



GOMESA PHASE II PROJECT FUNDING

Request for Funding FY2026

Submission ID: #202509291364

PROJECT SUMMARY

1. Title of Project

Coleman Avenue Storm Risk Reduction Project

2. Location of Project

Beachfront at intersection of Coleman Avenue and Beach Blvd, Waveland, MS

3. Requesting Organization:

City of Waveland

4. Requesting Agency Representative

a. Name: Jay Trapani, Mayor

b. Phone: (228) 467-4134

d. Email: jtrapani@waveland-ms.gov

c. Address: 301 Coleman Ave
Waveland Mississippi

5. Funding Requested:

\$5000000

6. Have any other State or Federal funding sources been identified for the project?

No

7. If yes, enter amount and source of additional funds:

\$

Source of Additional Funds:

8. Total Project Funds

\$5000000



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9. Provide Brief Project Description/Overview:

Before Hurricane Katrina, Coleman Avenue was the commercial and community center for the City of Waveland. For the past 20 years, one of the key issues facing the City has been lack of economic re-development in the Coleman Avenue district. A major hurdle to the desired development is the increased hurricane risk of the localized area and associated FEMA flood zones and base flood elevations. The high velocity VE zones and associated base flood elevations, in addition to indicating higher storm hazard risks, result in restrictive construction requirements, limitations on development programming, prohibitive insurance costs, and untenable returns on investment for businesses and other development entities.

Preliminary technical evaluations determined it is possible to provide hurricane protection and remove this hurdle to economic redevelopment of the Coleman Avenue area by revising the FEMA flood maps based on a storm risk reduction project. The approach is outlined by FEMA's Conditional Letter of Map Revision (CLOMR) process. The recommended project includes a hybrid dune with buried flood wall; though other design alternatives are possible, and this concept may be modified based on upcoming planning and stakeholder engagement activities. It is anticipated that the project will span over 1000 linear feet, perpendicular to Coleman Avenue to ensure adequate protection from hurricane wave hazards for map revision purposes. Once the flood maps are revised to more favorable conditions, private and commercial development of vacant lots is expected to increase significantly, revitalizing the Coleman Avenue district.

10. LIST Project Goals/Objectives:

Complete engineering, permitting and construction of a storm risk reduction project to provide hurricane protection to the Coleman Avenue area, reducing storm damage and economic and related losses to existing and future infrastructure. Submit and receive FEMA approval for project certification and flood map revisions - revising zones from VE to AE, and reducing base flood elevations in the area of Coleman Avenue. Spur revitalization (new construction, development, and businesses) in the Coleman Avenue area.

11. Which of the following authorized uses set forth in the GOMESA Act does this project fall under? Explain SPECIFICALLY and in detail how the project meets the required criteria. Check all that apply - At least one must be checked.

(A) Projects and activities for the purposes of coastal protection, including conservation, coastal restoration, hurricane protection, and infrastructure directly affected by coastal wetland losses

Hurricane protection - the project will include structural barriers designed to reduce storm wave hazards and provide protection during hurricanes up to and including 100-yr storm events. The project will be submitted for FEMA certification for inclusion in flood map revisions to reflect the reduced risk.

Coastal restoration - the project will include restoration of dune habitat that will also serve to bury the structural barrier.

(B) Mitigation of damage to fish, wildlife, or natural resources.



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(C) Implementation of a federally-approved marine, coastal, or conservation management plan

(D) Mitigation of the impact of Outer Continental Shelf activities through funding of onshore infrastructure projects.

12. Project Timetable/Milestones:

Technical Feasibility Evaluation: Completed
Planning and Community Engagement Complete: Estimated December 2025
Design Complete: January 2027 (6 months post funding award of July 1, 2026)
Permits Received: October 2027 (15 months post award)
FEMA Conditional Map Revision Approval: October 2027 (15 months post award)
Construction Complete: April 2028 (21 months post award)
Final FEMA Approval and Map Revision: October 2028 (27 months post award)



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13. Project Timing

Short-term (3 year or less)



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APPLICATION SUMMARY QUESTIONNAIRE

14. Current status of architectural/engineering plans & specifications for this project (if applicable):

Group 1:

Group 2:

initial technical evaluation completed

Funds not budgeted

15. In what way does this project meet the goals and objectives of the Department of Marine Resources, which includes enhancing, protecting and conserving the marine interest of Mississippi for present and future generations.?

In accordance with MDMR's 2020-2024 Strategic Plan:

GOAL B: Marine and Estuarine Habitat. Restore, protect and conserve the marine and estuarine habitats of Mississippi using sound science and responsible regulation. OBJECTIVE B1. Protect, restore, conserve and create coastal, marine and estuarine habitat. STRATEGY: Restore beach, dune, maritime forest and marsh habitat.

The project proposes to restore/create an estimated 1.5 acres of dune habitat . The dune system will be larger and more continuous than typical dune features found along the MS beachfront and provide an example project and educational opportunity related to resilient dune systems.

GOAL D: Coastal Resiliency. Enhance resiliency and minimize vulnerability of the Mississippi Gulf Coast. OBJECTIVE D2: Restore and create coastal features that serve to protect the built and natural environment.

The project proposes to create a coastal feature that includes a natural dune system and buried structural barrier to protect upland built infrastructure during severe storm events. The protection will reduce hurricane risk to the key downtown area, including City Hall, Fire Station, and other businesses. Additional future development in the area of provided protection is anticipated based on revisions to FEMA flood maps (as a result of the project).

16. Estimated number of years to completion:

3

17. Estimated Completion Date:

October 2028

18. Prioritize if your agency has submitted multiple projects:

2



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BUDGET

Category	Total
Salaries	
Travel	
Architecture & Engineering	645000
Legal	
Consulting	
Construction	4355000
Site Work	
Equipment	
Indirects	
Other	
Total	5000000

Attachments

1. fema-flood-remapping-coleman-ave_covington-memo_2025.07.28.pdf

I hereby certify under penalty of perjury that all information contained in this application packet is true and correct. I have not knowingly or intentionally provided any false information. I understand that a false statement on this application may be grounds for rejection of my application or termination of the award. In addition, a false statement may be punishable under applicable state or federal laws, which may also result in a fine and/or imprisonment.

I certify that the above referenced agency / entity has given me the authority to submit this application.

Name

Phone

Date

Heath Hansell

2282165321

09/29/2025



Memorandum

To: Mayor Jay Trapani, City of Waveland

From: Heath Hansell, PE, Covington Civil and Environmental

cc: Ronnie Artigues, City Attorney, City of Waveland

Date: July 28, 2025

Re: **Coleman Avenue FEMA Flood Remapping**
Task 1. Initial Map Revision Evaluation – Summary Memorandum

This memorandum summarizes Covington Civil and Environmental, LLC's Task 1 efforts to evaluate possible revisions of the FEMA Flood Insurance Rate Maps (FIRMS, or "flood maps") in the area of Coleman Avenue, Waveland, MS. In addition to using updated elevation data, conceptual flood risk reduction project alternatives were developed to evaluate potential flood map changes. Scenarios based on the effective FEMA flood maps and in-progress coastal MS flood map updates were considered. The goal of the project is to lower Base Flood Elevations (BFE) and minimize or eliminate High Velocity (VE) zones along Coleman Avenue.

Methods

1. Covington utilized methods based on FEMA Flood Mapping Guidance to evaluate coastal analysis transects in FEMA's CHAMP-WHAFIS model and predict the resulting FEMA flood zone designations, including BFE and VE zone limits.
2. Updated existing elevation data was sourced from 2020 Post-Hurricane Zeta Topobathy LiDAR. This elevation data is an improvement over the post-Katrina 2005 topographic data used in FEMA's effective products and serves as a basis for coastal analysis and flood mapping.
3. Relevant inputs to the analysis including 100-yr storm Stillwater Elevation (SWEL) and wave conditions were taken from effective FEMA products and additional information provided by Southern Mississippi Planning and Development District (SMPDD) for in-progress updated flood maps.
4. Three coastal analysis transects were analyzed in the vicinity of Coleman Avenue. These transects represent more accurate and site-specific mapping than effective FEMA transects which are spaced farther apart and subject to interpolation.
5. Conceptual flood risk reduction project alternatives were developed to evaluate potential map changes based on FEMA methodology. Initial concepts were developed for preliminary assessment, flood map modeling, and screening. A recommended alternative was determined and advanced to conceptual level.

Effective FEMA Maps

The effective FEMA Flood Insurance Rate Map (FIRM) (Map # 28045C0361D, Panel 361) dated 10/16/2009 locates Coleman Avenue area within a range flood zone designations from Zone VE (EL +27 ft) at the open water beachfront to Zone AE (EL +19 ft) at Central Avenue. VE zone BFE's range from +24 ft at Beach Blvd to +21 ft approximately 975 ft inland along Coleman from Beach Blvd. This location is where effective flood zones change from VE (high velocity) to AE zones. The Limit of Moderate Wave Action (LiMWA) (the inland limit of areas affected by waves greater than 1.5 feet) delineation occurs just north of N. Bourgeois St. at City Hall. All elevations reference the NAVD88 vertical datum.

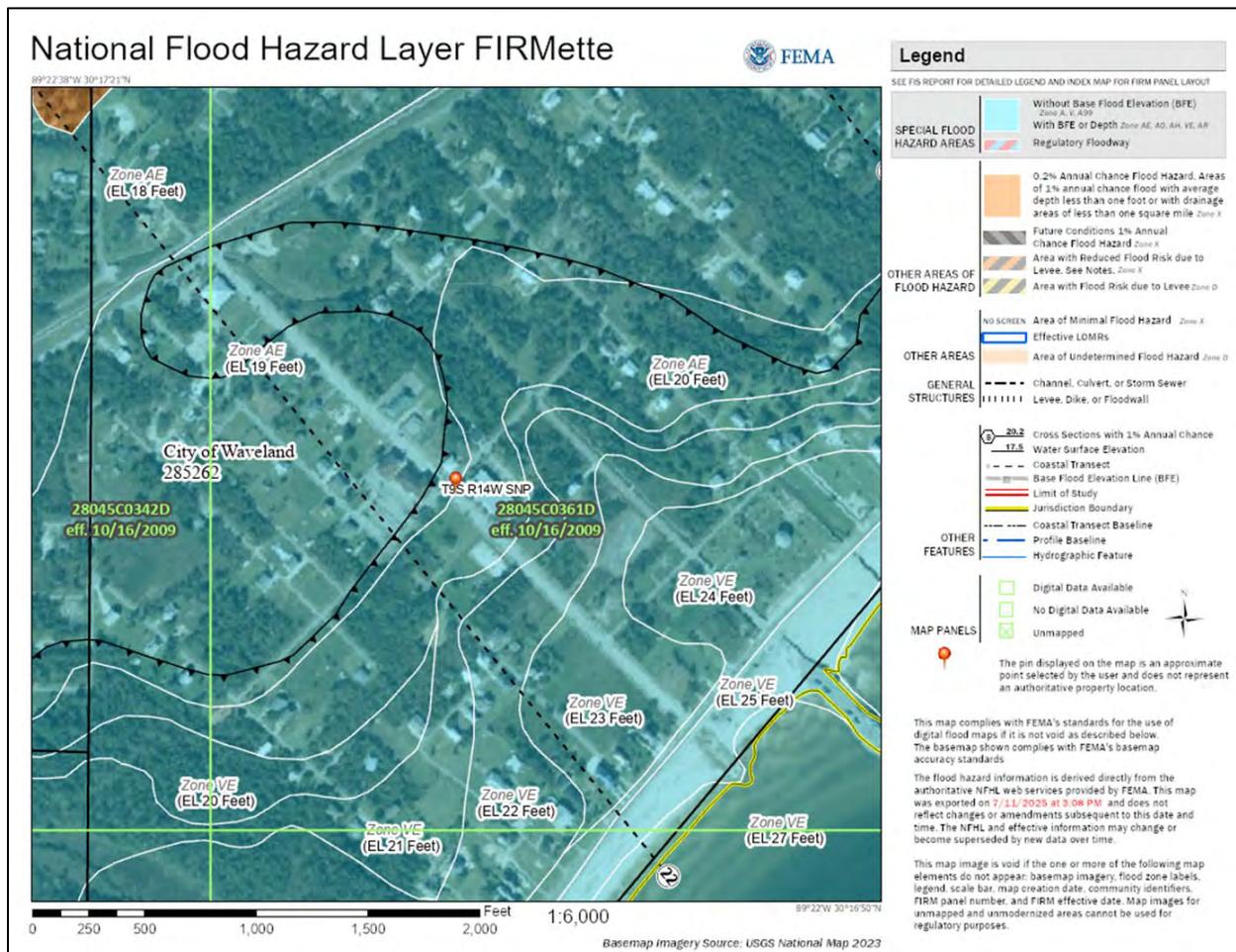


Figure 1. Effective FEMA Flood Insurance Rate Map

The effective FIRM scale for the project area is 1" = 500'. A review of the effective Flood Insurance Study (FIS) for Hancock County (FIS# 28045CV001B, Revised September 27, 2019) shows that the study site is just north of a FEMA coastal analysis transect. Transect #22 is an open coast transect which originates on the beach shoreline of the Mississippi Sound (Figure 1).

The 1% annual chance (100-yr) wave conditions and stillwater elevation (SWEL) are two significant inputs that impact FEMA flood zone mapping. Data contained in the effective FIS indicate that the starting 100-year SWEL is +18.3 ft NAVD88 at the open coast and reaches a maximum value of +18.5 ft along FEMA Transect 22 (see Table 1). Starting 100-yr wave condition data are not included in the effective FEMA FIS. Backup data of the effective FIS provided by SMPDD indicated starting significant wave height of 8.06 ft and period of 5.55 seconds.

Table 1. Effective FEMA Stillwater Elevation (SWEL) Data
(source: Table 6 in Effective Hancock County FIS, Revised September 27, 2019)

Community Name	Transect	Description	Latitude & Longitude at Start of Transect	Starting Stillwater Elevations (feet NAVD 88)				Zone Designation and BFE (feet NAVD 88)
				Range of Stillwater Elevations (feet NAVD88)				
				10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance	
Waveland, City of Hancock County	21	Gulf of Mexico/Mississippi Sound at Farrar Street	(30.2756, -89.3746)	5.7 4.1-5.7	15.4 11.7-15.6	18.0 14.6-18.3	23.1 17.9-23.5	VE 19-26 AE 15-20
Waveland, City of Hancock County	22	Gulf of Mexico/Mississippi Sound at St. Joseph St	(30.2809, -89.3696)	5.7 4.5-5.7	15.5 14.1-15.6	18.3 16.9-18.5	23.5 21.4-23.6	VE 21-27 AE 17-21

In-Progress Coastal Mississippi Map Updates

The Southern Mississippi Planning and Development District (SMPDD) is working to perform updated coastal flood analysis and mapping for Hancock, Harrison, and Jackson Counties. The mapping is still in unpublished “draft” form and undergoing FEMA review. SMPDD provided draft data to Covington for evaluation for the Coleman Avenue project (noting that it is subject to change) and the flood zones are shown in Figure 2. Draft data provided by SMPDD indicates that the starting 100-year SWEL is +16.9 ft NAVD88 on the open coast and reaches a maximum value of approximately +17.4 ft along the Coleman Avenue coastal transect. Starting 100-yr wave condition data indicated starting significant wave height of 8.16 ft and period of 5.77 seconds.

Before becoming effective, the “draft” maps must be approved by FEMA, then be issued to the public as “preliminary” where they will undergo the required public review and comment/appeal period. After this review period, any necessary updates or changes will be made, final public and FEMA reviews will be conducted, and the maps will be issued as “effective.” The schedule to become adopted as effective is typically very long and the exact timeline is unknown. It is expected to be a multi-year timeline before the draft maps become effective.

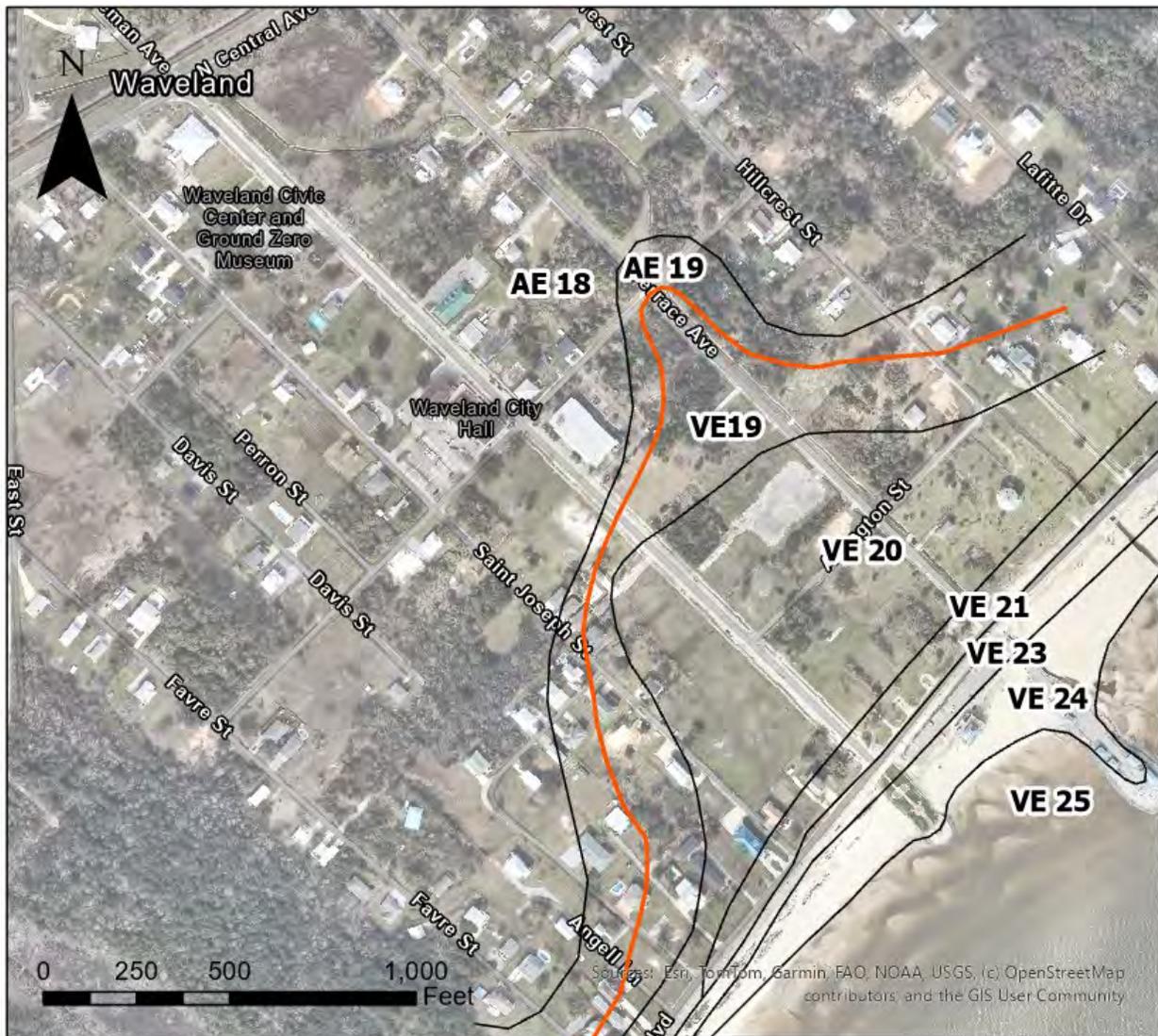


Figure 2. In-Progress Coastal Mississippi Flood Map “Draft” Zones

Conceptual Alternatives

Covington developed and evaluated the following alternatives:

1. Updated Existing Topography
 - Use updated topography (2020 LiDAR) in analysis.
 - Initial testing did not result in significant revisions to the flood zones.
 - FEMA mapping based on effective SWEL, wave, and topography is assumed relatively accurate in the Coleman Avenue area.
2. Offshore Structures
 - Large offshore structure(s) to reduce incoming wave conditions.

- The structures would be of large scale; likely located several hundred to 1500 ft offshore, require elevations of +18 ft NAVD88 or higher, and stretch a minimum of 2000 ft along the shoreline.
 - Structures could provide multiple benefits including habitat creation, future harbor or marina perimeter protection, recreational and public spaces, or other features.
 - Initial testing for flood map revisions indicates reduced wave heights and flood zones, however, waves can regenerate behind the structure during elevated water level conditions. This would require additional structural interventions (see below) to achieve the project goal.
3. Engineered Sand Dunes
- Large, engineered dunes located at existing upland limit of beach.
 - FEMA guidance dictates sand dunes must have a minimum cross-sectional sand reserve of 540 cubic feet above the 100-yr SWEL to be considered in flood mapping.
 - With an effective FEMA SWEL of 18.3 ft NAVD88, this would require a large dune. On the order of 25 ft tall, 25 ft wide at the top, and 225 ft wide at its base.
4. Hybrid Dune with Flood Wall or Barrier Core
- Engineered dune with hard vertical flood wall or barrier buried inside.
 - Top of barrier elevations of +18.5 ft NAVD88 required to achieve project goal for effective FEMA flood maps (+17.0 ft NAVD88 for in-progress maps).
 - With an effective FEMA SWEL of 18.3 ft NAVD88, the structure would be approximately 14 ft above the existing beach (~13 ft above Beach Blvd.) and approximately 100 ft wide at its base.
5. Elevated Beach Boulevard Roadway or Seawall
- Roadway and/or seawall elevated on engineered fill and structures.
 - Top of road/seawall elevation of +18.5 ft NAVD88 required to achieve project goal for effective FEMA flood maps (+17.0 ft NAVD88 for in-progress maps).
6. Upland Wave Wall or Barrier
- Vertical wall or berm configurations possible.
 - Footprints and locations can vary.
 - Top of barrier elevation of +18.5 ft NAVD88 required to achieve project goal for effective FEMA flood maps (+17.0 ft NAVD88 for in-progress maps).
 - Lower barrier elevations may be possible depending on location. Multiple barriers of lower elevation may also be possible.

Recommended Alternative and Resulting Potential Flood Map Revisions

Alternatives were screened based on multiple considerations, including but not limited to:

- Reduce BFE and eliminate or minimize VE zone to maximum extent practical.

- Avoid direct construction impacts to private property.
- Minimize cost and schedule.
- Other impacts such as public use/access, viewsheds, environmental, ownership, etc.

Based upon initial screening, alternative performance, and high-level feasibility review, the recommended project alternative is the Hybrid Dune with Flood Wall Core.

Exhibit A shows a conceptual layout and section of the recommended project.

Exhibit B illustrates conceptually revised flood zones and lines based on preliminary evaluations. These lines will change based on final project layout, modeling, and pending FEMA review.

Cost - Assuming typical sand dune, steel sheet pile, and rock construction materials and methods, and a conservative 1200 linear feet of project (slightly longer than the concept in Exhibit A), an order of magnitude project cost estimate is \$5.2M. These costs should be updated based on refined concept and other project requirements as the design progresses.

Schedule – A conceptual project schedule is shown below. This schedule should be updated based on refined concept and other project requirements as the design progresses.

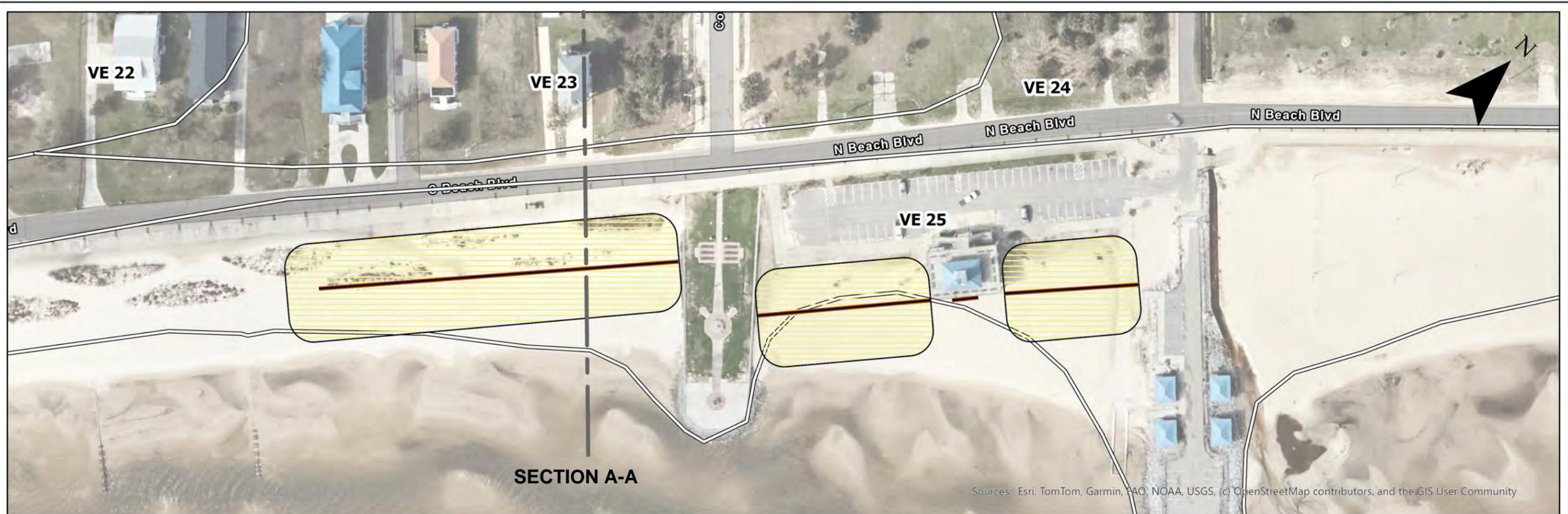
1	Feasibility, Planning, and Design	6 mo.			
2	FEMA Conditional Letter of Map Revision (CLOMR) Review/Approval		9 mo.		
3	Project Construction			6 mo.	
4	FEMA Letter of Map Revision (LOMR) Review/Approval				6 mo.
	Total Project Length to Updated Flood Maps	27 months			

Conclusions and Recommendations

The recommended hybrid dune with buried flood wall project can lower Base Flood Elevations (BFE) and minimize or eliminate High Velocity (VE) zones along Coleman Avenue. In-progress FEMA mapping updates are anticipated to reduce BFE's in the area from 1 to 3 ft, but the extent of VE zones will likely remain similar to effective zones.

Covington recommends the following for consideration by the City of Waveland:

- Unless funding is readily available, determine matching funding mechanisms and apply as soon as possible.
- Conduct an initial planning effort to evaluate the feasibility of the project from technical, regulatory, cost, programmatic, public, and stakeholder perspectives.
- If the initial planning effort recommends pursuing a flood mitigation project, then proceed to design, FEMA approval, and construction. Based on early funding applications, budget may be available to pursue these efforts.



- - - Eff_AE_VE_Line
 FEMA_NFHL
 - • - S_LIMWA
 — S_FLD_HAZ_LN

CONCEPTUAL HYBRID DUNE WITH BURIED FLOOD WALL

 Dune
 Buried Flood Wall

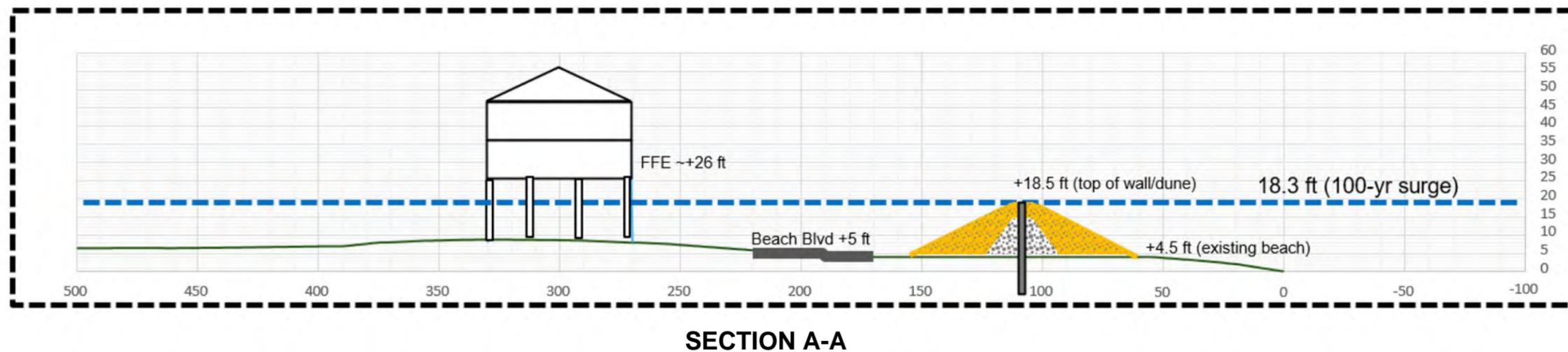
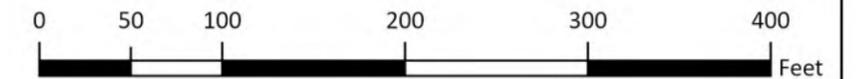
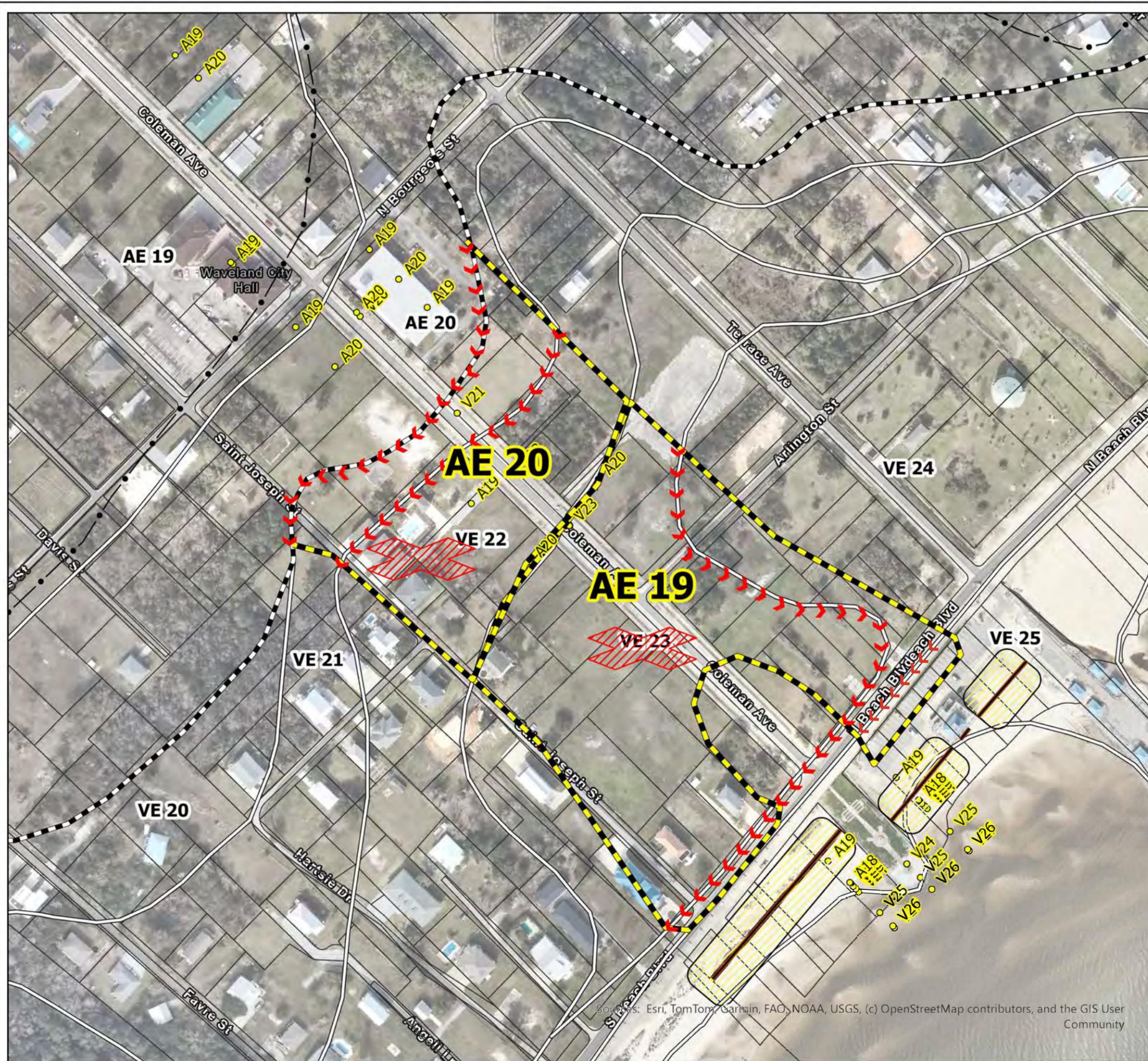


Exhibit A
Conceptual Flood Mitigation
Hybrid Dune w/Buried Flood Wall





-  Proposed_Lines
-  WHAFIS_Results_GI
-  Eff_AE_VE_Line
- FEMA_NFHL
-  S_LIMWA
-  S_FLD_HAZ_LN

-  Dune
-  Buried Flood Wall



CONCEPTUAL REVISED FEMA FLOOD LINES AND ZONES BASED ON THEORETICAL FLOOD WALL PROJECT.

ACTUAL REVISIONS MAY VARY.



Exhibit B
Conceptual Revised
Flood Lines and Zones



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community