

# FAIRFIELD AND NEW HAVEN COUNTIES, CT COASTAL STORM RISK MANAGEMENT STUDY

Connecticut Association of Flood  
Managers, 2021 Annual Conference

Planning Division  
USACE, New England District  
09 December 2021



US Army Corps  
of Engineers®





# AGENDA



- **Presentation (15 min)**
  - Overview, Study Authorization, Problems, Opportunities, Objectives, Constraints
  - Non-Federal Sponsor
  - Study Area and Scope
  - Plan Formulation Overview
  - Screening/Final Array of Alternatives
  - Tentatively Selected Plan
  - Environmental Compliance Considerations
- **Discussion (15 min)**





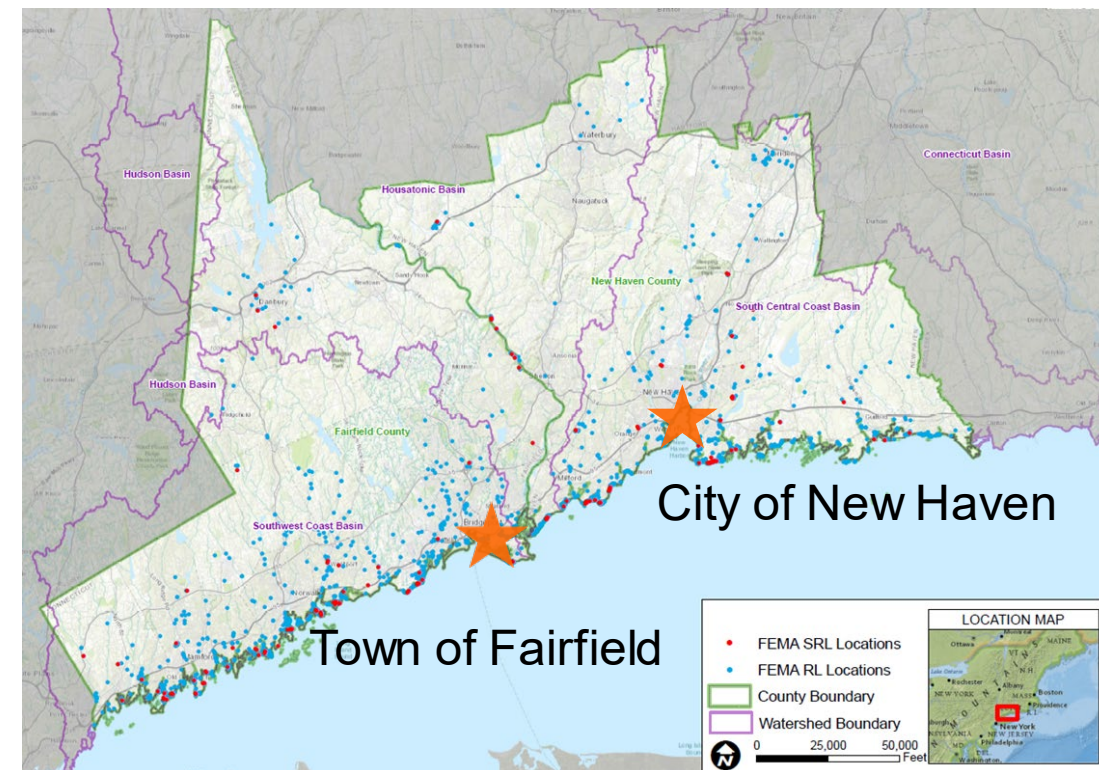


# FAIRFIELD AND NEW HAVEN COUNTIES – AUTHORITY & STUDY AREA

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- Authority: Resolution by the Committee on Transportation and Infrastructure of the U.S. House of Rep. dated April 29, 2010
- Non-Fed. Sponsor: CT Dept. of Energy & Env. Protection (DEEP)
- Objective: Reduce damages and Manage Risk from Coastal Storms in the Town of Fairfield and City of New Haven, Connecticut





# FEASIBILITY STUDY HISTORY

- CT DEEP and Corps execute study agreement on June 24, 2016 (initial FCSA signed for a \$600,000 study)
- Early study efforts focused on meeting with communities within the study area to identify problems/opportunities, existing/future conditions, data needs etc. Focused study areas were developed as study progressed. The Town of Fairfield was one of these focused study areas.
- In the summer of 2019, for a variety of reason, the Town of Fairfield made the decision to not pursue the alternatives proposed by the USACE team.
- The study was completed in January, 2021 with signing of a Chief's report. The authorized project involves a \$130+ million project in New Haven along the Long Wharf waterfront.



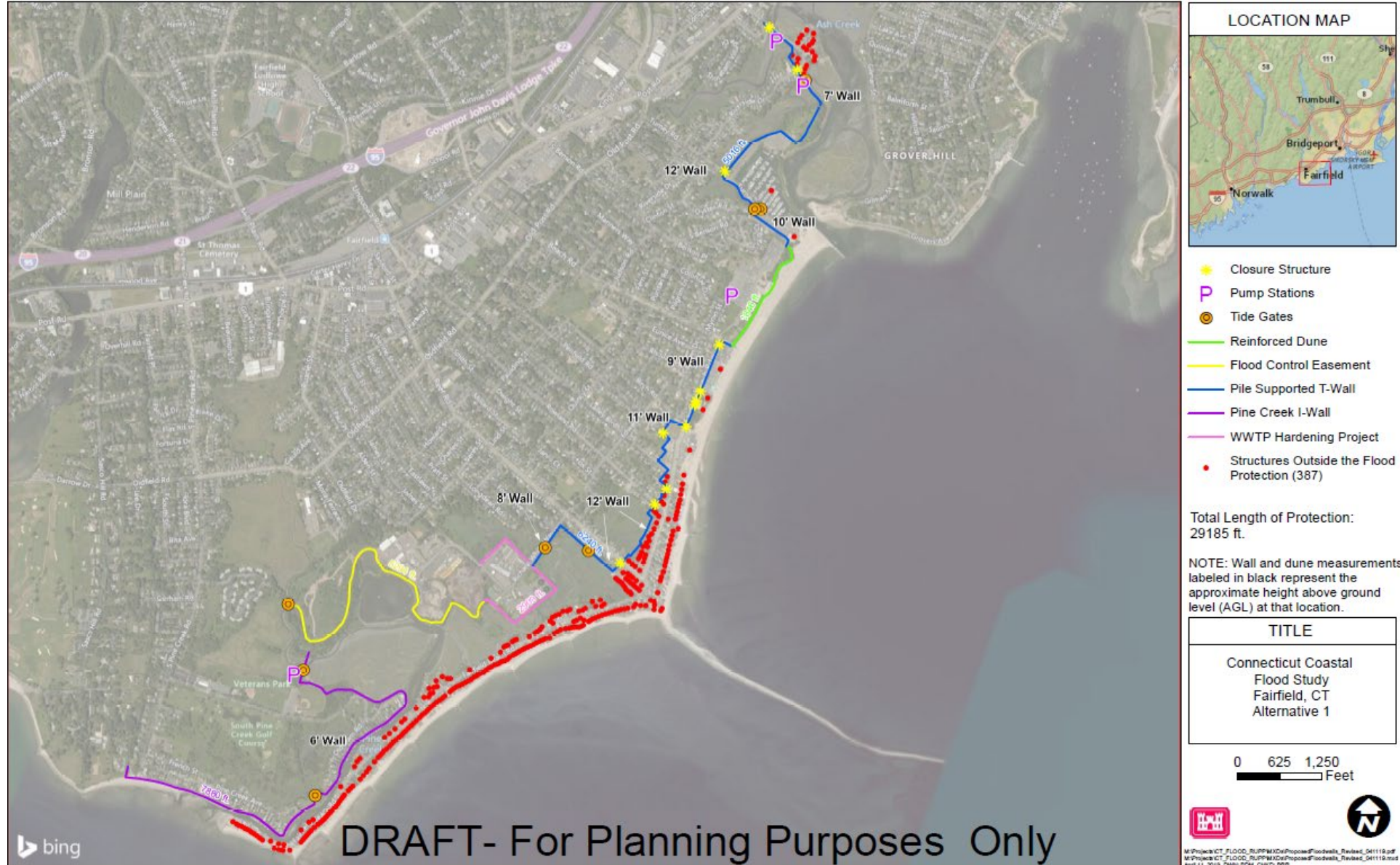
# FAIRFIELD AND NEW HAVEN COUNTIES CSRM STUDY (CON'T)



- Economic Significance: Town of Fairfield focused study area includes more than 3,000 residential and 300 commercial properties worth hundreds of millions of dollars. Area significant economic driver (businesses, population center etc.) for the state and region
- Life-Safety Risk Significance:
  - ▶ Total population of the two municipalities = 191,000 (2015)
  - ▶ Life/Safety (regional deaths in the 1938, 1954, and 1955 hurricanes but none recently)
- Estimated Damages:
  - ▶ 3,000+ properties at risk.
  - ▶ Hundreds of millions in total estimated damages based on a 1% AEP flood.
  - ▶ Emergency access (surface streets) impaired as a result of coastal storm events.
  - ▶ Critical infrastructure (e.g., power, telecommunications, sewer, water, rail, highway, schools, ) at risk

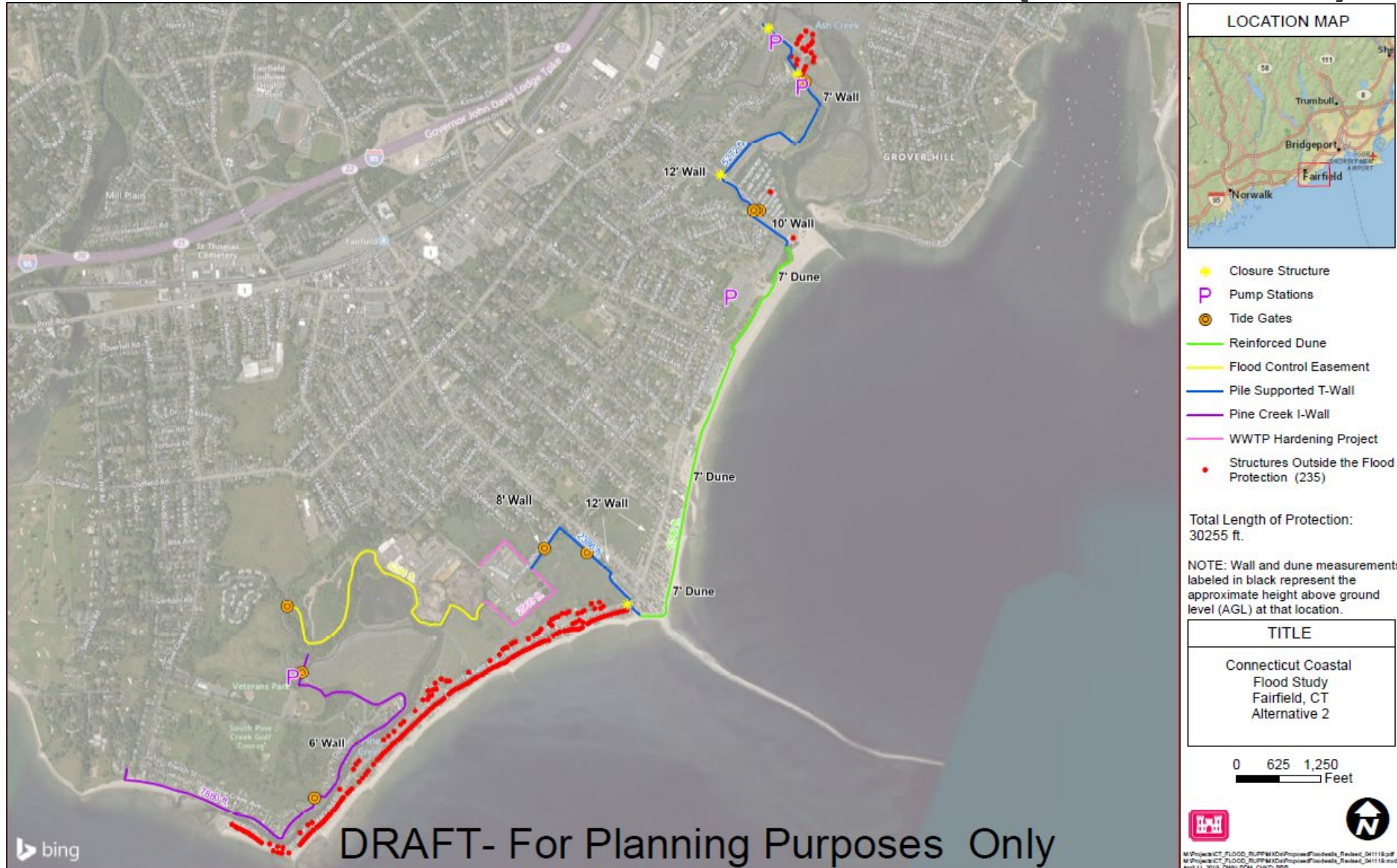


# FINAL ARRAY OF ALTERNATIVES (FAIRFIELD)





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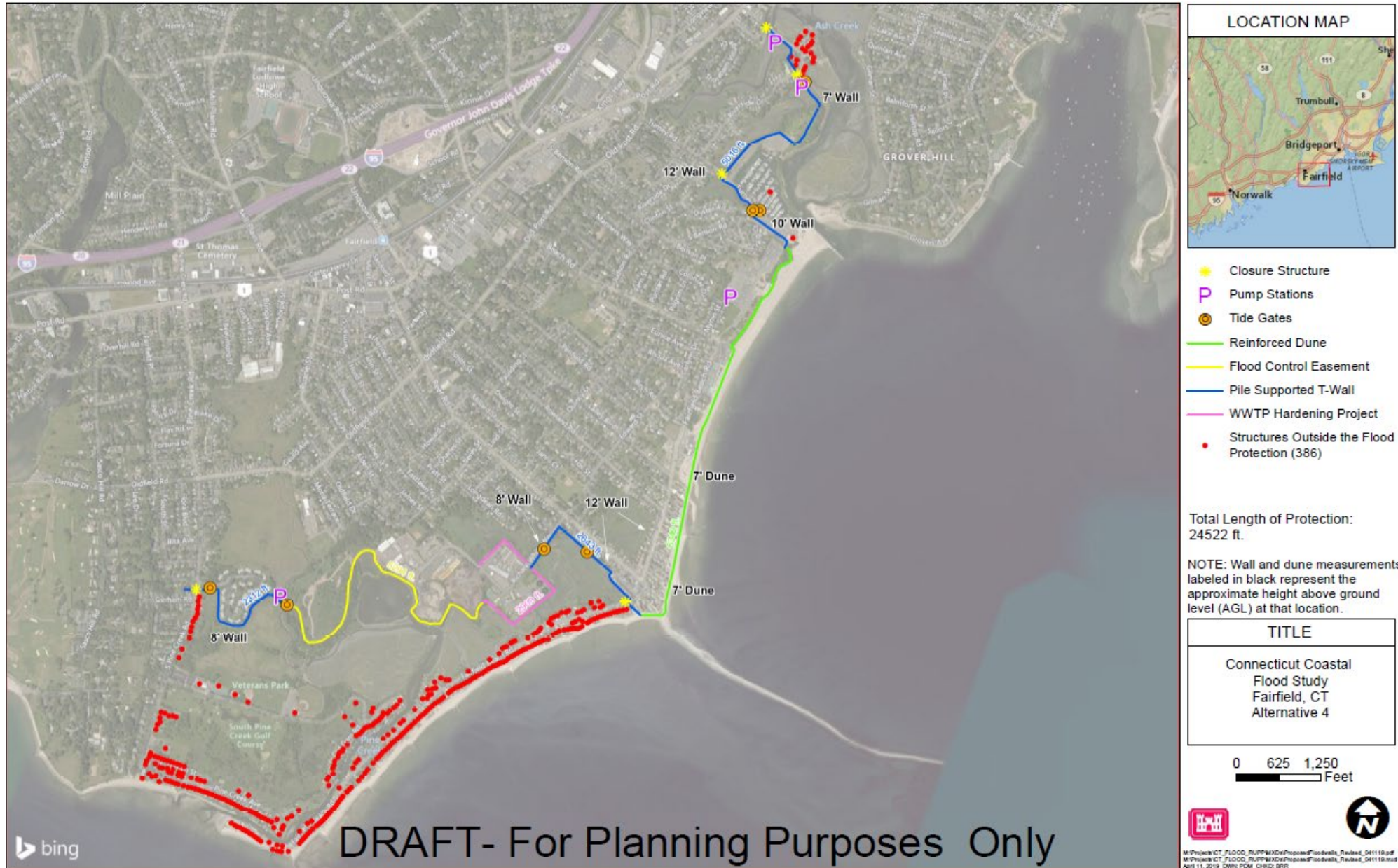


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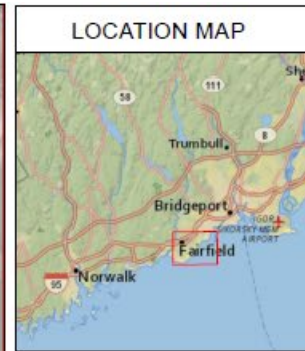


# FINAL ARRAY OF ALTERNATIVES (FAIRFIELD)





# FINAL ARRAY OF ALTERNATIVES (FAIRFIELD)



• Structures Outside the Flood Protection (3127)

Total Length of Protection:  
0 ft.

NOTE: Wall and dune measurements labeled in black represent the approximate height above ground level (AGL) at that location.

TITLE
Connecticut Coastal Flood Study Fairfield, CT Alternative 5 (Nonstructural)

0 625 1,250  
Feet



M:\Projects\CT\_FLOOD\_SUPP\MD\Proposed\Floodwalls\_Review\_041115.pdf  
M:\Projects\CT\_FLOOD\_SUPP\MD\Proposed\Floodwalls\_Review\_041115.mxd  
April 11, 2015 DWH PGM CHD: BTR

DRAFT- For Planning Purposes Only





# ECONOMIC EVALUATION

## Fairfield, Connecticut

AAEQ Benefit by Alternative (\$)	
Alternative	AAEQ Benefit*
A1A	\$44,567,000
A1B	\$44,567,000
A2A	\$45,135,000
A2B	\$45,135,000
A3	\$44,316,000
A4	\$44,884,000
A5	\$42,960,000
*FY19 Discount rate = 2.875%, period 50 years; totals may be affected by rounding.	



# COST ESTIMATES

## Fairfield, Connecticut

Cost by Alternative (\$)	
Alternative	Project First Cost*
A1A	\$523,850,000
A1B	\$581,529,000
A2A	\$673,081,000
A2B	\$730,719,000
A3	\$546,526,000
A4	\$695,530,000
A5	\$643,658,000
<i>Includes: Construction, PED, Construction Mgmt, and Real Estate Costs. Implementation costs are split 65% FED and 35% non-FED</i>	





# COMPARISONS OF COST AND BENEFITS OF ALTERNATIVES, FAIRFIELD, CT

	EXPECTED BENEFITS, COSTS, & NET BENEFITS			
ALT.	AAEQ BENEFITS	AAEQ COSTS*	AAEQ NET BENEFITS	BCR
A1A	\$44,567,000	\$24,823,000	\$19,744,000	1.8
A1B	\$44,567,000	\$27,682,000	\$16,885,000	1.6
A2A	\$45,135,000	\$32,014,610	\$13,120,000	1.4
A2B	\$45,135,000	\$34,871,000	\$10,264,000	1.3
A3	\$44,316,000	\$26,238,000	\$18,078,000	1.7
A4	\$44,884,000	\$33,421,000	\$11,463,000	1.3
A5	\$42,960,000	\$25,465,000	\$17,494,000	1.7
A				

# TENTATIVELY SELECTED PLAN (FAIRFIELD ALT 3)







# ENVIRONMENTAL COMPLIANCE

- **Resource Agency Meeting held on 8 April 2019.**
- **Invitees included staff from: EPA, USFWS, NOAA Fisheries, CT DEEP, The Nature Conservancy, and the SHPO and THPO's.**
- **Comments received during the meeting centered on air emissions, viewshed, salt marsh impacts, and tide gate structure operations.**
- **No formal or informal comments were received following meeting.**

# ENVIRONMENTAL COMPLIANCE

## Potential Permanent and Temporary Construction Impacts (Fairfield)

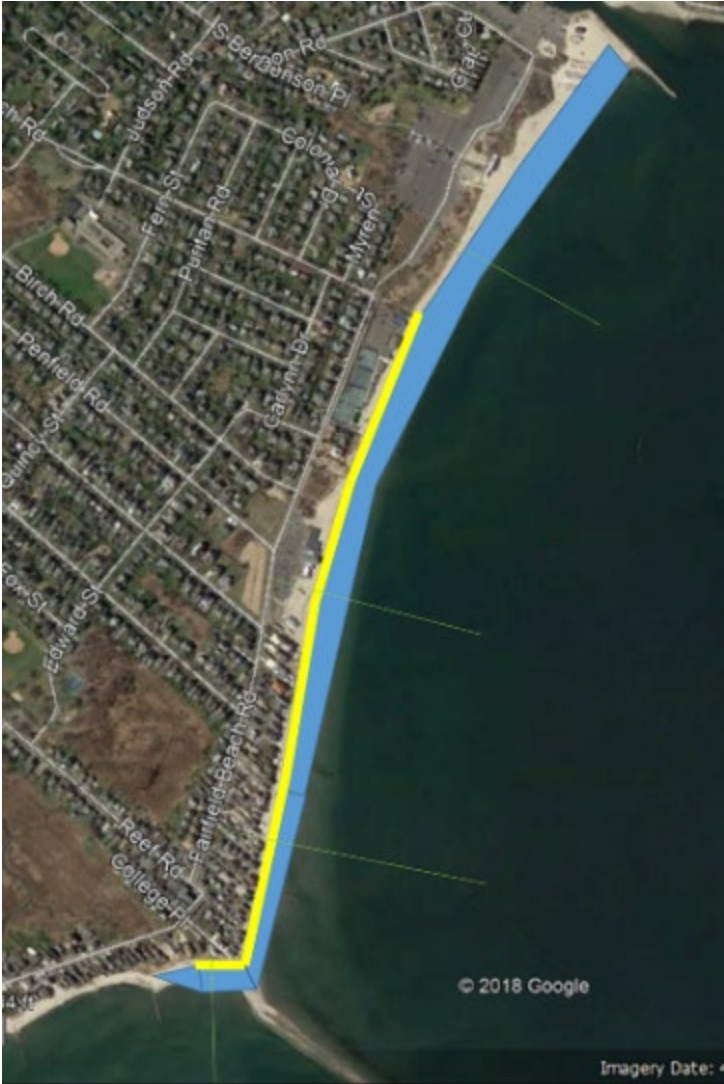
	Permanent Impacts (Acres)	Temporary Impacts (Acres)
Alternatives with Pine Creek Impacts	0.83	2.50
Alternatives without Pine Creek Impacts	0.62	1.87

Approximately \$280,000 for salt marsh impact mitigation.





# ENVIRONMENTAL COMPLIANCE



## Habitat Conversion

	Intertidal Area (MLLW to MHHW) Converted to Backshore Area (above MHHW) (Acres)	Subtidal Area (below MLLW) converted to Intertidal Area (Acres)
6,300 FT Length		
50 FT berm	25.30	9.68

## Nourishment Volumes

	Initial Placement Volume (CY)	Renourishment Volume (CY/renourishment)	# of Renourishments	Total Renourishment Volume (CY)	Total Volume (CY)
6,300 FT Length					
50 FT berm	697,000	252,000	7	1,969,000	2,666,000



# QUESTIONS?

