

TAYLOR ENGINEERING, INC.

Jupiter Inlet Navigation Feasibility



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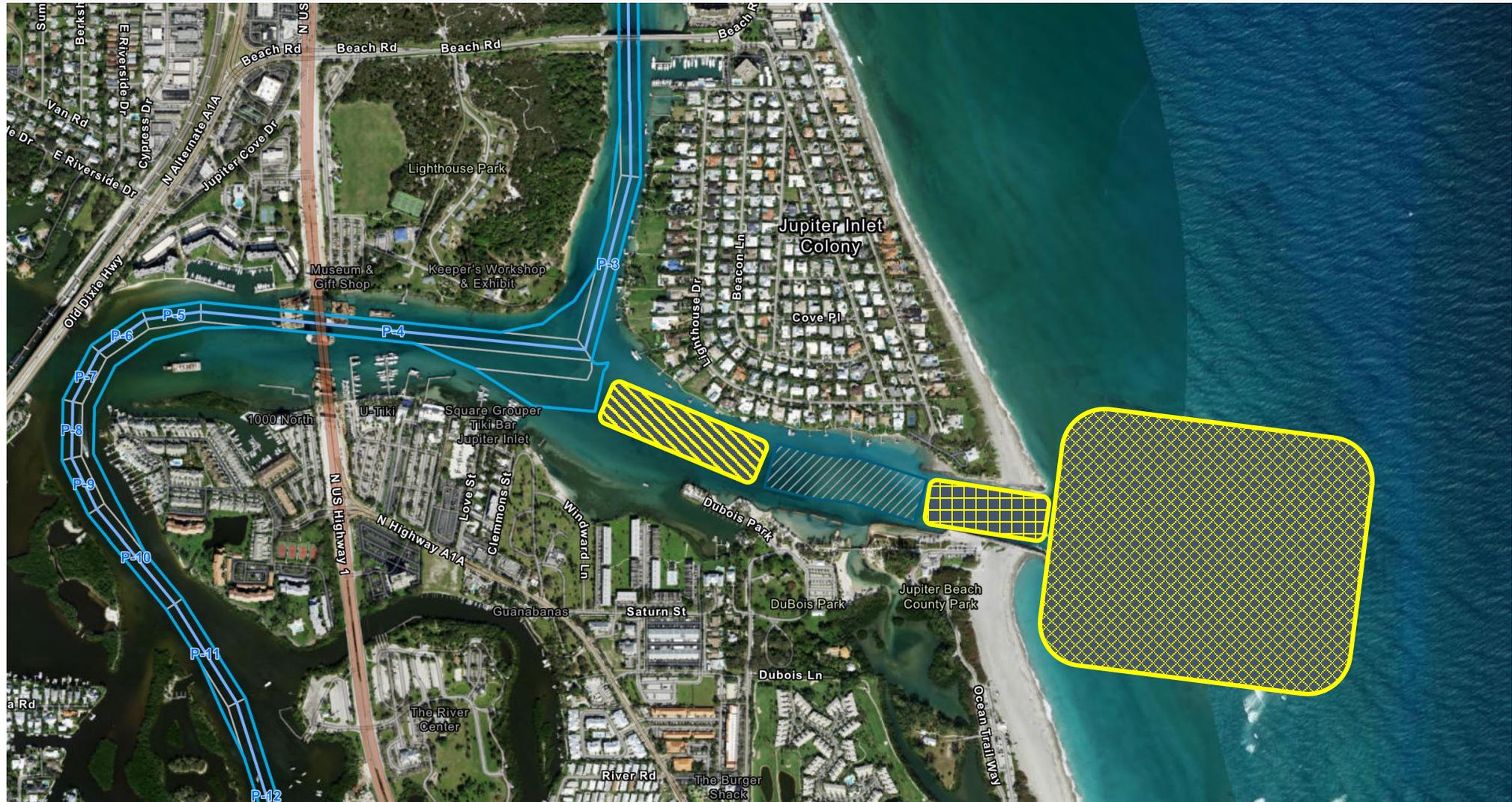
Overview

- Goals
- Location
- Methodologies
- Challenges
 - Physical
 - Operational
 - Financial
 - Environmental/Regulatory

Goals

- New full and objective analysis of the feasibility of establishing and maintaining a marked navigation channel at Jupiter Inlet.
- Create a safe, marked, and financially viable navigation channel from the federal IWW channel through Jupiter Inlet to deep water
- *Definitions to consider*
 - *under what conditions*
 - *“deep water”*

Location



Methodologies

- Sand transfer plant
- Structural modifications
- Dredging

Physical

- Is there a consistent, existing path through the ebb shoal that meets target depth?
- Highly dynamic coastal environment
- Sea state
- Geotechnical conditions

Operational

- Channel configuration
- Disposal options
 - Nearshore placement
 - Offshore
 - Inshore / Upland placement
 - South beach placement (Jupiter/Carlin SPP template)
 - North beach placement (backpassing)
 - Counter to IMP
 - Hardbottom
- Dredging ebb shoal requires different equipment
 - More robust equipment due to wave conditions
 - American Bureau of Shipping certification (ABS)
- Pipeline route

Financial

- Develop procurement strategy
- Budget estimates
- JID operational budget
- State grants
- Federal participation

Regulatory – State of Florida

- Will require new permits from FDEP & USACE
- State of Florida permitting
 - FDEP
 - Joint Coastal Permit
 - Division of State Lands easement
 - FWC coordination
 - SHPO coordination

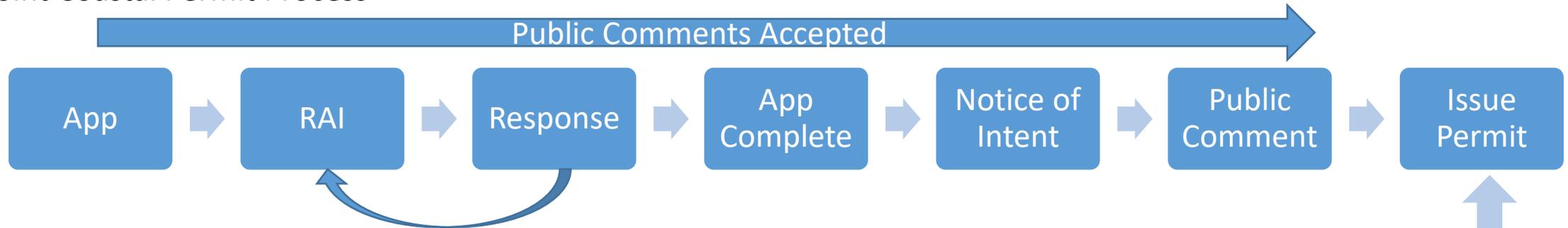
Regulatory – State of Florida

ISSUES

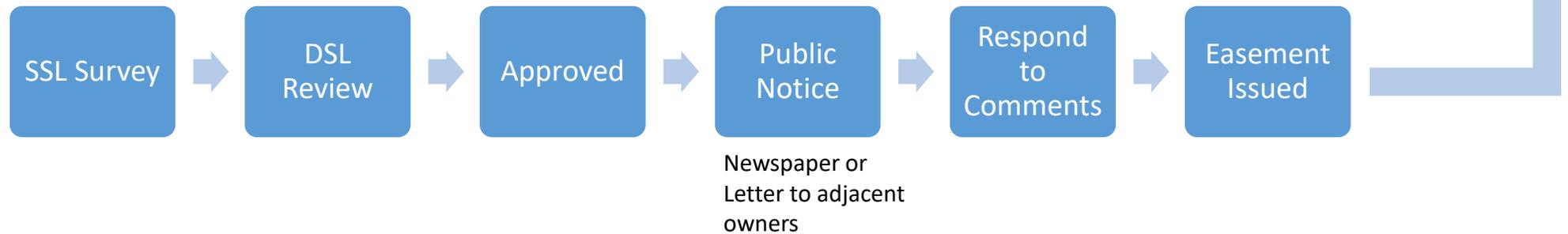
- Alternatives Analysis
 - Avoid – Minimize – Mitigate
 - No action, different location, project
 - Least environmentally damaging practical alternative
- Sea Turtle nesting season May 1 to Oct 31 – beach “closed” annually
 - Beach placement allowed Nov 1 to April 30 (6 months)
- Hardbottom impacts must be avoided – pipeline route
 - Updated hardbottom survey
- Nesting shorebirds must be protected (operational)
- SHPO cultural resources survey
 - Shipwrecks
- Seagrass
- State lands authorization

Regulatory – State of Florida

Joint Coastal Permit Process



State Lands Process



Regulatory – Federal

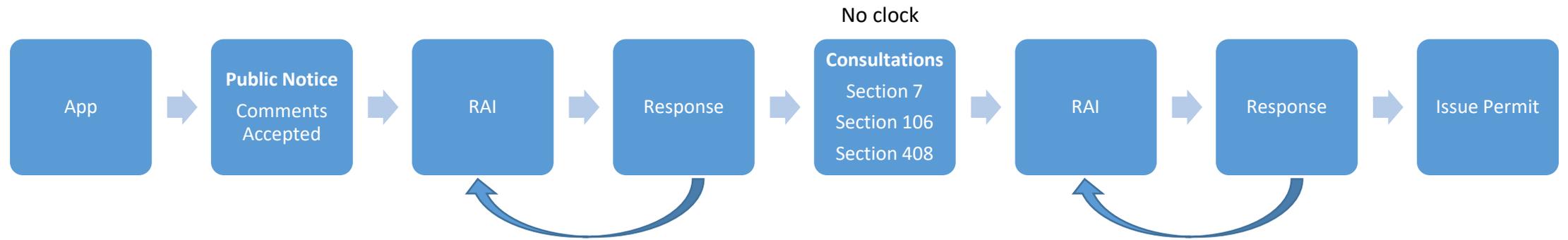
- US Army Corps of Engineers permitting
 - US Army Corps of Engineers – Jacksonville District
 - Regional office – Palm Beach Gardens or Cocoa
 - US Fish and Wildlife Service (FWS)
 - National Marine Fisheries Service (NMFS)
 - Environmental Protection Agency
- Coast Guard

Regulatory – Federal/USACE

ISSUES

- Endangered Species Protection – Section 7 Consultation
 - Sea Turtle nesting season May 1 to Oct 31 – beach closed annually
 - Essential Fish Habitat
 - Corals
 - Queen Conch
- Hardbottom impacts must be avoided – pipeline route
 - Updated hardbottom survey
- Nesting shorebirds must be protected
- Cultural resources survey
 - Section 106 Consultation - USACE Archeologist coordinates w/SHPO & applicant
 - Shipwrecks
- Seagrass
- Salinity
- SARBO – South Atlantic Regional Biological Opinion – very long shot
- SECTION 408 Review
 - Intracoastal Waterway (IWW)
 - Palm Beach County Shore Protection Project, Jupiter Carlin Segment (SPP)
 - Central & South Florida Project (C&SF)

Regulatory – Federal/USACE



Regulatory – Local/WMD Concerns

- Salinity intrusion
- Adjacent shoreline impacts
- Seagrass impacts

Pre-permit Activities

- Hardbottom mapping
- Seagrass mapping
- Geotechnical exploration
- Cultural resource survey – mag / subbottom / etc.
- Channel design / project configuration
- Met-ocean data analysis
- Hydrodynamic/salinity modeling
- Shoreline response modeling
- Pre-application meeting w/agencies
- Public relations – charettes, public meetings