Zone 7 Town Hall Meeting
September 13, 2018
Marinwatersheds.org

ZONE 7 - SANTA VENETIA

TIMBER-REINFORCED BERM IMPROVEMENT PROJECT

OTHER LEVEE SAFETY IMPROVEMENTS

PROPOSED SPECIAL TAX MEASURE

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SANTA VENETIA IN 1940

HOUSES AROUND SANTA MARGARITA ISLAND

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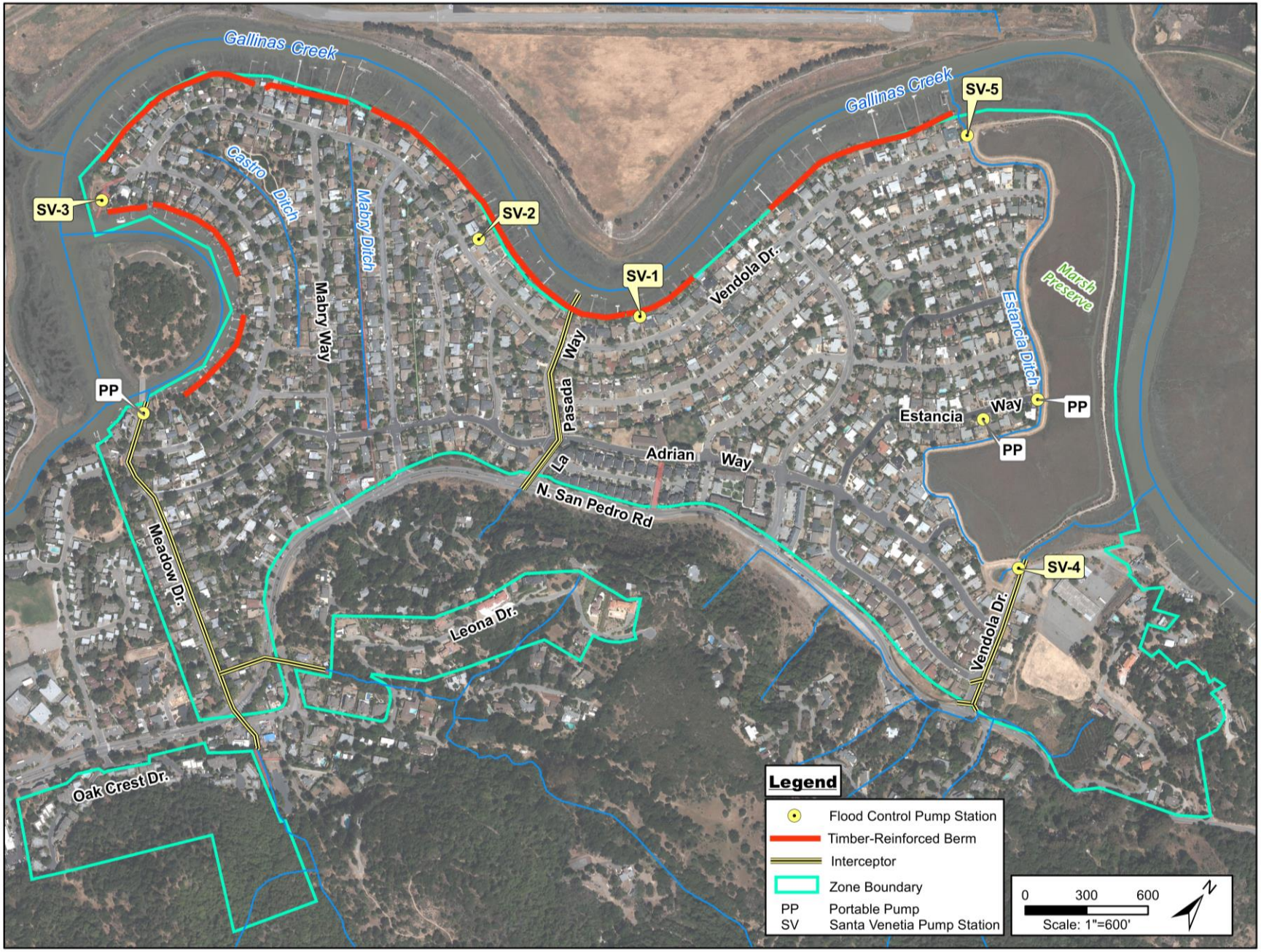
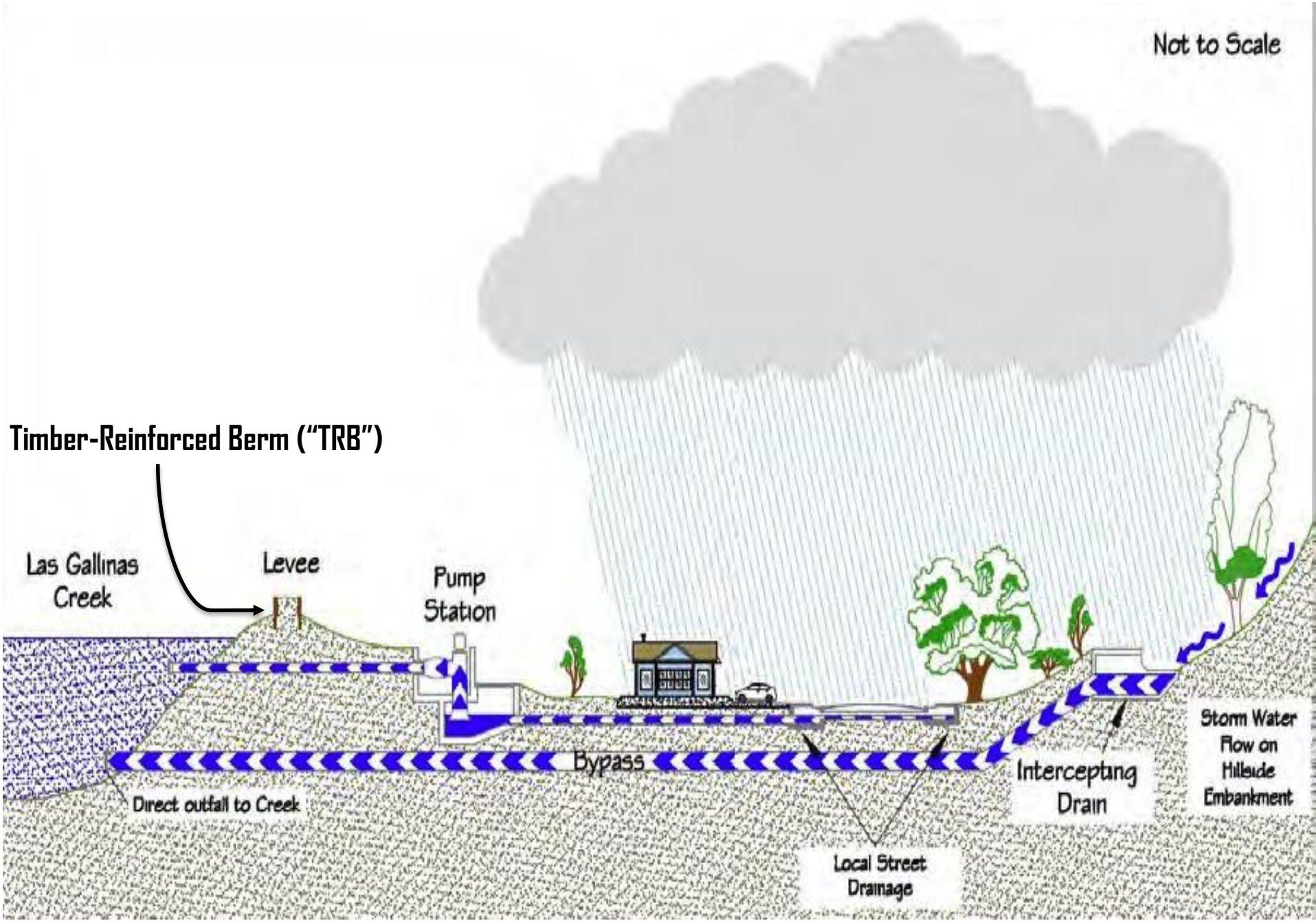
FLOODING FREQUENT FROM 1950 TO 1983

"THE GALLINAS VILLAGE AREA EXPERIENCES MAJOR FLOODING AT LEAST ONCE A YEAR" – 1971 DRAINAGE MASTER PLAN


Gallinas Creek
Gallinas Creek
Castro Ditch
Mabry Ditch
Mabry Way
SV-3
SV-2
SV-1
SV-5
Vendola Dr.
Marsh Preserve
Estancia Ditch
PP
La Pasada Way
Estancia Way
PP
PP
Adrian Way
N. San Pedro Rd
Meadow Dr.
Leona Dr.
SV-4
Vendola Dr.
Oak Crest Dr.
Legend
Flood Control Pump Station
Timber-Reinforced Berm
Interceptor
Zone Boundary
PP Portable Pump
SV Santa Venetia Pump Station
0 300 600
Scale: 1"=600'
N


Not to Scale
Timber-Reinforced Berm ("TRB")
Las Gallinas Creek
Levee
Pump Station
Bypass
Direct outfall to Creek
Intercepting Drain
Storm Water Flow on Hillside Embankment
Local Street Drainage

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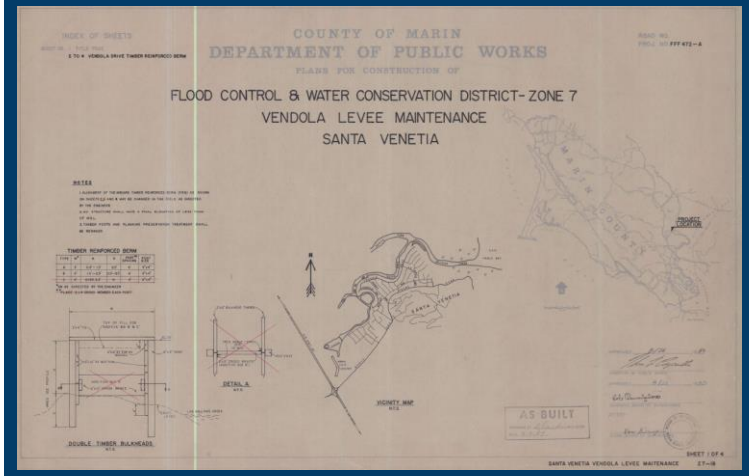
TIMBER-REINFORCED BERM

COMPLETED 1984



Completed, largely on private residential properties, following two years in a row of devastating and widespread floods in Santa Venetia, to prevent flooding in your community when the tides in Las Gallinas Creek reach high levels.

The TRB consists of two vertical panels of wood filled with soil and installed on top of the levee. Typically, the wood panels have to be replaced every 20 years due to deterioration.

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TIMBER-REINFORCED BERM MAINTENANCE

FLOOD PROTECTION ALONG GALLINAS CREEK

Before

The TRB and levee system is maintained by Zone 7 where property owners provide permission through temporary rights-to-enter. This process is not cost-effective.

After

There are a handful of property owners who deny permission. Therefore, maintenance is not comprehensive and potential weak spots remain along the system.

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MARIN WATERSHED PROGRAM

COUNTY OF MARIN

SANTA VENETIA/ZONE 7 IN 2017

King Tide, Santa Venetia timber-reinforced berm January 10, 2017 (Photo Credit: DPW)

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ZONE 7 LEVEE & TRB SYSTEM FUTURE

Without TRB Improvement

- Lowest points are below the FEMA 100-year flood 9.8 feet
- 80% chance TRB failure before water reaches top
- Annual maintenance costs ~$100k

With TRB Improvement

- Levee elevation raised to 12.5 feet
- New TRB designed not to fail before water reaches top
- Maintenance costs for TRB decline due to more robust design
- TRB buys time to plan for sea level rise community adaptation

Year 2018

Year 2020

Year 2030

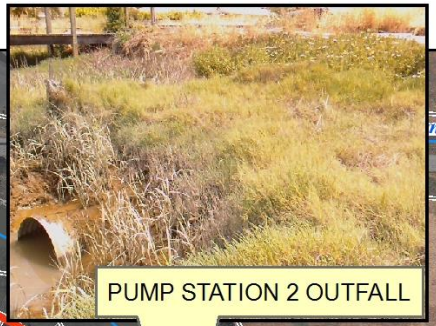
- Levee predicted to settle up to 4”
- Sea levels predicted to rise 10”
- Tidal flooding frequent

Year 2050

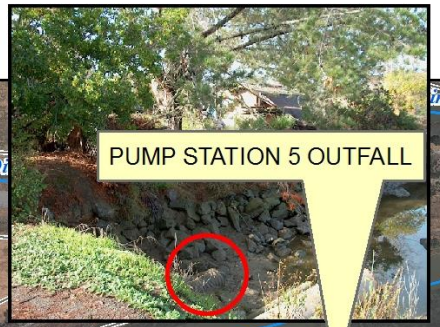
- Levee predicted to settle up to 12” down to 11.5 feet
- Sea levels predicted to rise 20” up to about 11.5 feet

Proposed Projects to Protect Zone 7 Perimeter

TYPICAL TIMBER REINFORCED BERM



PUMP STATION 2 OUTFALL



PUMP STATION 5 OUTFALL

INNER LEVEE

Proposed TRB Improvement

114 Parcels - New TRB
22 Parcels - Currently w/o TRB
92 Parcels- Current TRB w upgrade

Inner Levee

0 260 520

Feet

Castro Ditch
Mabry Way
Mabry Ditch
Birch Way
Hawthorn Way
Ash Way
Rafael Way
Geneva Way
Gallinas Creek
Vendola Dr
LaBrea Way
Galerita Way
Rincon Way
Hacienda Way
Descanso Way
Rosal Way
Estancia Way
Estancia Ditch
Outer Levee Trl
Schmidt Ln
Meadow Dr
Sunny Oaks

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TIMBER REINFORCED BERM (TRB) IMPROVEMENT PROJECT

- Project goals:
  - Provide protection against FEMA 100-year tidal flood
  - Protect against sea level rise until at least 2050
  - Reduce maintenance costs
  - Reduce needs to get private property owner permission
- Similar footprint to existing TRB/levee

OTHER LEVEE SAFETY PROJECTS

CORRUGATED METAL PIPES IN ZONE 7

- America has a sinkhole epidemic due to corrosion of underground corrugated-metal pipes (CMPs).
- CMPs were very popular several decades ago due to perceived cost effectiveness.
- Several CMPs were installed in Zone 7 that cross the levee and need to be stabilized in order to ensure they do not cause levee collapse. Examples follow.

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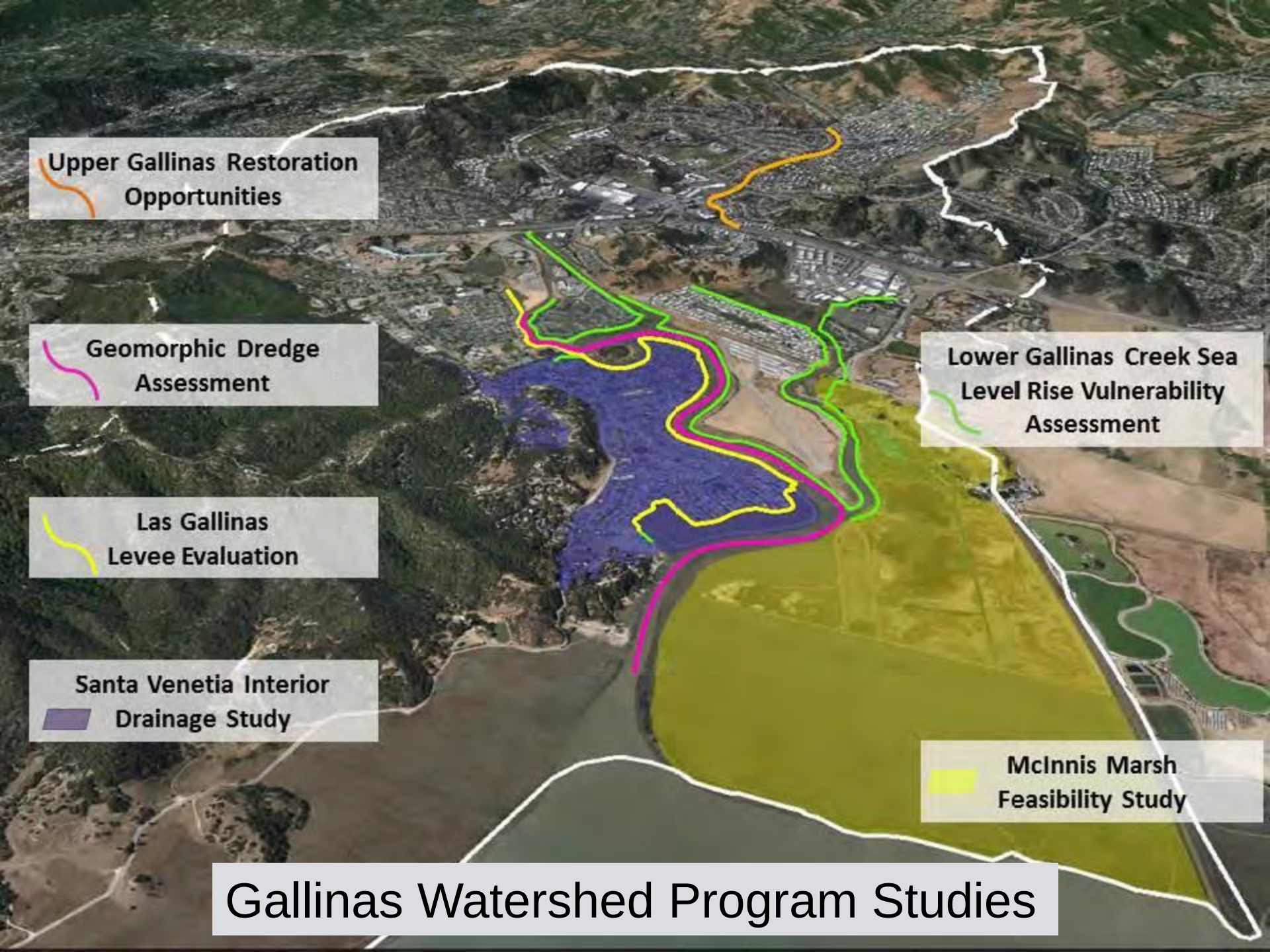
OTHER LEVEE SAFETY PROJECTS

CORRUGATED METAL PIPES IN ZONE 7

Facility:	Pump Station No. 2 Outfall	Drainage adjacent to Pump Station No. 5	La Pasada Interceptor bypass drain (for comparison)
Purpose:	Large pipe, critical to getting water from pump station to creek.	Drained watershed before pump station was built; no longer necessary.	Critical to getting water from N. San Pedro Rd to creek without overwhelming pump stations.
Action:	Design and construct trenchless rehabilitation such as fold-and-form PVC liner pipe. Preliminary construction cost estimate ~$250k (may revise during design).	Design and construct safe abandonment. Trenching and at least partial removal is likely necessary, may plug the rest. Preliminary construction cost estimate ~$50k (may revise during design).	**Completed** trenchless rehabilitation through slip-lining with plastic pipe and grouting in 2013-14 (~$500k).



Gallinas Watershed Program Studies

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GALLINAS WATERSHED PROGRAM
TAKEAWAYS FOR SANTA VENETIA – ZONE 7

- Levee and stormwater drainage studies showed that <u>levees should be the top priority</u> in reducing flood risk in Santa Venetia
- Flooding is generally tidal so “watershed” and multi-benefit approaches such as these are <u>not</u> effective at reducing flood risk in Zone 7:
  - Stormwater detention projects in upper watershed
  - Restoring upper Gallinas Creek to natural channel (i.e. removing concrete)
  - Dredging the creek
  - Restoring nearby wetlands (McInnis)

WHAT ELSE DID WE LEARN?

- Polling showed us the Gallinas watershed as a whole isn't ready for a parcel tax
- Gallinas watershed as a whole does not prioritize levees
- We can re-visit support for a watershed-wide measure in the future, but it would likely not fund projects that reduce flood risk in Zone 7
- Zone 7 has funding needs and rare opportunities <u>now</u>

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WHY ARE WE TALKING ABOUT A PARCEL TAX?

ZONE 7 – SANTA VENETIA

- Current revenue not sufficient to prevent levee failure over next 10 years
- Levee needs ~ $5M and only $3M can come from FEMA
- Fund balance ~ $500k
- Annual revenue < $500k
- Annual O&M and repair costs typically > $300k
- Extensive flood infrastructure protecting just 900 homes (lacks economy of scale)

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HISTORY OF ZONE 7 PARCEL TAXES

- 2003 $265/yr for 6 years ($355)
- 1995 $180/yr for 4 years ($290)
- 1991 $180/yr for 4 years ($325)
- 1986 $120/yr for 4 years ($265)
- 1983 $120/yr for 4 years ($300)

Avg in 2017 dollars = $305

POTENTIAL PARCEL TAX

- $189-$250 per parcel per year (to collect at least $800,000 total)
- Duration: 5 years
- Election: November 2019
- County contribution: $840,000
- FEMA contribution: $3,000,000 (grant limit)

WHAT WOULD FUNDS BE USED FOR?

ANNUAL TAX

- Complete rehab of timber-reinforced berms over 3-year period (assumes grant – without grant would take place over at least 10 years w/ reduced scope)
- Other levee safety improvements to prevent sink holes:
  - Rehabilitation of Pump Station No. 2 corrugated metal outfall pipe (CMP)
  - Safe abandonment of CMP adjacent to Pump Station No. 5 (not part of pump station)

WHAT HAPPENS IF ZONE RECEIVES NO ADDITIONAL FUNDING?

- Levee and timber-reinforced berm maintenance at risk
- No ability to keep up with SLR
- Decommission pump stations to reduce maintenance costs
  - Accept more frequent flooding when high tides coincide with significant storms
  - Frequent road closures, yard and garage flooding
- No matching funds for grants

SUMMARY OF ONLINE SURVEY

FEBRUARY 2017

- Zone 7 only (n = 155)
- 60% would vote to fund improved maintenance
- 24% didn't know if they lived within Zone 7
- 60% did **not** know that special taxes have supplemented property taxes for 21 of the past 35 past years

SUMMARY OF ONLINE SURVEY – REASONS WHY A BALLOT MEASURE WAS NOT SUPPORTED

FEBRUARY 2017

- Taxes already too high
  - Cost of flooding is high also – est. $27M in damages in Santa Venetia in next 30 years.

- County not contributing enough
  - County being asked to contribute an approximate match of tax measure revenue ($840,000 – based on proportion of land ownership of levee)
  - County funds program (CRS) to discount flood insurance premiums 20%
  - County funds Watershed Program, including outreach and CEQA (~$200k)
  - County funds road and road drainage maintenance

Continued on next slide…

SUMMARY OF ONLINE SURVEY – REASONS WHY A BALLOT MEASURE WAS NOT SUPPORTED

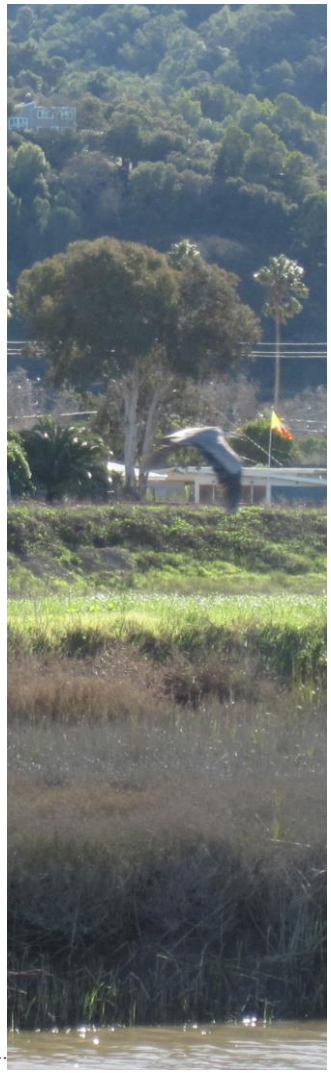
CONTINUED FROM PRIOR SLIDE

- State Lands and property boundary/ownership issues
  - MOU with San Rafael Airport to resolve issues goes to BOS 9/18
- Don't feel responsible for maintenance and upgrades
  - Those outside community don't feel responsible for maintenance and upgrade of Zone 7 flood infrastructure either; they experience no benefit from it and don't feel consequences of its failure

ELECTION SCHEDULE

TOWARD NOVEMBER 2019 ELECTION

- September 13, 2018 - Town Hall Meeting
- September to November 2018 – TRB property owner surveys to gauge willingness to provide easements
- Fall 2018 to Spring 2019 – CEQA for proposed projects
- Spring 2019 - Zone 7 Advisory Board meeting to consider election and ballot language
- Summer 2019 - BOS hearing and resolution calling for election
- November 5 – Election
- Pending – FEMA Grant Award



IN CLOSING

YOUR LEVEE SYSTEM…

- Only protects the portion of Santa Venetia bounded by Meadow Drive, McPhail School, and N. San Pedro Road – nowhere else.
- Holds back daily high tides.
- Is primarily on private residential properties without easements.
- Was evaluated from 2008-2013 through a joint study with the U.S. Army Corps of Engineers (USACE).
- Continues to slowly sink along with the community as sea levels rise.
- **Is the single most important element of the infrastructure that protect your community from flooding** – more than storm drains and pump stations which serve much smaller areas and have appropriate redundancies.

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MARIN COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT

MARIN WATERSHED PROGRAM

COUNTY OF MARIN

THANK YOU

http://www.marinwatersheds.org/zone-7.html