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Mexico Beach: Post-Hurricane Michael Recovery and Resilience

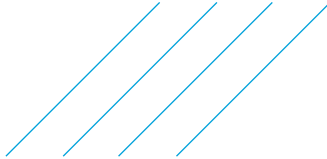
Presented By: Ryan Wiedenman

Before the Storm

A quiet, authentic, and family-friendly little beach town

Pre-Storm Aerial of Mexico Beach

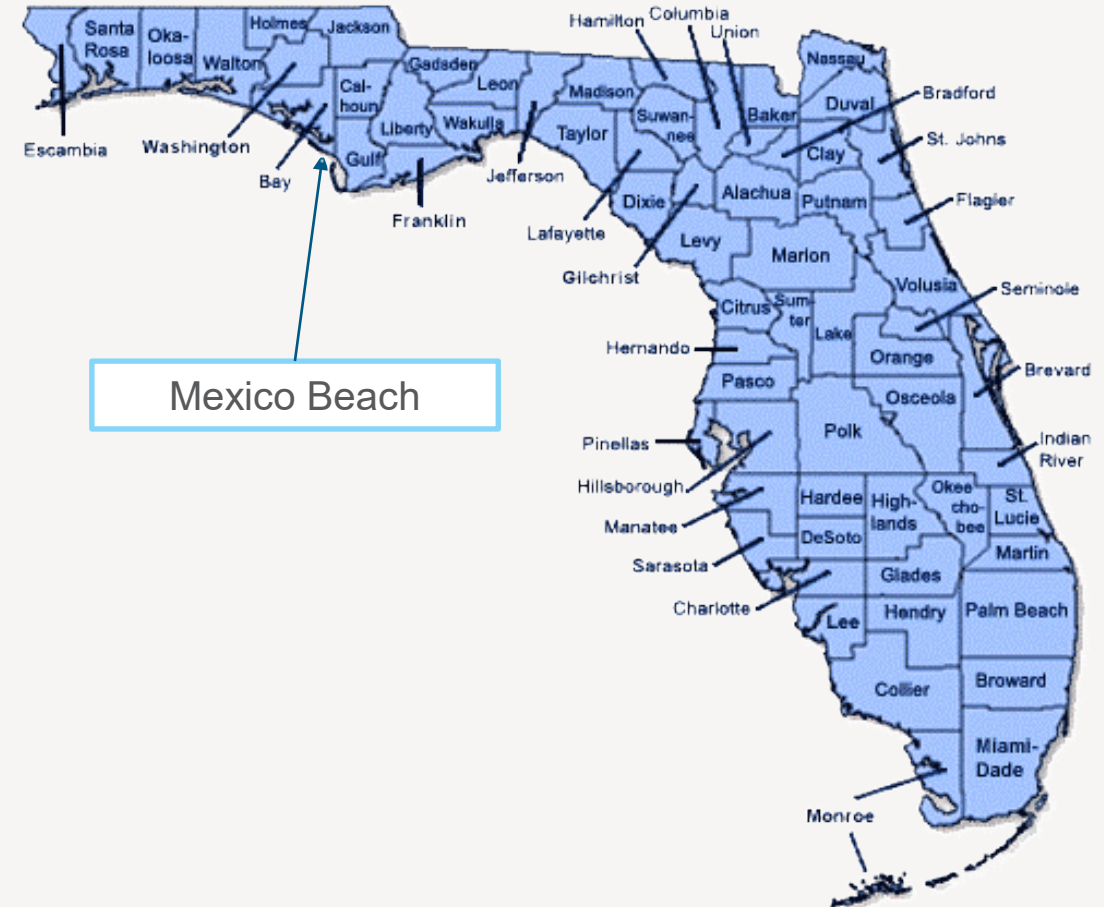
Source: Bay County Tourism Development Council



Pre-Storm Mexico Beach

What to know about Mexico Beach prior to Hurricane Michael

- › A community of right around 1,000 people
- › Known for beautiful beaches and family-friendly environment
- › Just down the road from Tyndall Air Force Base
- › A community apart from the rest of Bay County geographically
- › Just barely in the Central Time Zone
- › A popular location for fishing and boating activities



Source: Florida Office of Economic and Demographic Research



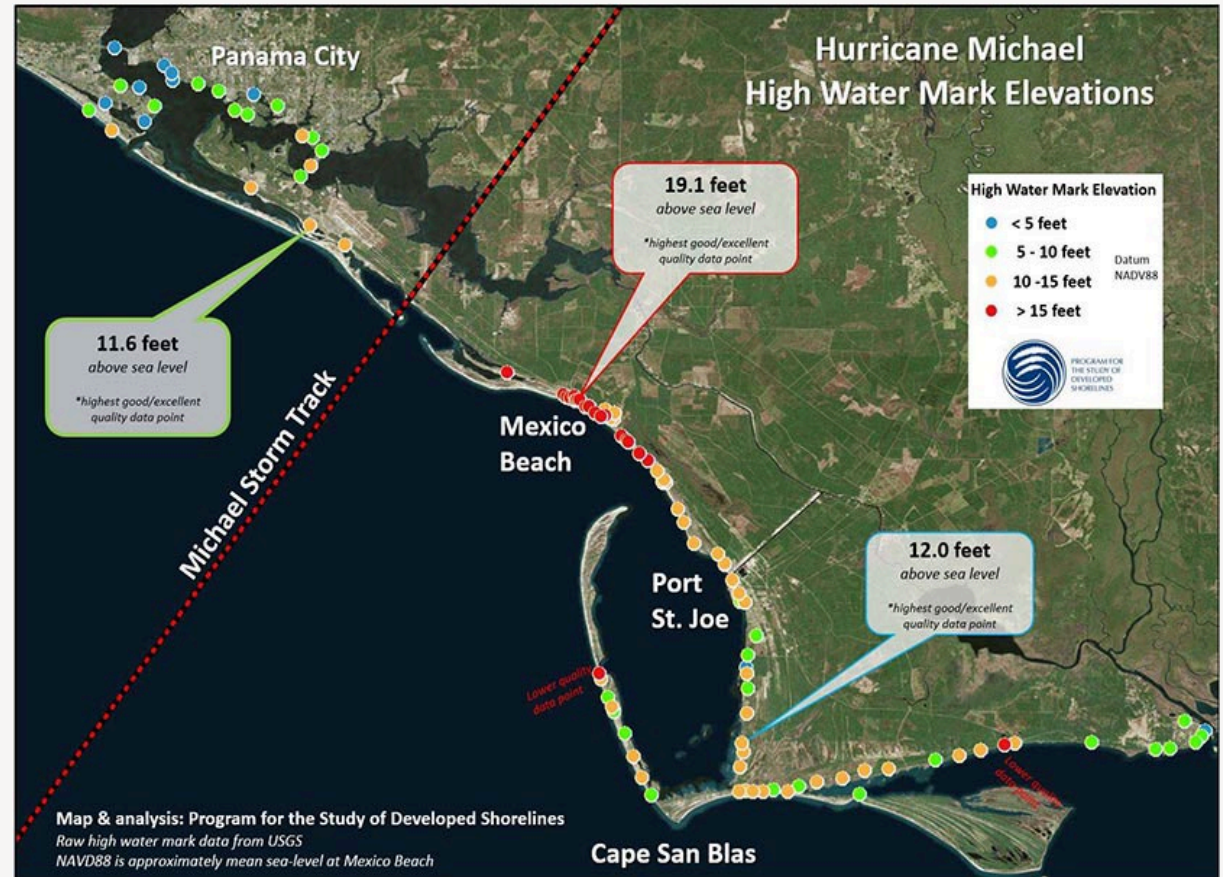
Hurricane Michael

October 10, 2018

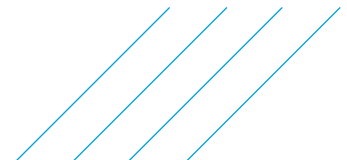
Making Landfall as a Category 5 Hurricane



Source: NOAA



Source: Western Carolina University's Program for the Study of Developed Shorelines



The Headlines

11:19 a.m. ET, October 11, 2018

Mexico Beach "is gone" after taking Michael's direct hit

From CNN's Gregory Wallace



SOUTH FLORIDA
SunSentinel

Hurricane Michael wipes out Mexico Beach, Florida, in 'apocalyptic' assault

TIME

U.S. • WEATHER

20 People Found Safe in Town Where Hurricane Michael Made Landfall as Aerial Footage Shows 'Unimaginable Destruction'

People

Helicopter Footage Shows Devastating Damage to Florida's Mexico Beach from Hurricane Michael

Hurricane leaves Florida's Mexico Beach in shreds



Firefighter Austin Schlarb performs a door to door search in the aftermath of Hurricane Michael in Mexico Beach, Fla., Thursday, Oct. 11, 2018. (AP Photo/Gerald Herbert)

The New York Times

Among the Ruins of Mexico Beach Stands One House, Built 'for the Big One'

f i t e b 720



Devastation Across the City

- › Complete destruction of many homes
- › Infrastructure throughout the City was incapacitated
- › Utilities were not available (Sewer, Water, Power)
- › Many key landmarks were destroyed
- › Storm debris covered nearly every part of the City

Source: Bay County Tourist Development Council



Source: Bay County Tourist Development Council

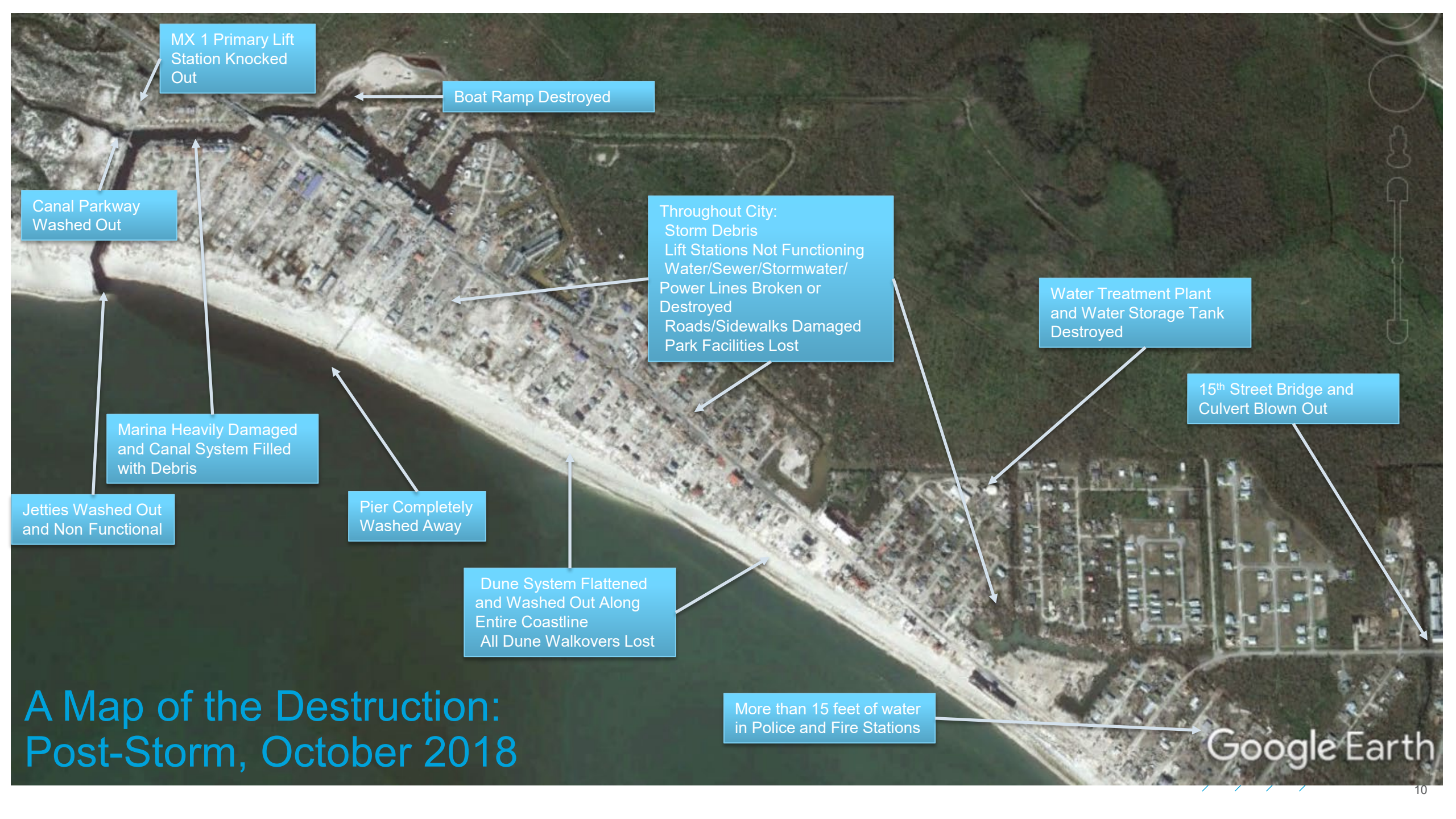


Source: Scott Olson, Getty Images



Pre-Storm, October 2015

Google Earth



MX 1 Primary Lift Station Knocked Out

Boat Ramp Destroyed

Canal Parkway Washed Out

Throughout City:
Storm Debris
Lift Stations Not Functioning
Water/Sewer/Stormwater/
Power Lines Broken or Destroyed
Roads/Sidewalks Damaged
Park Facilities Lost

Water Treatment Plant and Water Storage Tank Destroyed

15th Street Bridge and Culvert Blown Out

Marina Heavily Damaged and Canal System Filled with Debris

Jetties Washed Out and Non Functional

Pier Completely Washed Away

Dune System Flattened and Washed Out Along Entire Coastline
All Dune Walkovers Lost

More than 15 feet of water in Police and Fire Stations

A Map of the Destruction: Post-Storm, October 2018

The Recovery Effort

Ground Zero, Day 1 And Beyond

Medium-Term Recovery: Infrastructure Rebuild

- › **Resilient Redevelopment Plan**- funded by a FDEP RIG grant, this plan helped chart a path for the City in terms of rebuilding infrastructure and became the basis for several grants that the city was awarded later through HMGP, CDBG-DR
- › Water Facilities- New water storage and lines
- › Wastewater and Lift Stations- New pipes, pumps, **elevated control panels**
- › Stormwater- Leveraged State Revolving Fund and applied for HMGP grant
- › Bridges- *Success: Canal Parkway Bridge*. We worked with FEMA to turn what was essentially just a pipe under the road into a **resilient bridge with protected utilities through the 406 mitigation program**



Source: Atkins North America

Resilience Efforts

City of Mexico Beach Resilient Redevelopment Plan



June 30, 2020

*** PUBLIC REVIEW DRAFT ***

Florida Department of Environmental Protection
Florida Resilient Coastlines Program

Please note: In accordance with the Privacy Act, any property-level data has been redacted prior to being made available for public review.



From Left to Right:

- 1) Mexico Beach Resilient Redevelopment Plan
- 2) 8th Street Utilities Protection
- 3) MX-1 Lift Station Elevation



Source: Atkins North America



Canal Parkway Bridge: Example of 406 Mitigation Implementation



Source: Atkins North America



Source: AC Disaster Consulting

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Source: Google Earth

Long-Term Recovery: City Facilities and Economic Focus

- › These were the bear projects! But they were also the marquee, flagships projects that would really facilitate the City's recovery and ensure its economic future
- › **Police and Fire Stations-** provide critical emergency services
- › **Civic Center-** provide a home for city administrative functions and other civic events, as well as serve as wind shelter/safe room
- › **Marina/Boat Ramp-** re-establish boating/fishing capabilities
- › **Jetties-** prevent sedimentation in canal system (the lifeblood of the City)
- › **Pier-** promote land-based fishing and economic recovery by drawing visitors
- › **Parks-** provide gathering spaces for social events and recreation

- › Funded partly through FEMA PA dollars, but heavily supplemented by other funding sources such as HMGP, CDBG-DR, NFWF, NRCS



Completed Projects and Projects In Progress

Key Resilience Features

- Located in V-Zone, so now it is Elevated
- Piles Used to Prevent Surge Damage

Infrastructure Projects



Source: Atkins North America

Source: The News Herald, Patti Blake

Sunset Park After the Storm



Source: Atkins North America

Sunset Park Today



Completed Projects and Projects In Progress

Infrastructure Projects

Key Resilience Features

- Floodproofed and Elevated Pavilion
- Mobile Restroom
- Embankment Protection through Armoring



Source: The News Herald, Patti Blake

Marina Just After the Storm



Source: The News Herald, Patti Blake

Marina Today



Boat Ramp Pavilion



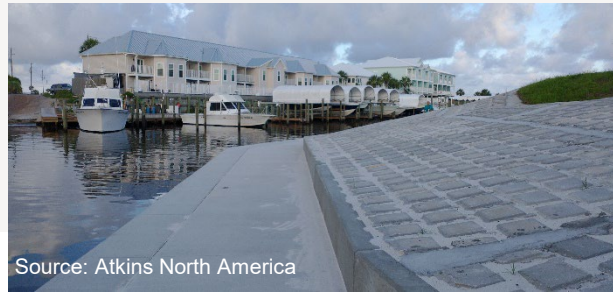
Source: Atkins North America



Source: Atkins North America



Marina Armoring



Completed Projects and Projects In Progress

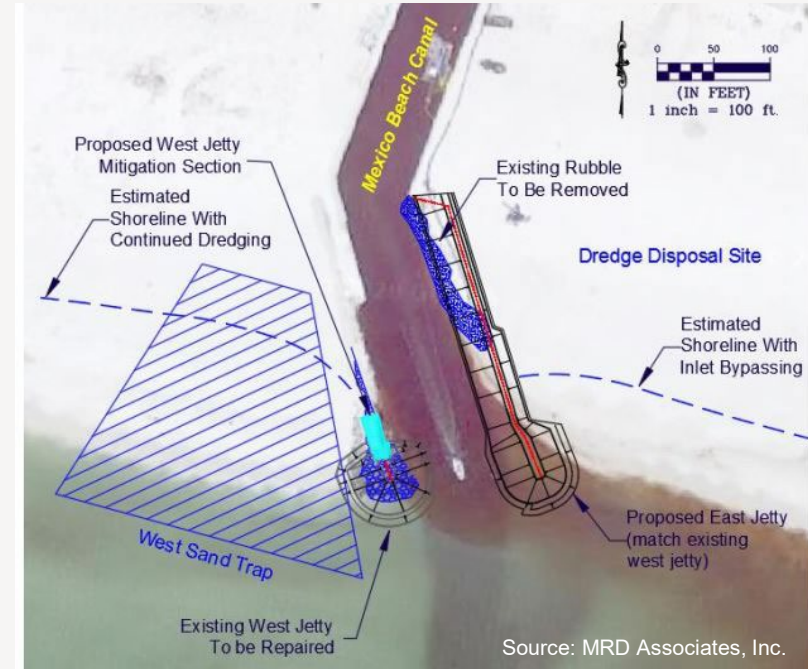
Key Resilience Features

- Extension to Stabilize and Protect Shoreline
- Sand-Tightening to Result in 100% Sand Bypassing (reduce future dredging)

Infrastructure Projects



Jetties Just After the Storm



Jetties Conceptual Design



Completed Projects and Projects In Progress

- Key Resilience Features
- Concrete Piles in Place of Wood
 - 26 feet deck elevation (previously 18 feet)

Infrastructure Projects



Source: The News Herald, Patti Blake

Pier Just After the Storm



Source: Baskerville Donovan, Inc.

Pier Conceptual Design



Completed Projects and Projects In Progress

Key Resilience Features

- New Location Out of Floodplain
- Hardened Police/Fire
- Community Safe Room for First Responders

Infrastructure Projects



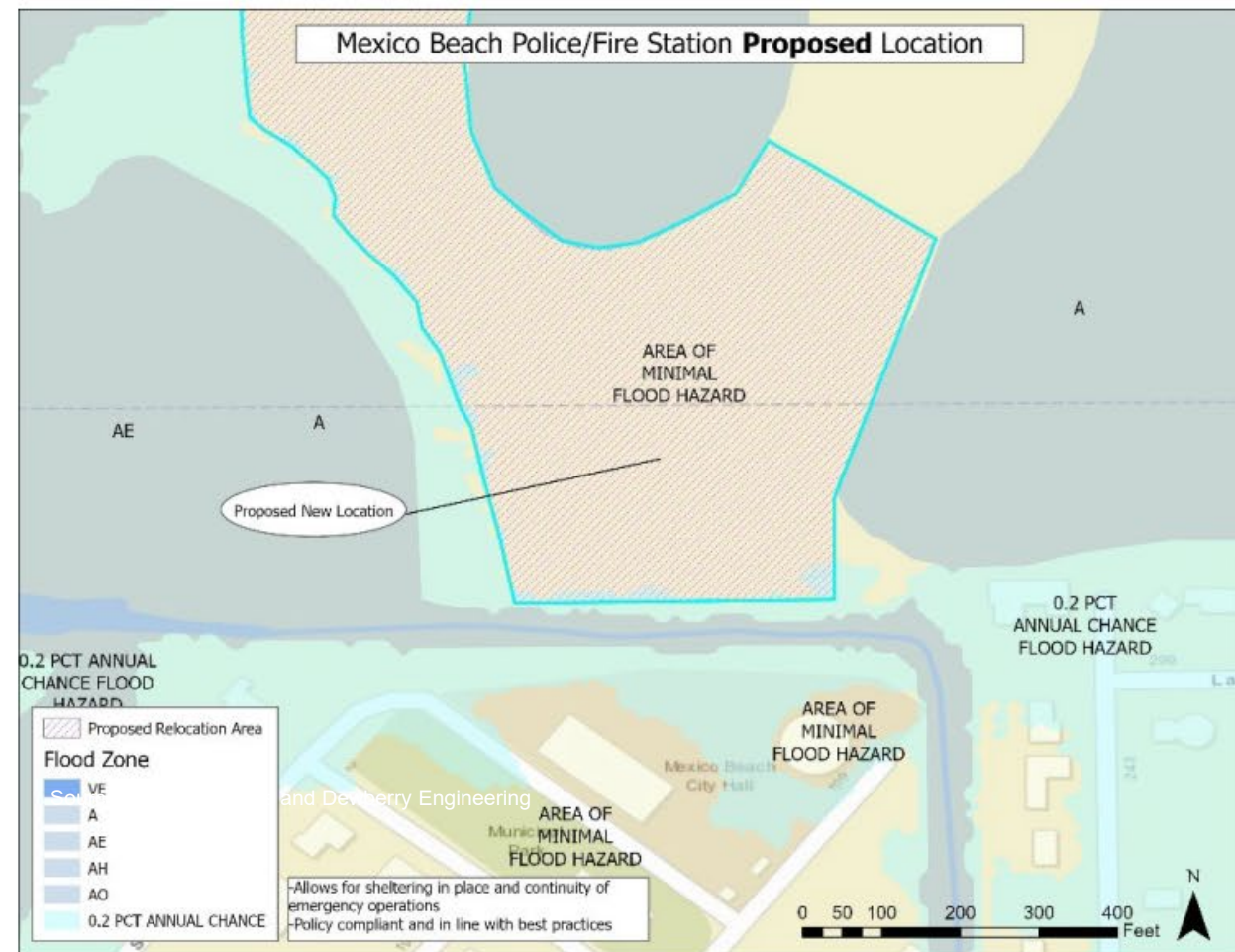
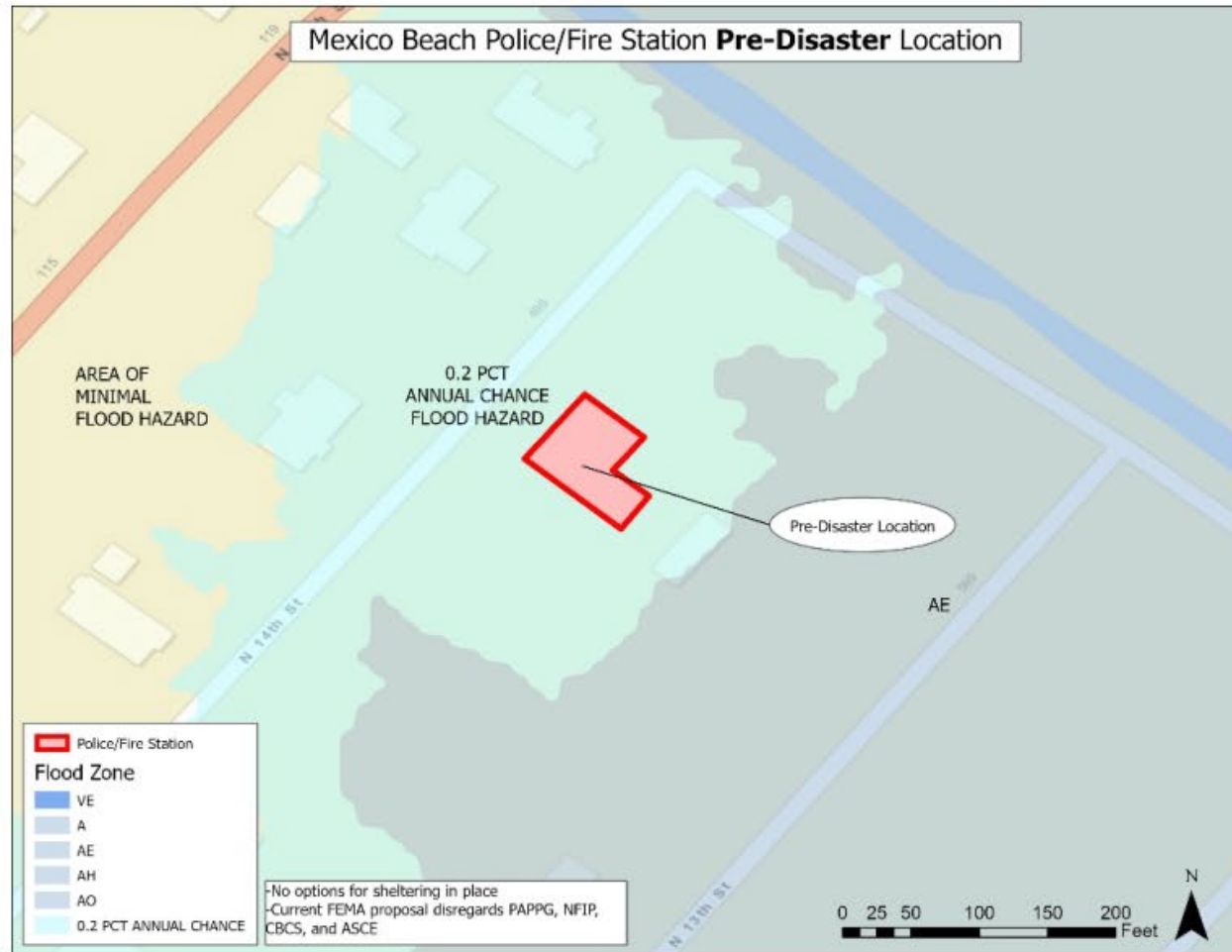
Fire Station Just After the Storm



Municipal Complex Conceptual Design



Completed Projects and Projects In Progress



Major Challenges

- › **Coming to terms with FEMA on project scope and cost, particularly in the 428 process:**
 - › + Mexico Beach “on an island” effect drastically increased prices for labor/materials because of distance from major workforce centers
 - › + Lots of available construction work after Hurricane Michael
 - › + Covid-19 materials shortages
 - › + Hurricane Sally further increased amount of available construction work
 - › + FEMA’s reliance on RS Means for costing



Source: Atkins North America



Major Challenges

- › **Managing cashflow in a small city with a budget of ~\$4M:** Needing to spend money to build back, but then needing to pay contractors in timely fashion, while trying to get projects obligated to be eligible to receive reimbursements.
- › **Limited City staff with little experience in disaster recovery or grants management:** Setting up systems and workflows to track work being performed, document project implementation, and make payments was a tall task.
- › **Bringing numerous different funding streams together to complete a project:** Necessary in many cases, but a challenge to track and document.



MX 1 Repaired and Elevated

Boat Ramp New Elevated Pavilion and Parking Area

Canal Parkway Repaired Into Resilient Bridge

Throughout City:
More than \$50M in Storm Debris Removed
Lift Stations and Wastewater Restored and Stopper Lids on All Manholes
Roads/Sidewalks Repaired and Extended
Improved Park Facility Plans Under Development

Water Supply System Restored

15th Street Bridge and Culvert Replaced

Marina Storm Hardened with Armor Flex Armoring

Jetties to be Extended and Improved Through 406 Mitigation

Pier Will Be Re Built with Concrete Piles at Higher Elevation

Berm Providing Temporary Protection and Opportunity for New Vegetation;
New Dune Walkovers Installed

Police and Fire Stations to be Integrated Into Municipal Complex at New, Safer Location

A Map of the Recovery: Where We Stand Today

Google Earth

Looking Forward

- › Receive obligation of remaining 3 FEMA PA projects (out of 50+ total)
- › Implement marquee flagship projects using multiple funding streams (Pier, Jetties, Municipal Complex)
- › Improve resiliency and economy of City by leveraging HMGP and State/Non-Profit grants which are being awarded and designed
 - › Stormwater improvements
 - › Boat Ramp Expansion
 - › Municipal Complex hardening
- › State is covering entire local match on Public Assistance funds for the City through waiver program which is huge for a City the size of Mexico Beach





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