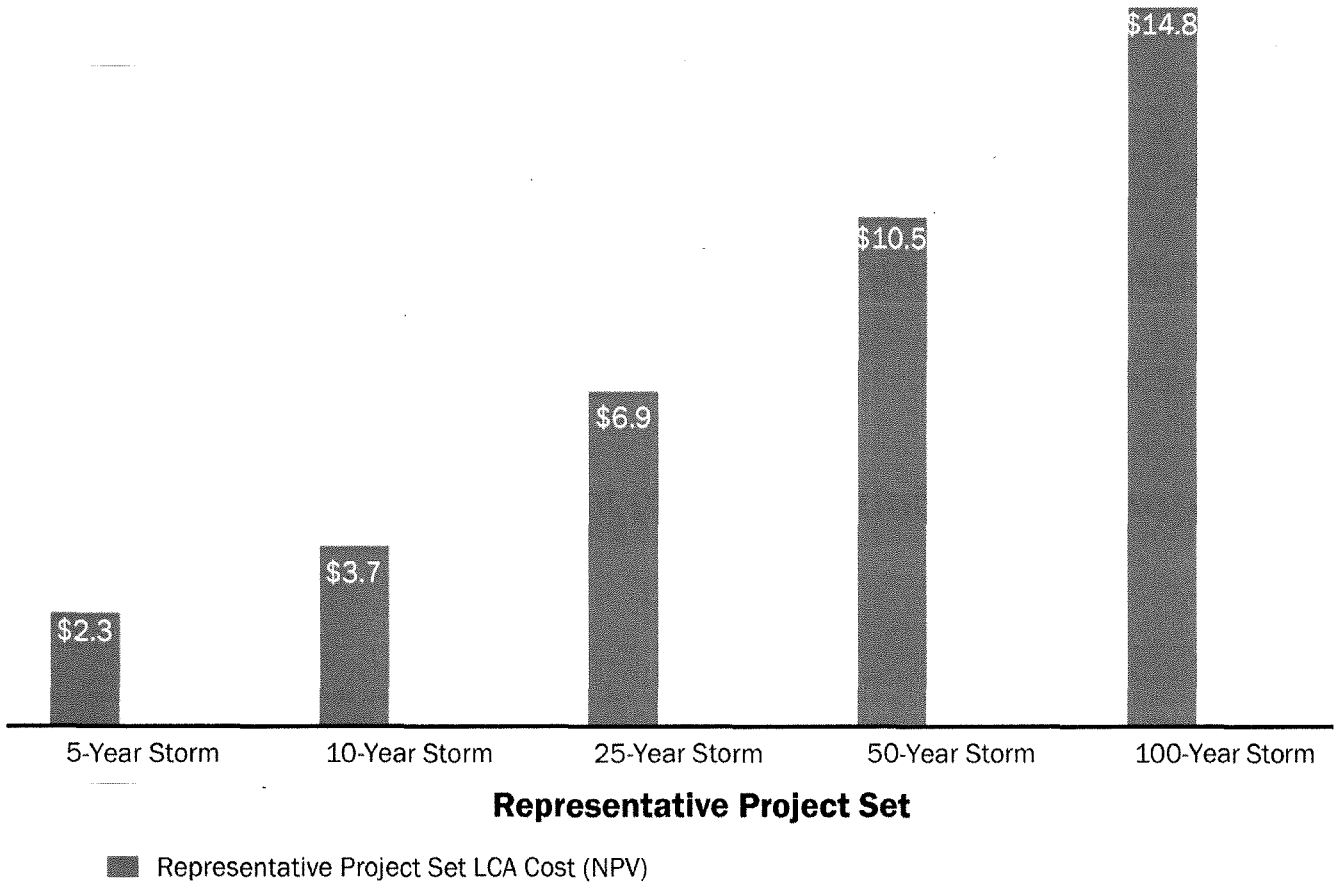
Goal

Integrate Green and Grey Infrastructure to Manage Stormwater and Minimize Flooding

Level of Service

Control and manage flows from a storm of a 3 hour duration that delivers 1.3 inches of rain

Flood Resilience Study: Policy Alternatives and Ratepayer Impacts



CAPITAL PROJECTS vs. PROGRAMMATIC STRATEGIES

SFPUC's RESPONSIBILITY FOR CAPITAL PROJECTS / Level of Service:

- Control and manage flows from a storm of a 3 hour duration that delivers 1.3 inches of rain, corresponding to a 5-year storm.
- SFPUC is committed to implementing capital projects to meet the Level of Service over time.
- SFPUC is integrating >$700 M into the upcoming 10-year capital plan.

PROPOSED CITY PROGRAMMATIC STRATEGIES:

- SFPUC is leading development of programmatic strategies to reduce flood risk to impacted properties in larger storms and before capital projects are in place:
  - Grant Assistance
  - Mandatory Requirements
- These programmatic efforts would not change the collection system capacity, but focus on adaptation and resilience at the property scale
- Programs would be designed to maximize meaningful access to benefits for residents with disparate resources (financial and other)

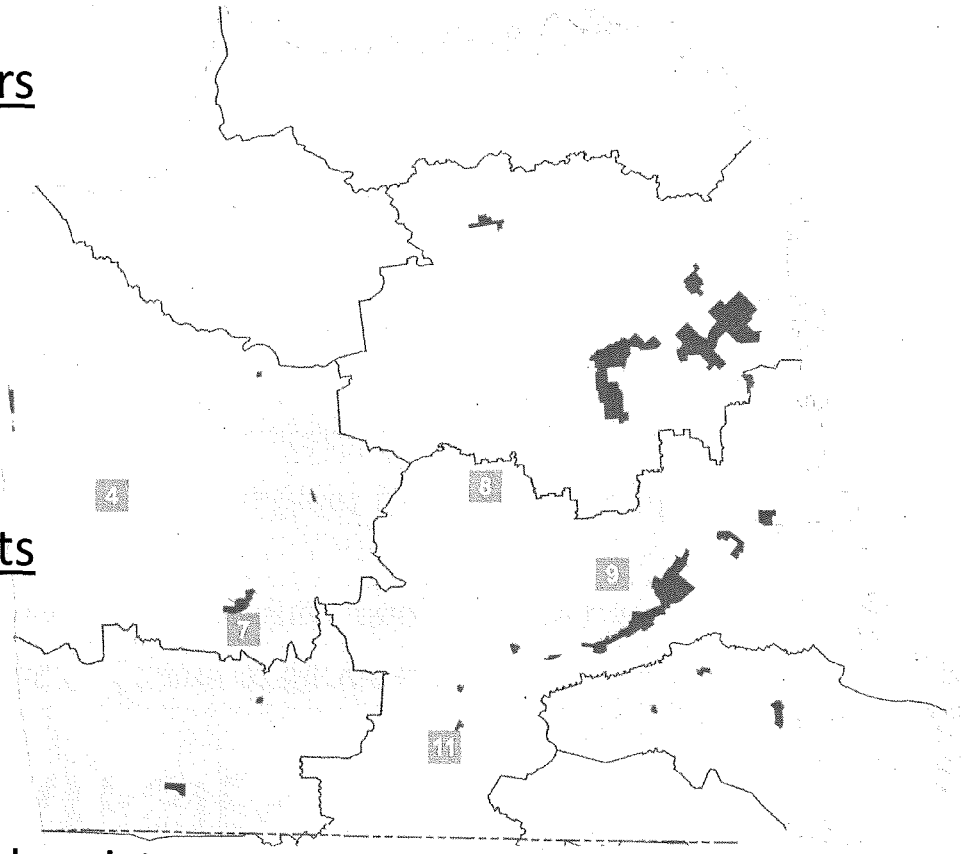
Programmatic Strategies for Flood Resilience: Core Flood Risk Area (25-year Storm)

<u>Grant Assistance for Property Owners</u>

- Plumbing Modifications
- Dry Floodproofing
- Wet Floodproofing
- Elevate Structure

<u>Planned Grant Process Improvements</u>

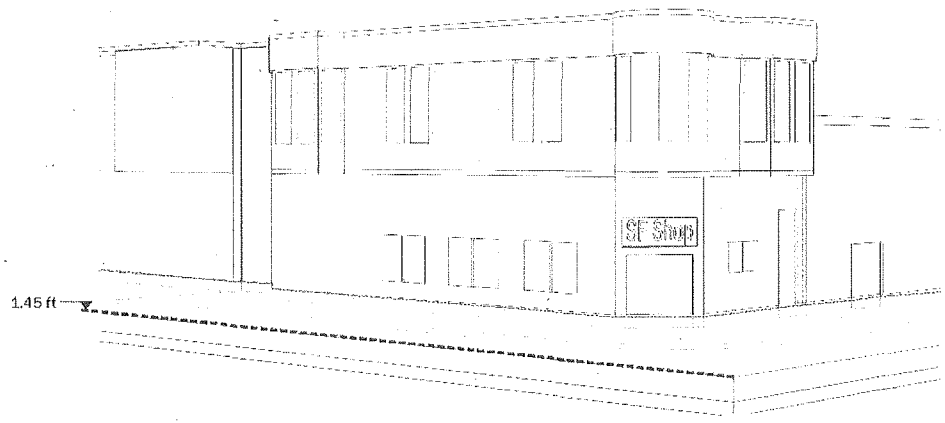
- Streamlined application
- Low income assistance
- Contractor qualification
- Enhanced administrative/technical assistance



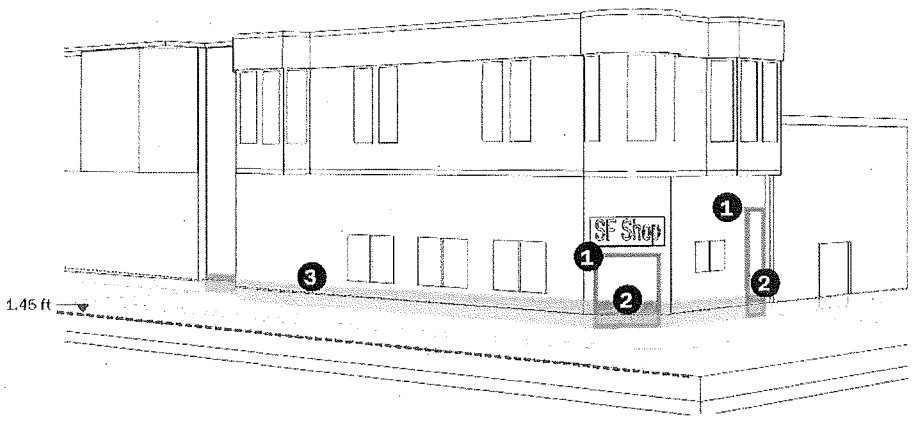
Dry flood Proof: Commercial Example

Doorway Protection

Existing



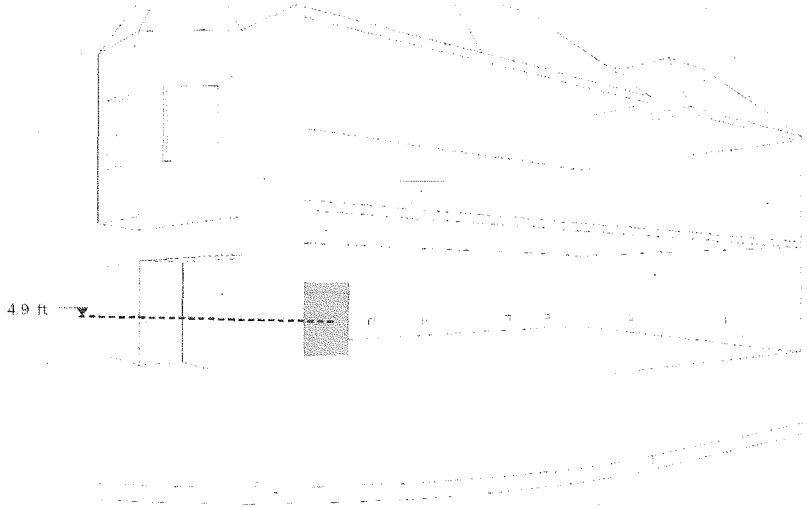
Proposed



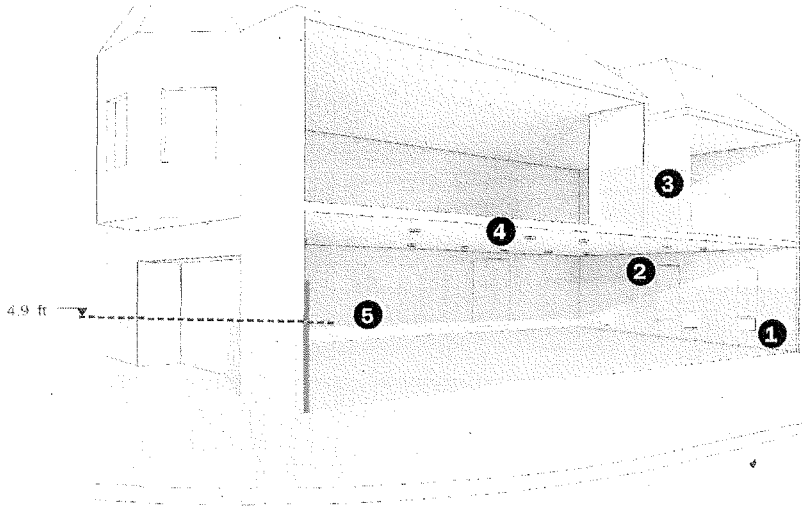
Wet flood Proof: Residential Example

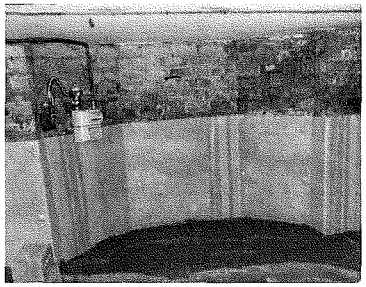
Cleanable Surface/Protect Equipment (Residential)

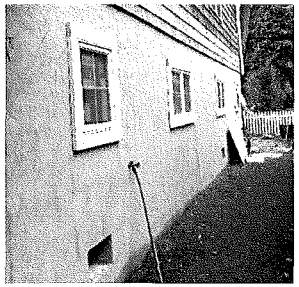
Existing



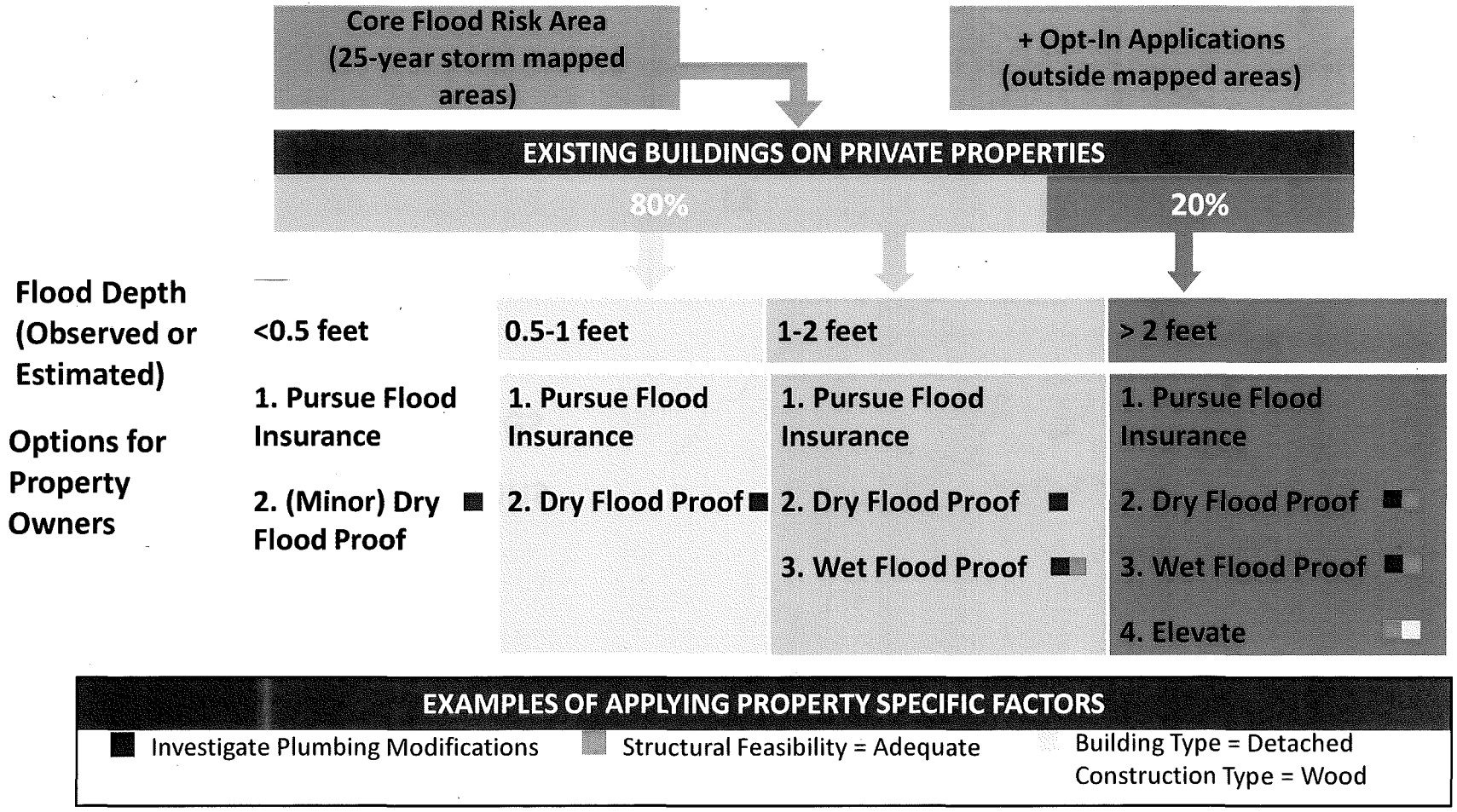
Proposed







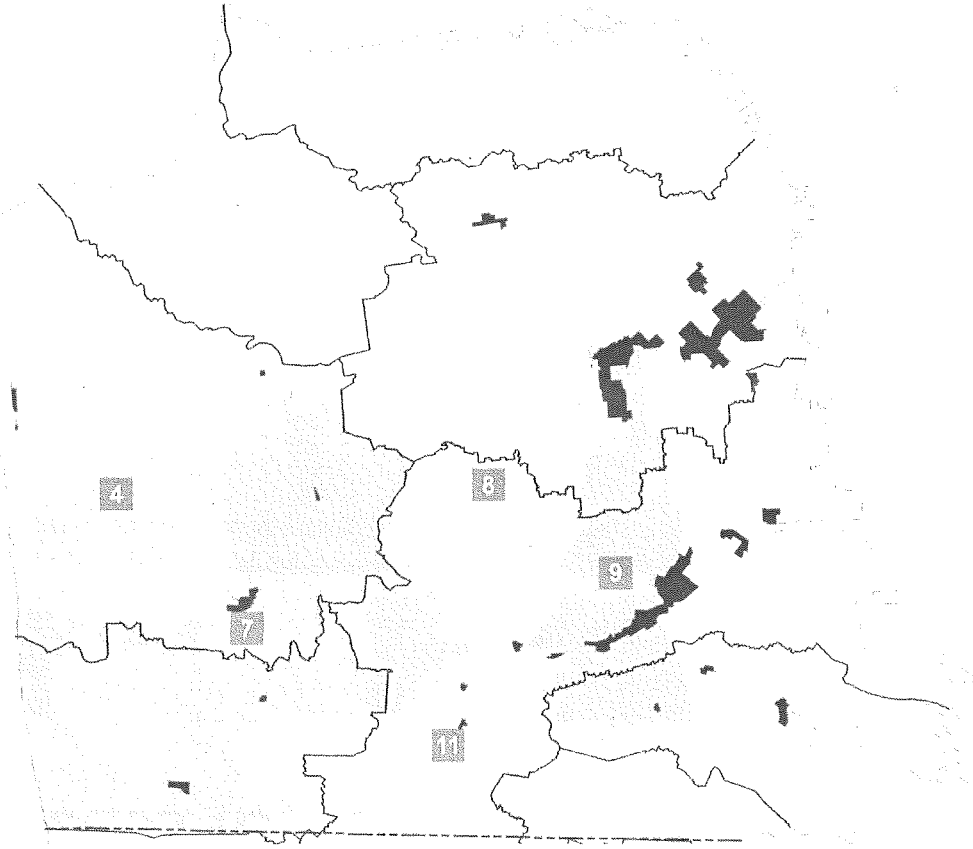
Example Eligibility Process for Grant Assistance



Programmatic Strategies for Flood Resilience: Core Flood Risk Area (25-year Storm)

<u>Mandatory Requirements</u>

- Building Code Modifications
- Other City Permit Processes



Proposed Programmatic Strategies for Flood Resilience

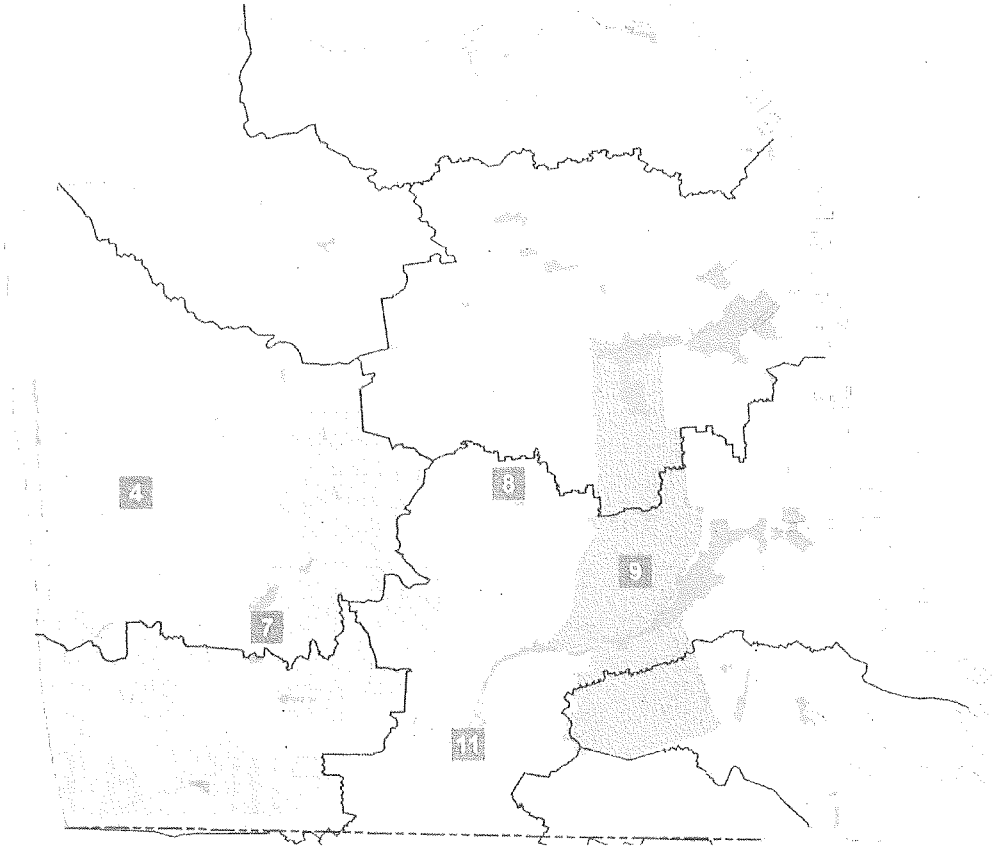
Repurpose Land Use

- Repurpose for Stormwater Management
- Repurpose for Park
- Repurpose for Housing/Mixed Use

Programmatic Strategies for Flood Resilience: Notification Area (100-year Storm)

<u>Mandatory Requirements</u>

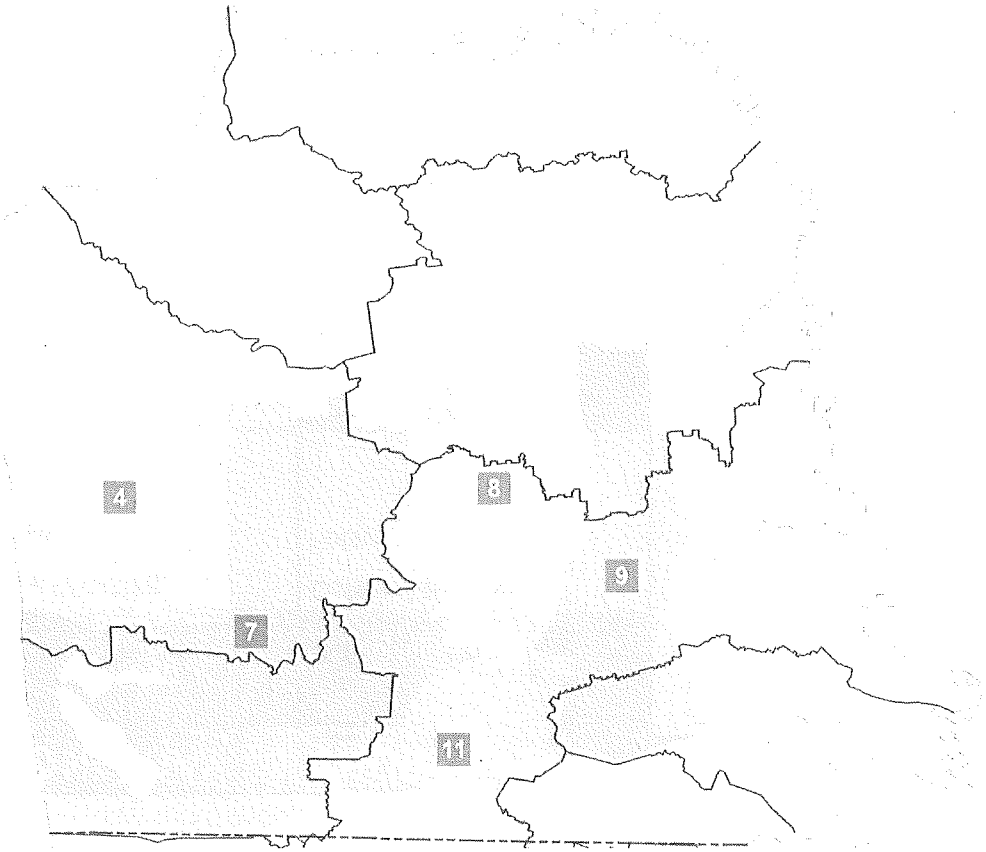
- Disclosure at Point of Sale



Programmatic Strategies for Flood Resilience: Citywide

<u>Mandatory Requirements</u>

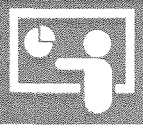
- Backwater Valve Installation
- Sewer Lateral Inspection/Repair



San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

RAIN READY SF

October Outreach

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
16 	17 	18 	19 	
Community Meeting New Mission Terrace Group	**SFPUC CAC Presentation** Door to door invites	**Coffee Meeting** Cayuga	**Coffee Meeting** Folsom	
			26 	
			Community Meeting Northeast Mission Business Association	
	31 			
	Media Live TV: Mornings on 2 • SFPUC GM Radio: KGO Interview • Deputy Comms Director Press Conference • 17th/Folsom Park			

- 50 attendees from the public
- 12 grant inquiry forms from property owners
- 10 media outlets participated and covered the topic

Potential Future Board Actions to Modify Codes*

Potential Content Change	Potential Trigger
Building construction standards to reduce flood risk	New construction or major renovation (to be defined) in a defined flood risk area
Inspection and repair of laterals	Point of Sale Major renovation (to be defined)
Backwater valve for fixtures below sidewalk vent	Point of Sale Major renovation (to be defined)

*Depending on specific requirements, codes proposed for modification may include: Building, Housing, Planning, Public Works

Next Steps

- Implementation Plan Development
- Ongoing Coordination with Departments
- Ongoing Community Outreach/Engagement
- Immediate grant program improvements
  - Increased program funding
  - Additional project types
  - Special assistance for low income
  - Streamlined application process
  - Enhanced administrative/technical assistance
  - Assistance with identifying qualified contractors

THANK YOU!

Carroll, John (BOS)

From:	Neighbors Against Flooding <stopfloodingit@gmail.com>
Sent:	Monday, November 06, 2017 10:34 AM
To:	Yee, Norman (BOS); Fewer, Sandra (BOS); Ronen, Hillary; Sheehy, Jeff (BOS)
Cc:	Choy, Jarlene (BOS); Carroll, John (BOS)
Subject:	November 8, 2017 Flood Mitigation Strategy Hearing
Attachments:	City College of San Francisco Master Plan Excerpts.pdf
Categories:	170116

Dear Supervisor Yee and Members of the Public Safety and Neighborhood Services Committee:

We would like to thank Jarlene Choy from Supervisor Norman Yee's office for informing us about the upcoming November 8, 2017, hearing on proposed flood mitigation strategies. Unfortunately, it is difficult for some of us to attend due to work and family obligations; however, we would like to make the following comments:

As previously stated in our email to the SFPUC Commissioners dated September 28, 2017, we implore the City to do more to protect residents in low lying areas from the impact resulting from the continued development surrounding Ingleside Terraces, namely along Ocean Avenue. While the SFPUC states that it requires the joint effort of residents to protect homes located in flood prone areas, there needs to be accountability from City agencies that permit continued development at the expense of low lying residents.

Please refer to the attached document which contains excerpts taken from the City College of San Francisco Master Plan Draft Environmental Impact Report dated January 30, 2004 (https://www.ccsf.edu/MP/main.shtml). Included in the attachment are sections we have underlined which document that the City and it's agencies were aware as far back as 2004 that the sewer system in the area is **undersized for wet weather flow during the 5 years storm situation** and that **development would result in a significant impact to the system**. However, since 2004, additional development in the form of numerous retail and residential buildings along Ocean Avenue were erected and an additional sewer line connected for the benefit of the Westwood Park neighborhood.

With an EIR report that documents that the sewer system is undersized, how was it possible that so much development was, and is, allowed to take place with no improvements to the existing sewer system? Why are we putting residents at further risk by enlarging sewer lines surrounding low lying homes? Why is nothing being done about the undersized sewer line, with excursion issues, on Ocean Avenue? Why do we now have 10, yes 10, catch basins on one block of Victoria Street alone? Would any of you tolerate such a low (5-year storm situation) standard of care if these were your homes being impacted?

The City College Environmental Impact Report confirms that flooding is primarily the result of an undersized sewer system upstream from Ingleside Terraces and **not** climate change. In addition, the excursions and flooding along the frontage road paralleling Junipero Serra Blvd. further proves that the main sewer lines servicing this area are undersized. As such, no new connections should be permitted until these defects are corrected and the Balboa Reservoir Project's proposal to add 1000+ new housing connections cannot be permitted to take place without addressing the need for a new sewer system to accommodate the added demand.

Please do not let the burden to mitigate flooding rest with homeowners to "do their part". We cannot do our part when we are consistently put at greater risks for the sake of additional housing and for the benefit of residents upstream. Thank you.

Sincerely,

Ingleside Terraces Residents

Patricia Hechinger

Vanessa Quesada

Gina Buschiazzo

Jane Huey

Robert Karis

Carolyn Karis

Adrienne Sciutto

Irene Creps

City College of San Francisco Master Plan
Draft Environmental Impact Report, January 30, 2004
https://www.ccsf.edu/MP/main.shtml

4.6 PUBLIC SERVICES AND UTILITIES

B. EXISTING CONDITIONS
B3. Wastewater/Storm Drainage

The area west of Phelan Avenue is served by a 30-inch reinforced concrete sewer in Phelan Avenue that carries flows south to Ocean Avenue. Although the sewer's condition is unknown, it is severely undersized. According to the SFDPW, the sewers surrounding the Main Campus, while adequate for the dry weather flow from the campus, are inadequate for flows that occur in a 5-year storm event. Currently, the City does not have the funds to upgrade the under-sized sewers surrounding the campus. The SFPUC is in the process of revising its *1973 Wastewater Master Plan*. Among other things, this *Plan* would include upgrading the City's hydraulically and structurally inadequate sewers.

E. IMPACTS AND MITIGATION MEASURES
Service-3 Construction or Expansion of Wastewater/Storm Drainage Facilities/Adequacy of Storm Drainage Facilities
Impact

Facilities Master Plan
It should be noted that the wastewater/stormwater lines in the area are, and would continue to be, undersized to handle the wet weather flow generated by a 5-year storm event. The additional wastewater generated by the project would aggravate this condition. As mentioned earlier, although the City is in the process of reviewing its *1973 Wastewater Master Plan*, which would include upgrading the City's hydraulically and structurally inadequate sewers, San Francisco does not have sufficient funds to upgrade the sewer system. Therefore, since Master Plan development would contribute wastewater to a wastewater/stormwater system inadequately designed to withstand a 5-year design storm, the impact to the existing stormwater drainage system would be significant.

Near-Term Development
For the near-term development, only those connections indicated above for structures east of Phelan Avenue would be required. Namely, near-term development would be served by connections to one of the existing campus wastewater lines. Separate wastewater and stormwater lines would be installed and connected to the appropriate existing campus lines. As indicated above, the existing sewer lines located around the Main campus are adequate to accommodate the additional sanitary flow. At the same time, the lines are undersized for wet weather flow conditions and near-term development would contribute wastewater flow to the lines. Therefore, the impacts from near-term development to the existing wastewater/stormwater drainage system would be significant.

Reservoir Configuration
The configuration of Balboa Reservoir would not be expected to change the wastewater and stormwater system connections, the wastewater collection system or any of the drainage system of the parking structure. As above, given the project's contribution to a sewer system undersized for wet weather flows, the impacts to the wastewater system would be significant.

Mitigation
The needed mitigation for the impact (upgrading of the undersized sewers around the Main Campus) is the responsibility of the SFDPW; as noted above, SFDPW does not currently have adequate funds to upgrade the system. Therefore, the mitigation is under the jurisdiction of another agency.

Significance After Mitigation
The mitigation required to reduce this impact to an insignificant level is under the jurisdiction of another agency and not likely to be implemented in the near future. For that reason, the impact remains significant and unavoidable.

Service-5 Construction or Expansion of Water Facilities
Impact
Facilities Master Plan

Future water demands at the Main Campus at Master Plan buildout were estimated in two ways. First, water use was assumed to increase in step with the growth of the student, faculty and employee populations. Based on this method, by 2015, water usage would be expected to increase by about 36.6 percent to 159,015 gpd.36 Second, water use was estimated to increase in step with the increase in the square footage on the campus. In this case, water use would be expected to increase by about 57.2 percent in 2015 to 182,879 gpd.37

F. CONCLUSION
Project-specific and cumulative impacts to fire services and the wastewater/stormwater lines in the vicinity of the Main Campus would remain significant because the mitigation measures for these impacts are within the jurisdiction of other agencies.