UPDATE ON THE TAMPA BAY CRITICAL COASTAL HABITAT ASSESSMENT

TAC/ABM
October 22, 2015

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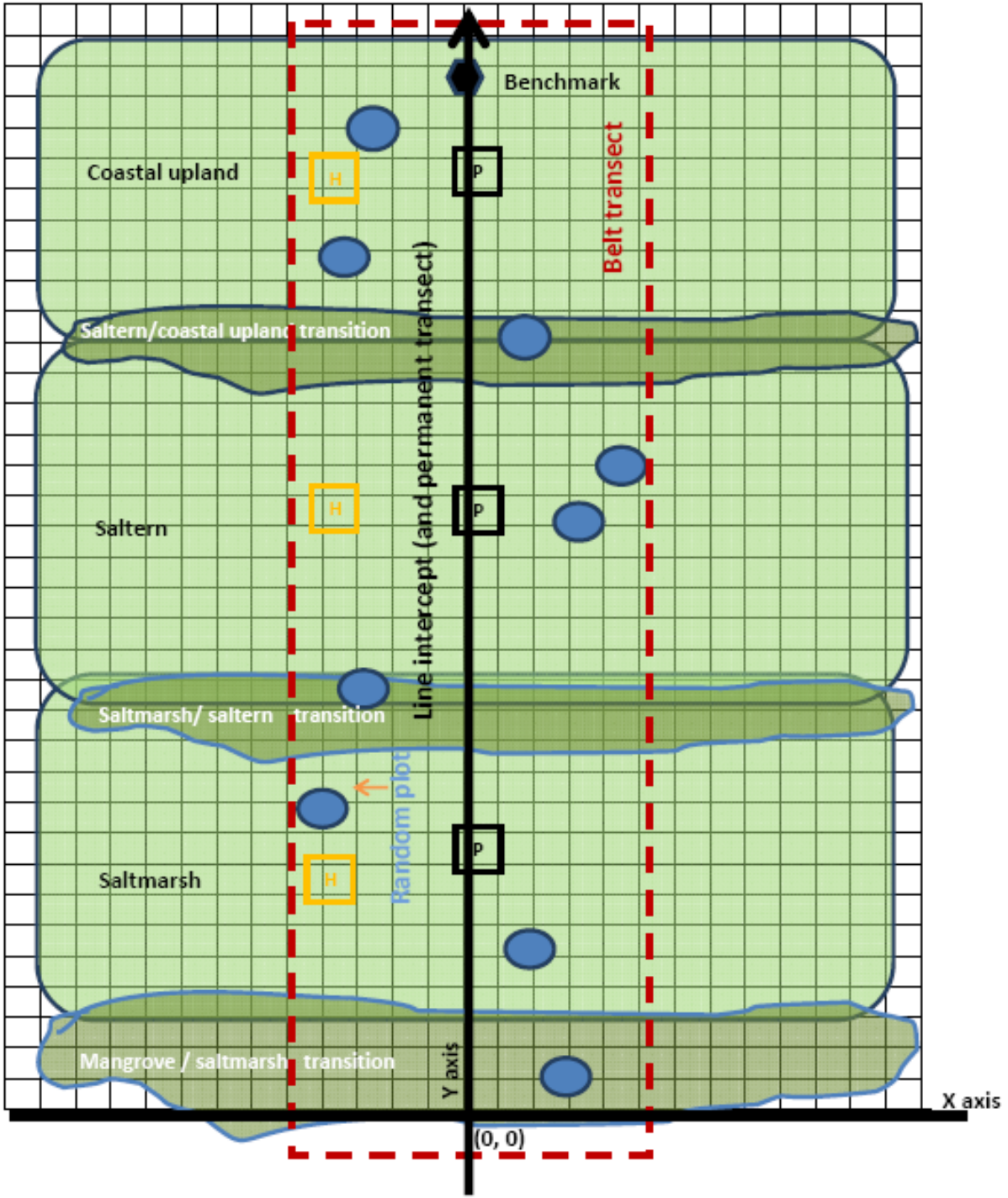
Tampa Bay Estuary Program

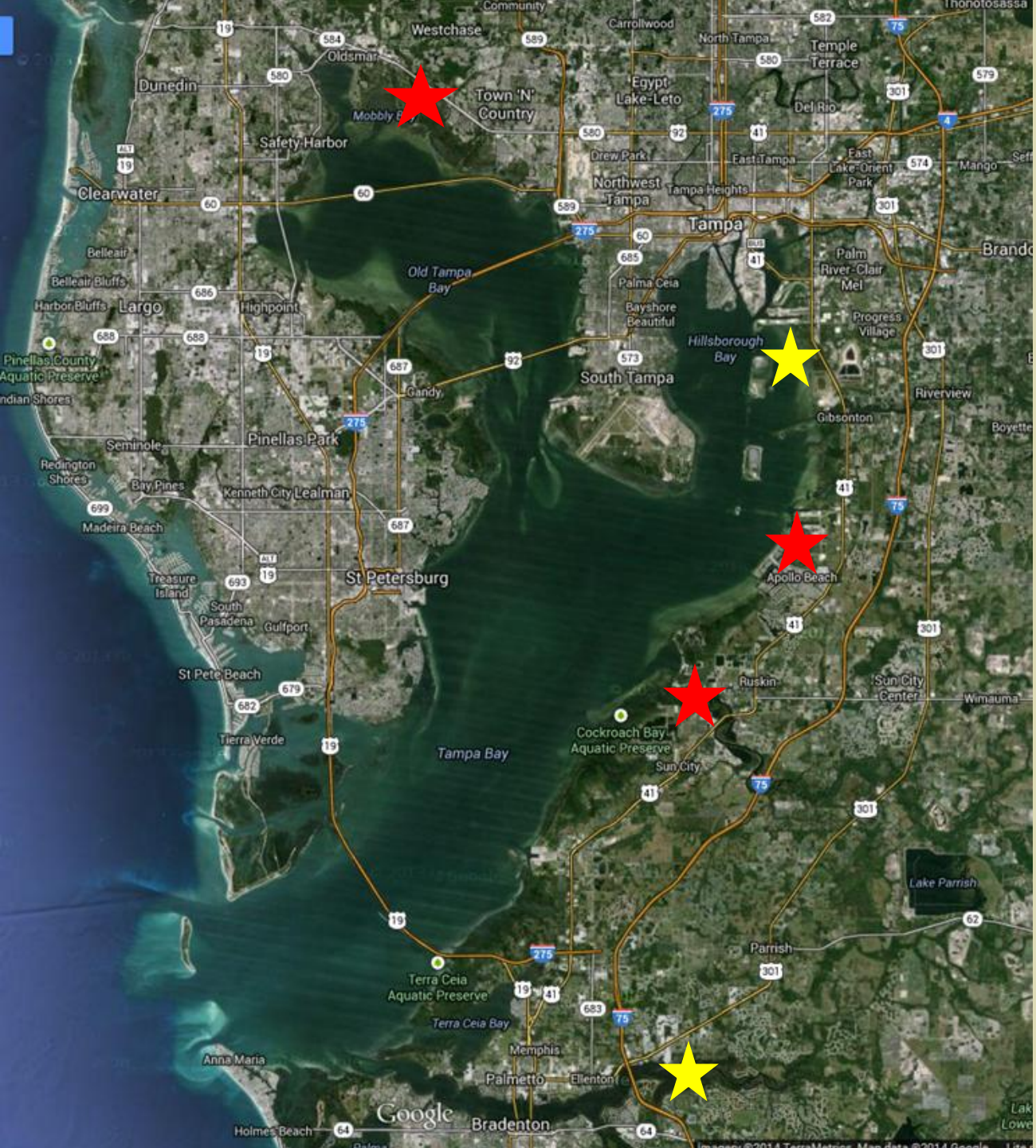
PURPOSE OF PROJECT

- ***Develop a long term monitoring program to assess the status, trends, and ecological function of the mosaic of critical coastal habitats to:***
  - *Detect changes due to natural, and indirect anthropogenic impacts including sea level rise and climate change, and*
  - *Improve future management of habitats*

VEGETATION SAMPLING APPROACH

- Natural emergent tidal wetland zonation
  - Coastal upland
  - Salt barren/high marsh
  - Low marsh
  - Mangrove
  - Open water
- Minimal historical disturbance/alteration
  - No mosquito ditching or dredge/fill
- Protected from future impacts
  - Located in State/County Parks or conservation areas

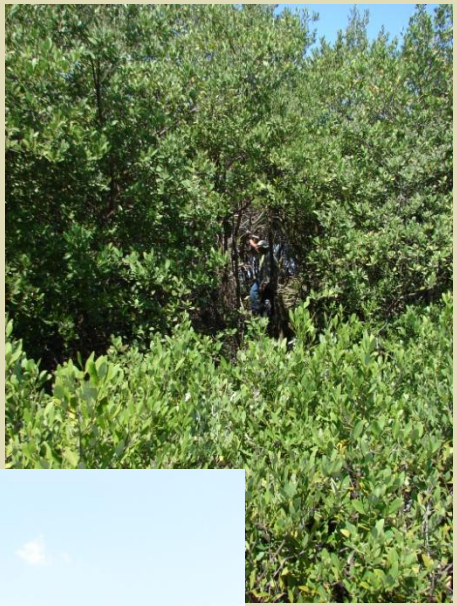




TAMPA BAY SITES

- Old Tampa Bay
  - Upper Tampa Bay Park
- Middle Tampa Bay
  - Archie Creek
  - TECO Big Bend
- Lower Tampa Bay
  - Little Manatee River
  - Manatee River

UPPER TAMPA BAY PARK



TECO/BIG BEND

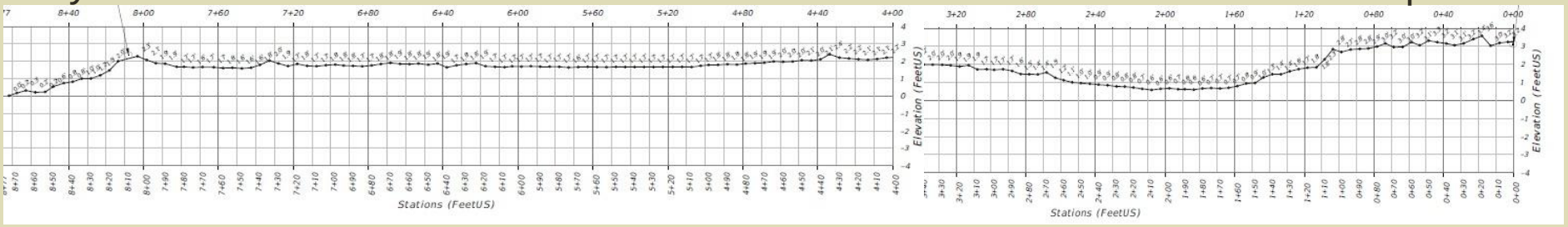
LITTLE MANATEE RIVER

SITE ELEVATION PROFILES

- Similar elevation profiles across sites (bay segments)
- Small differences in elevation across site
- Ecotones follow minor changes in elevation (0.1 ft)

Bay

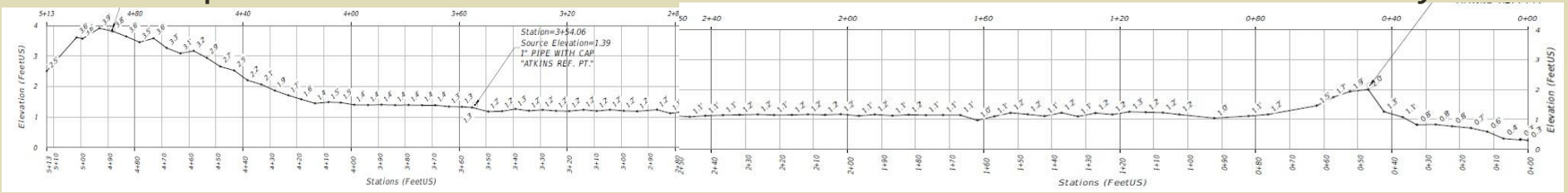
Coastal Upland



Upper Tampa Bay Park (2.7 ft. elevation change across site)

Coastal Upland

Bay

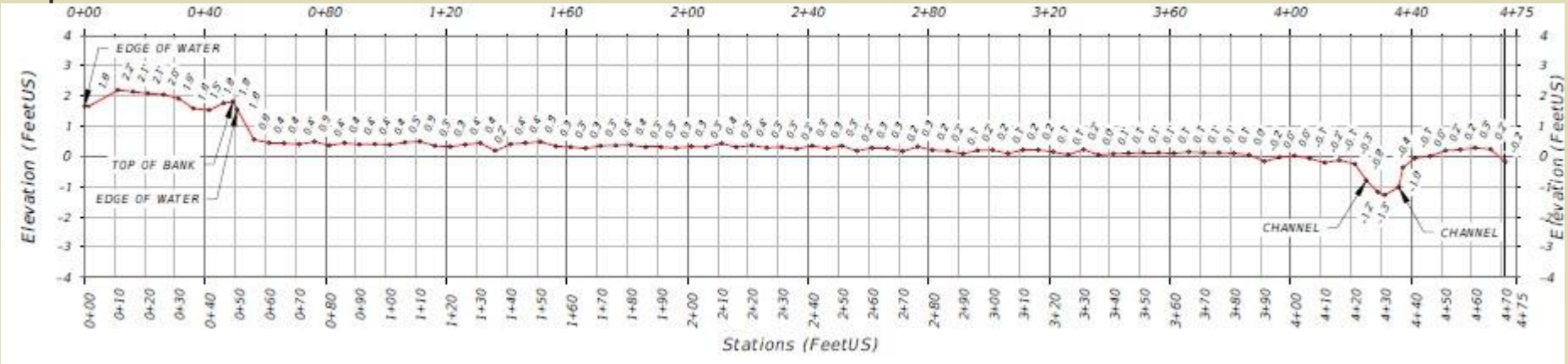


TECO Site (3.6 ft. elevation change across site)

SITE ELEVATION PROFILES

Upland

LMR



Little Manatee River Site (3.5 ft. elevation change across site)

LOCAL HYDROLOGY IS ALSO IMPORTANT

- Localized freshwater inflows can alter elevation-driven habitat zonation

- The distribution and extent of oligohaline *Juncus roemerianus* salt marshes in Tampa Bay are determined and maintained by freshwater inflows from:
  - major tributary rivers
  - minor localized creeks and pond seepage

CHANGES IN HABITAT ZONES

September 2014

September 2015

CHANGES IN HABITAT ZONES

Mangrove encroachment into high marsh and saltern

HABITAT MIGRATION IS HAPPENING NOW

- There is clear evidence that Tampa Bay tidal habitats are actively migrating and evolving:
  - Landward expansion of mangroves into salt marshes
  - Landward expansion of salt marshes into salt barrens

- Oligohaline *Juncus roemerianus* salt marshes are potentially the most threatened critical habitat due to:
  - Sea level rise
  - Increasing surface water withdrawals
  - Urban development

EXPANSION OF PROGRAM

- TBEP/FWRI Project: EPA Wetland Development Grant!
  - Expand monitoring to 5 additional sites in Tampa Bay
  - Include “less pristine” sites
    - Hydrologic modifications
    - Restoration
    - Test whether these habitats react differently than more natural sites
    - Allow monitoring in western portions of Tampa Bay

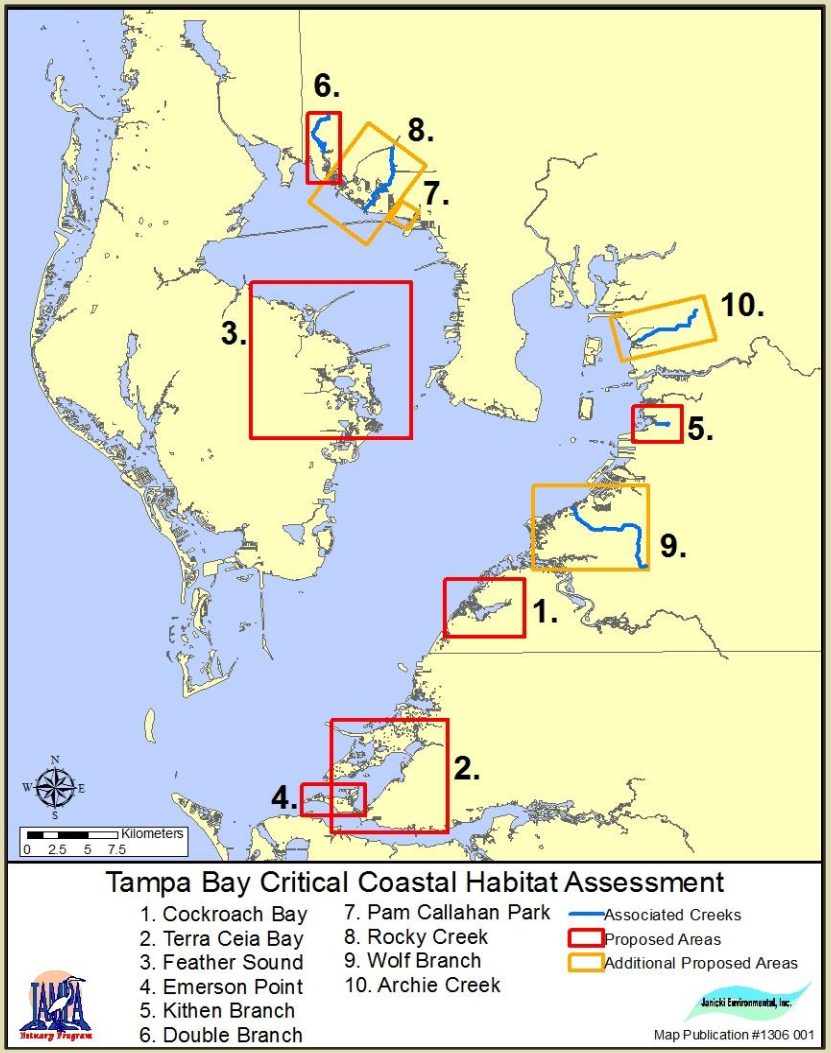
- Multi-media Training Manual
  - Photos, videos, and written manual
    - Will facilitate broader application
    - Expand to other regions in the state/ Gulf/nation/world/universe/galazy!

OTHER CONSIDERATIONS

- West side of Tampa Bay will have historic mosquito ditching or other impacts
- Sites may lack the full suite of critical coastal habitats: may be limited to 2-3
- Some sites may be good candidates but have land-access issues, e.g., Rattlesnake Key

AREAS OF INTEREST FOR BAY SEGMENT/ HABITAT ECOTONE SCALE

- Six permanent transects proposed
- One coastal transect in each major bay segment
  - Old Tampa Bay
  - Hillsborough Bay
  - Middle Tampa Bay
  - Lower Tampa Bay
- Two transects along tidal tributaries (likely candidates)
  - Double Branch Creek (Upper Tampa Bay Park)
  - Little Manatee River

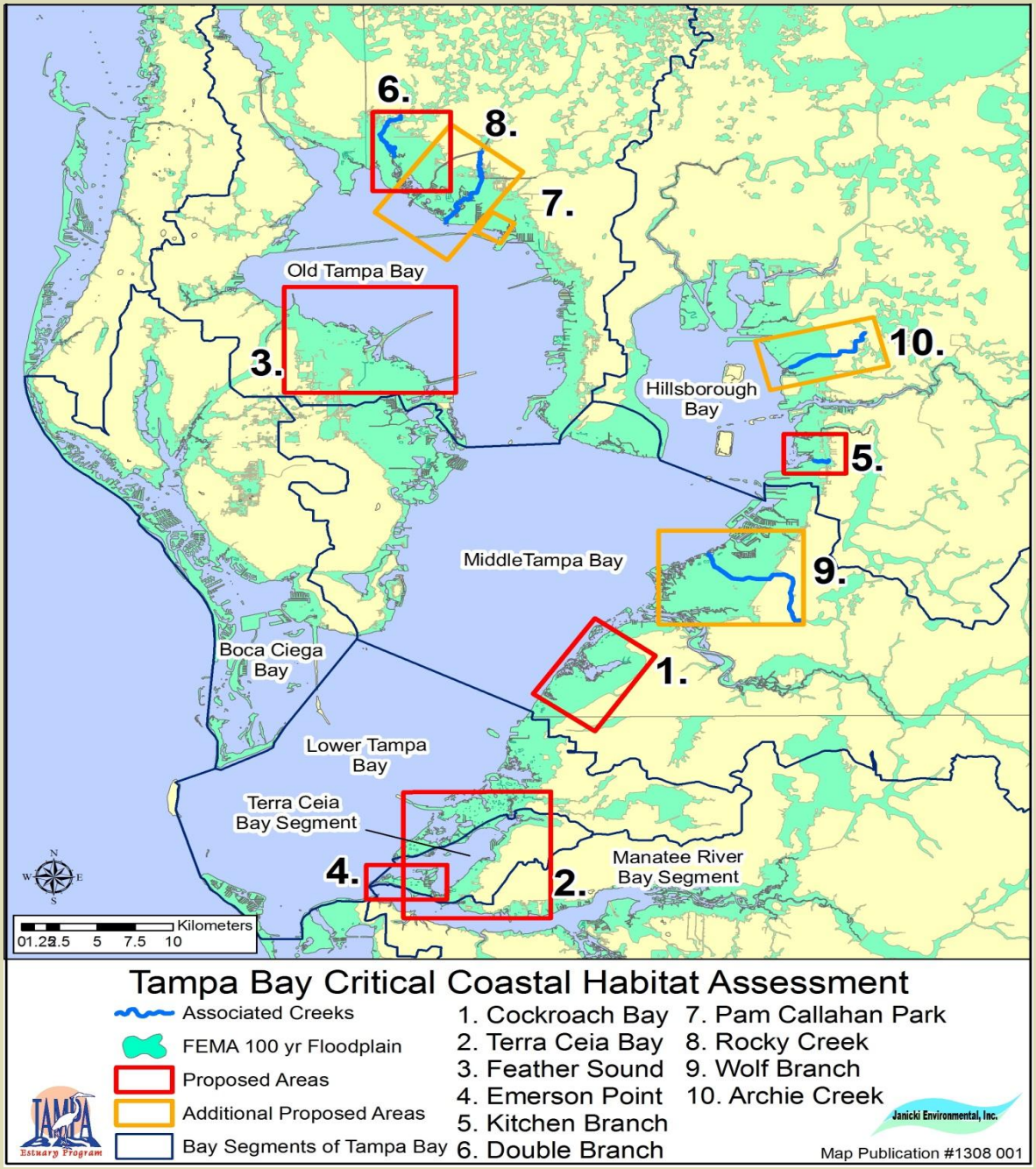


Six areas of interest selected for monitoring around Tampa Bay:

- Cockroach Bay
- Terra Ceia Bay
- Feather Sound
- Emerson Point
- Kitchen Branch
- Double Branch/Old Tampa Bay area

Other Potential Areas include:

- Pam Callahan Park
- Rocky Creek
- NW Wolf Branch
- Archie Creek




Cutty Bay Oldsmar
Weedon/Feather Sound
Clam Bayou
Fort DeSoto
Rattlesnake Key
Perico Bay
5 Google
S. Navy, NGA, GEBCO
Landsat
Google eart
Imagery Date: 4/9/2013 27° 46.676' N 82° 36.413' W elev -15 ft eye alt 56.59 mi

Cutty Bay Park, Oldsmar


Ruler
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Path
Pro
Measure the distance between two points on the ground
Map Length:
0.89
Kilometers
Ground Length:
0.89
Heading:
227.64 degrees
Mouse Navigation
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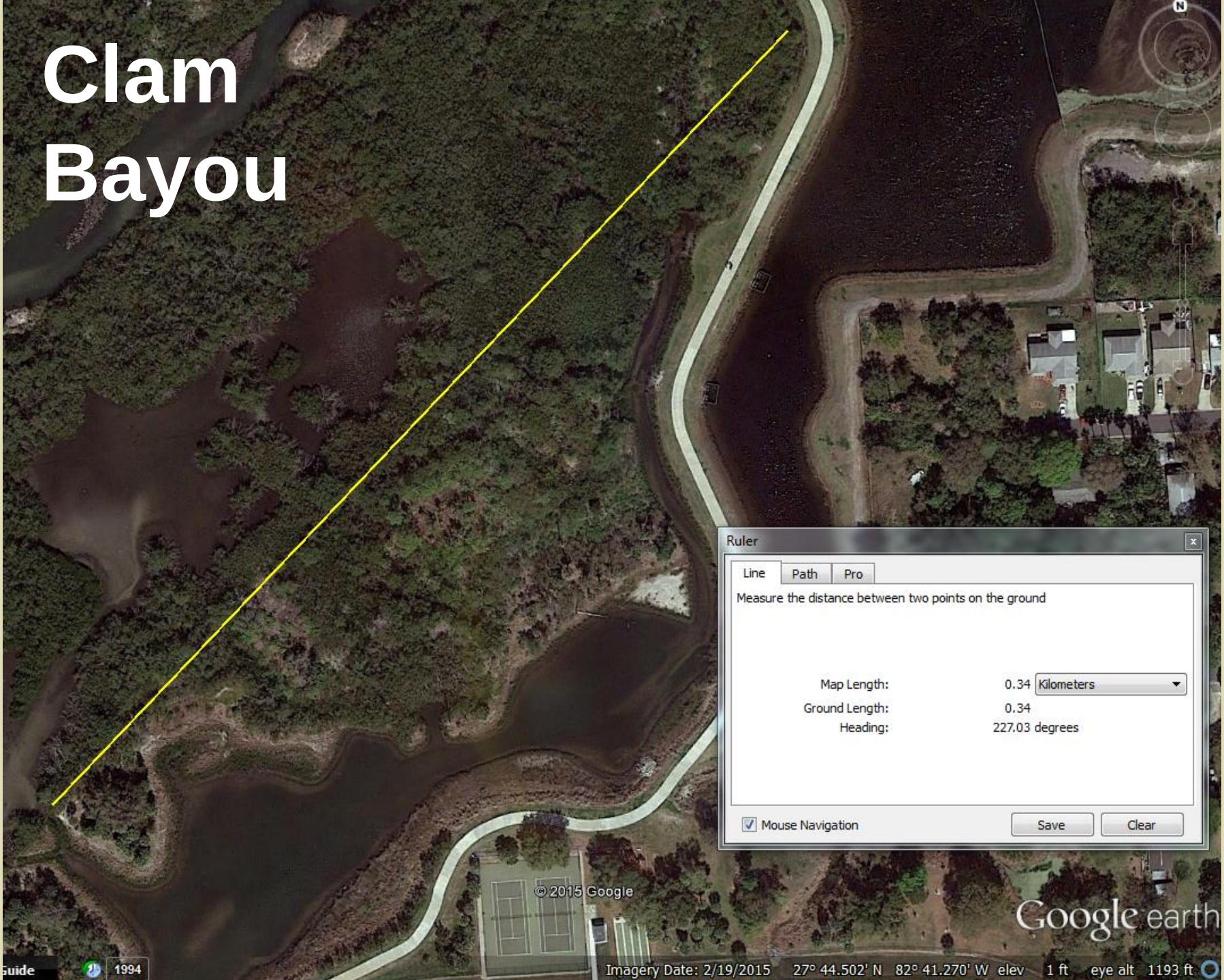
Clear
Weedon/Feather Sound
© 2015 Google
Google earth
Imagery Date: 2/19/2015 27° 52.549' N 82° 37.324' W elev 2 ft eye alt 3398 ft


Clam Bayou
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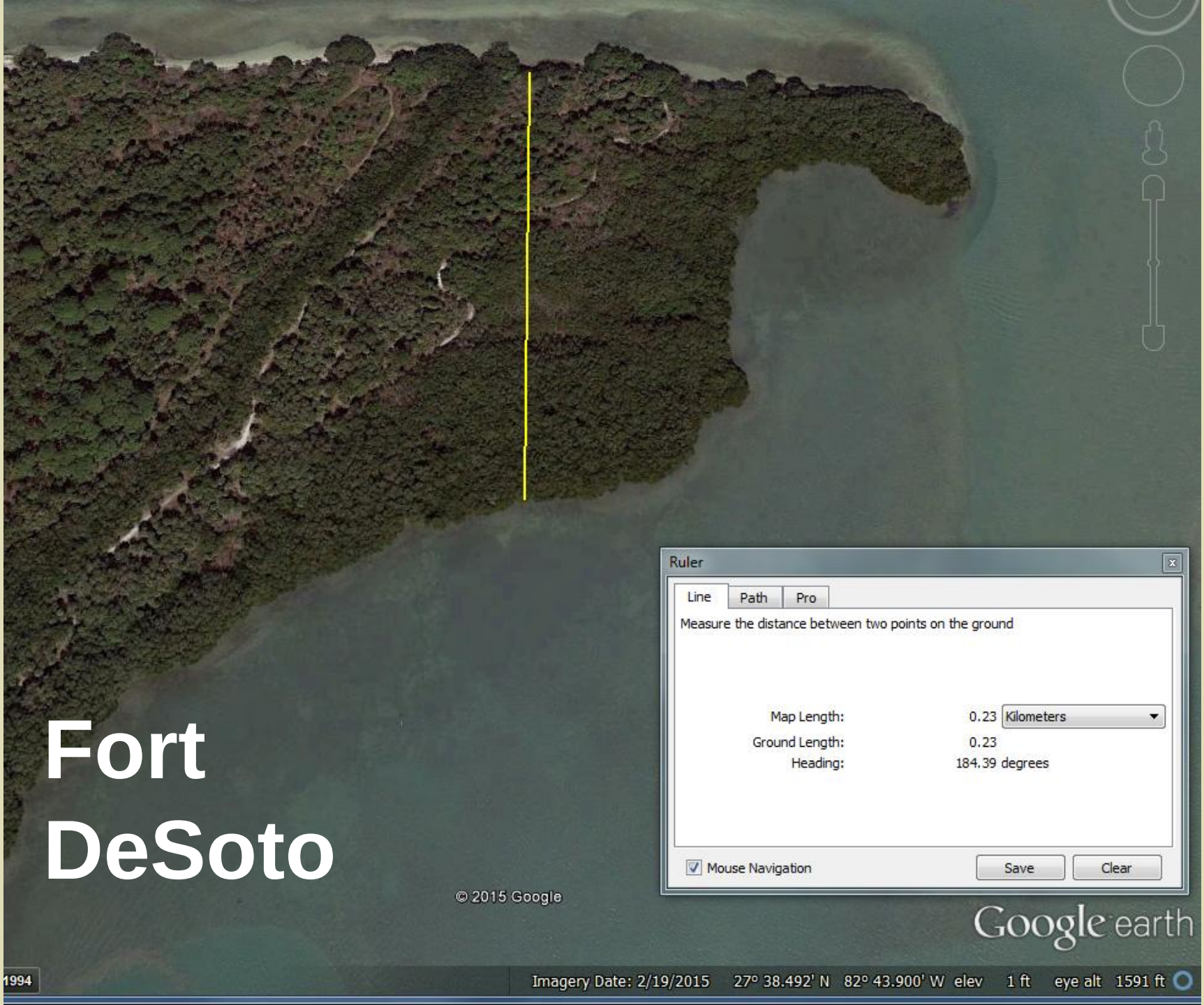
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Imagery Date: 2/19/2015
27° 38.492' N
82° 43.900' W
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eye alt
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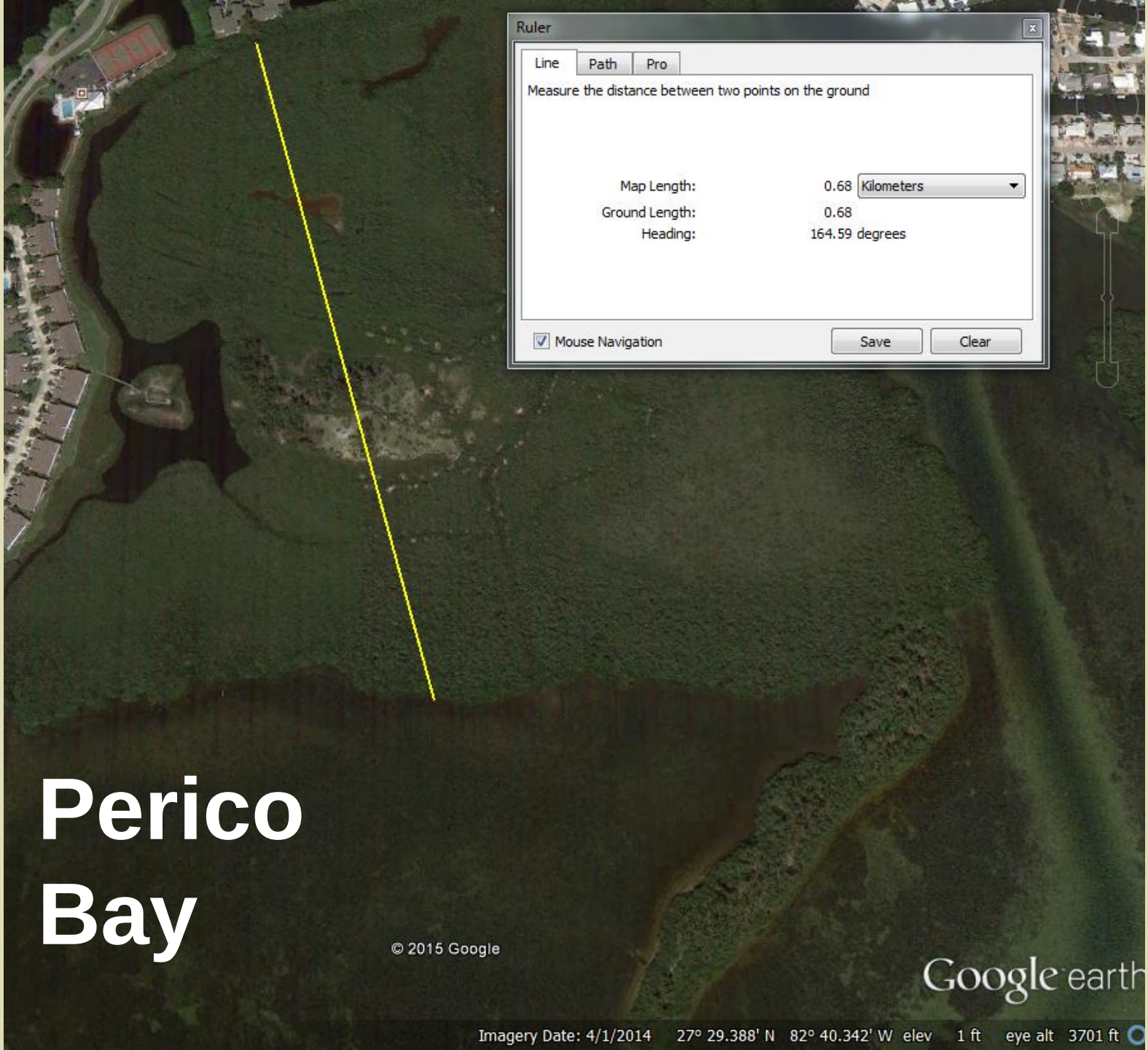
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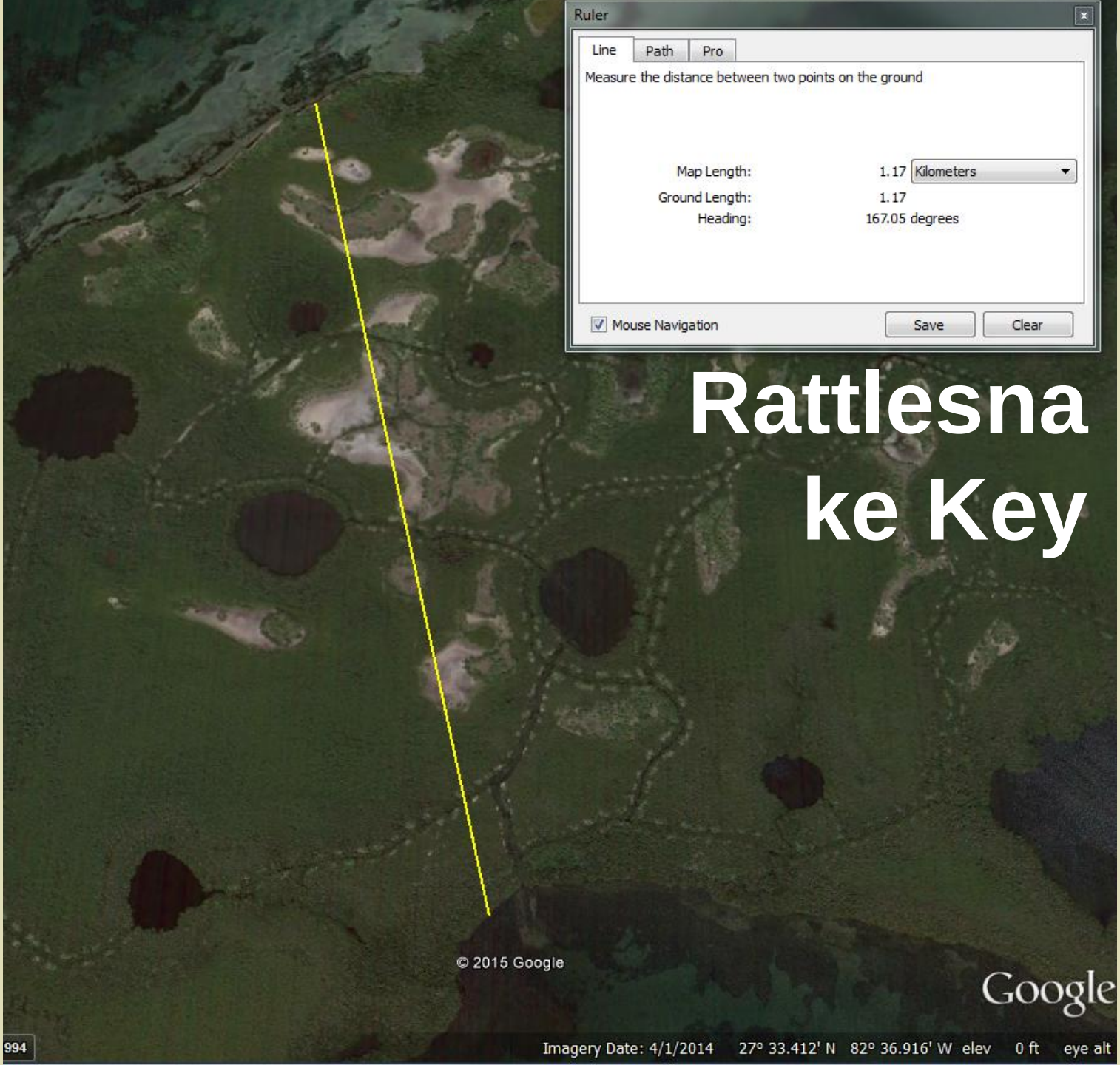
Perico Bay
© 2015 Google
Google earth
Imagery Date: 4/1/2014 27° 29.388' N 82° 40.342' W elev 1 ft eye alt 3701 ft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Rattlesnake Key
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Google
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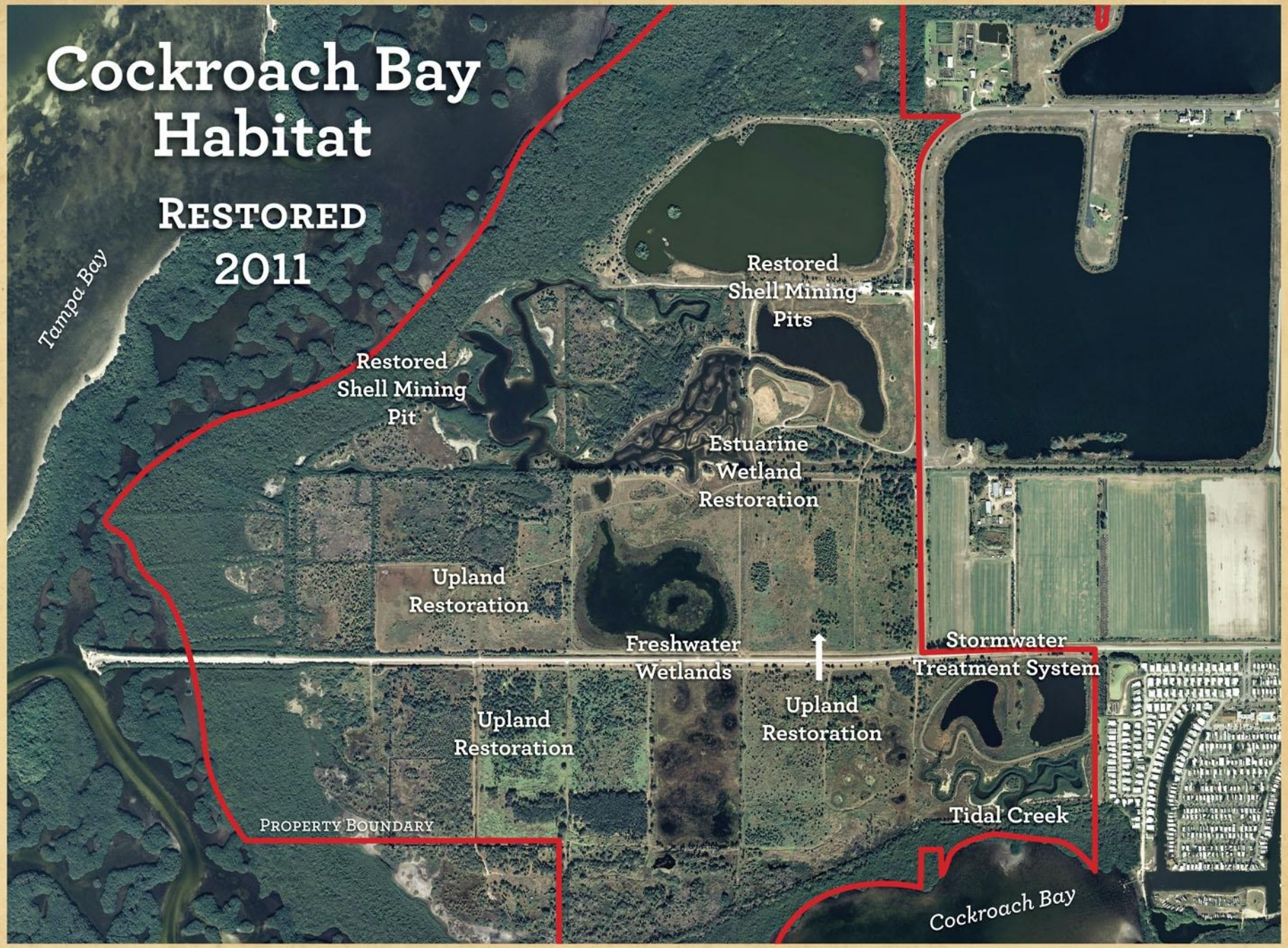
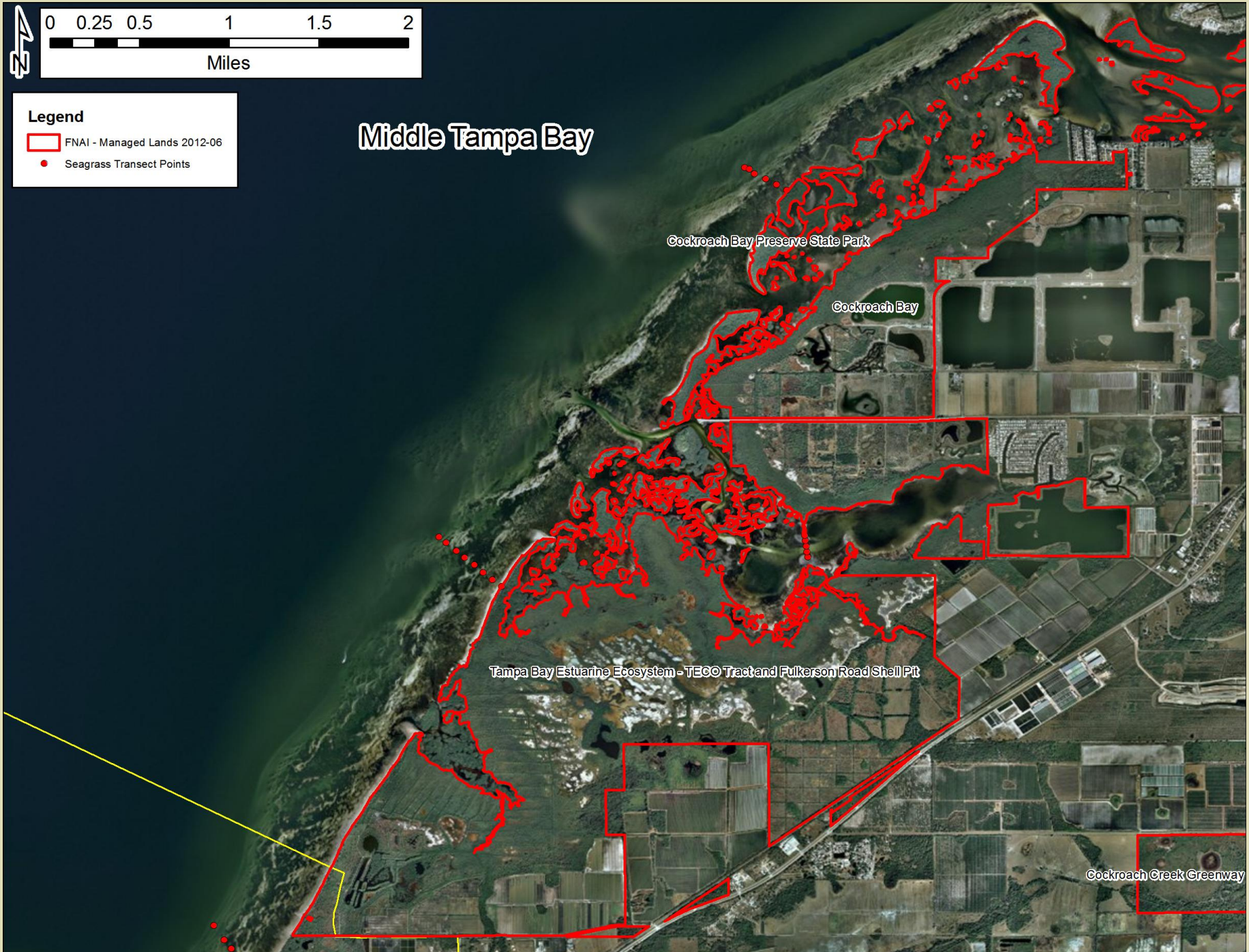
Imagery Date: 4/1/2014 27° 33.412' N 82° 36.916' W elev 0 ft eye alt


Cockroach Bay Habitat
Restored 2011
Tampa Bay
Restored Shell Mining Pits
Restored Shell Mining Pit
Estuarine Wetland Restoration
Upland Restoration
Freshwater Wetlands
Stormwater Treatment System
Upland Restoration
Upland Restoration
Property Boundary
Tidal Creek
Cockroach Bay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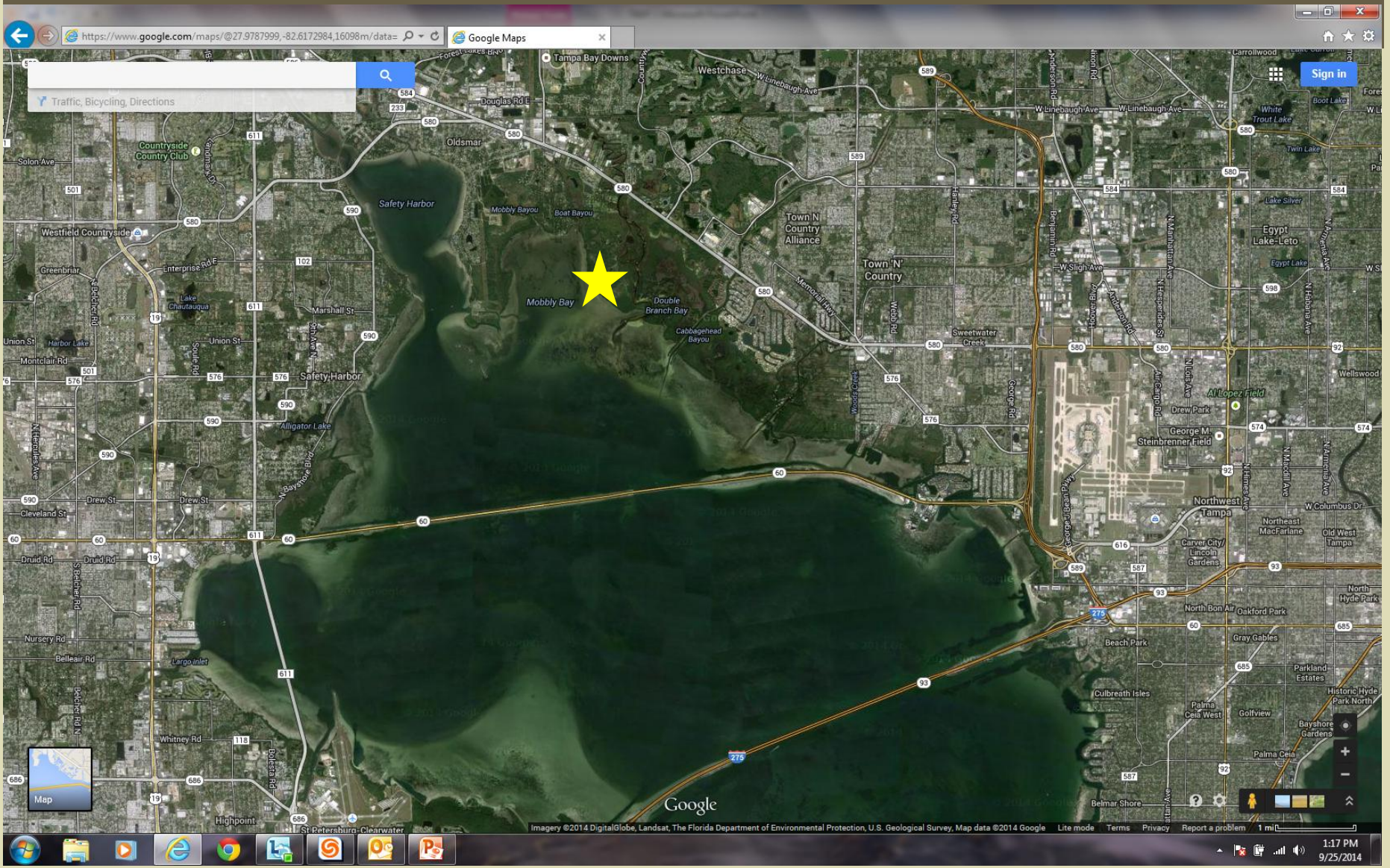
Miles
Legend
FNAI - Managed Lands 2012-06
Seagrass Transect Points
Middle Tampa Bay
Cockroach Bay Preserve State Park
Cockroach Bay
Tampa Bay Estuarine Ecosystem - TECO Tract and Fulkerson Road Shell Pit
Cockroach Creek Greenway

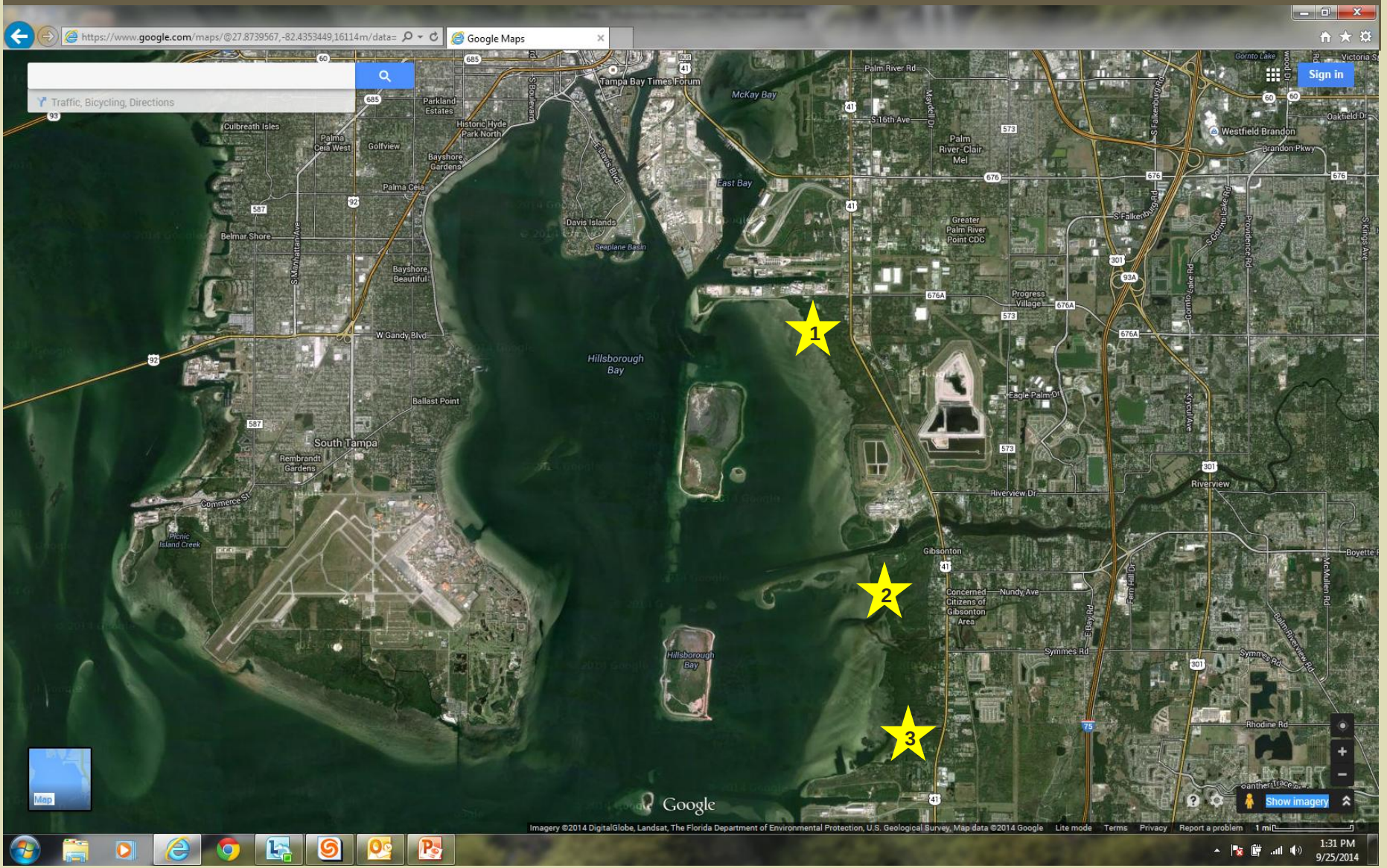
OLD TAMPA BAY



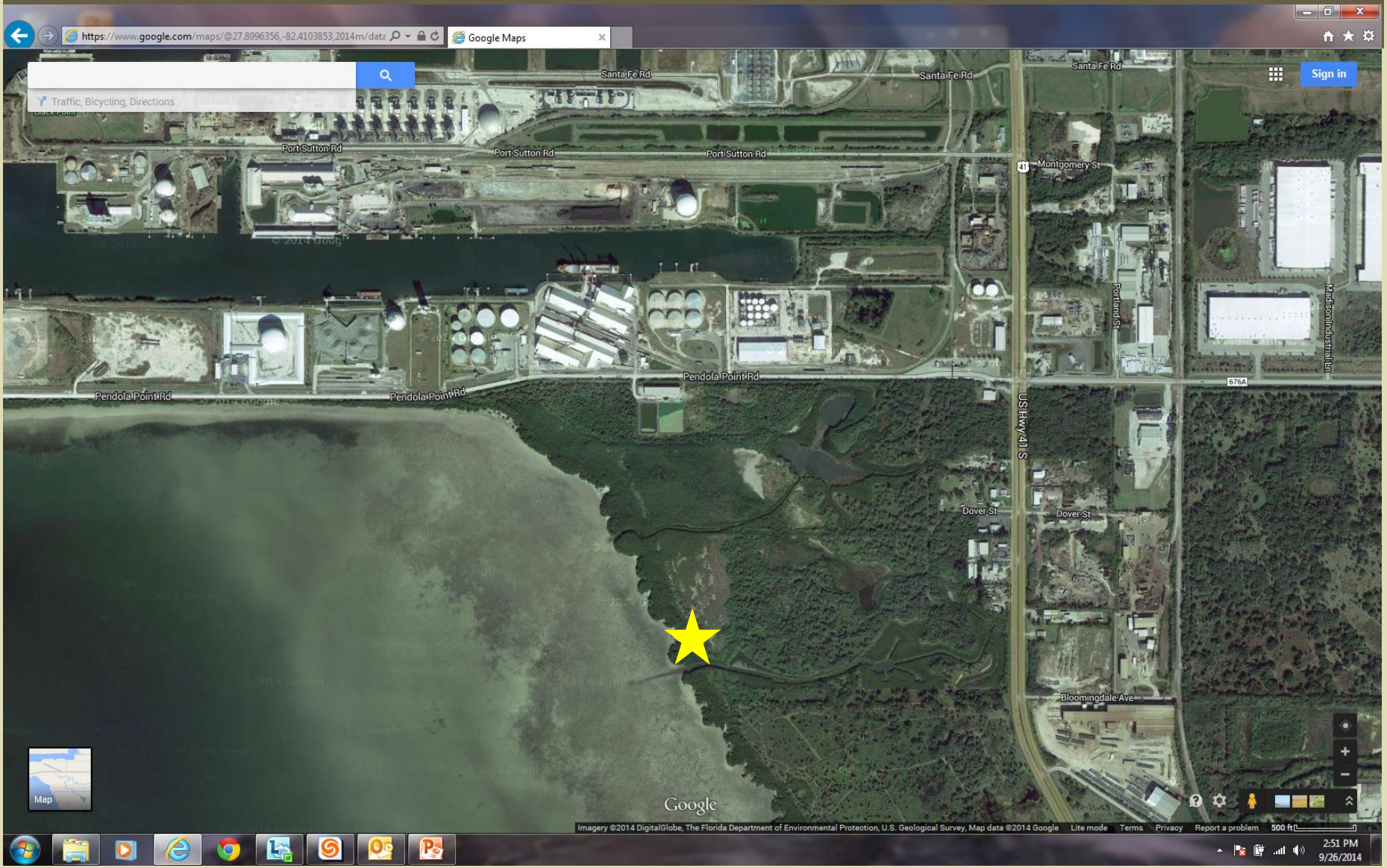
UPPER TAMPA BAY PARK PILOT SITE

- Natural topographic gradient
- Full assemblage of habitat types
- No historical impacts
- Protected area
- Limited public access
- Accessible by study team

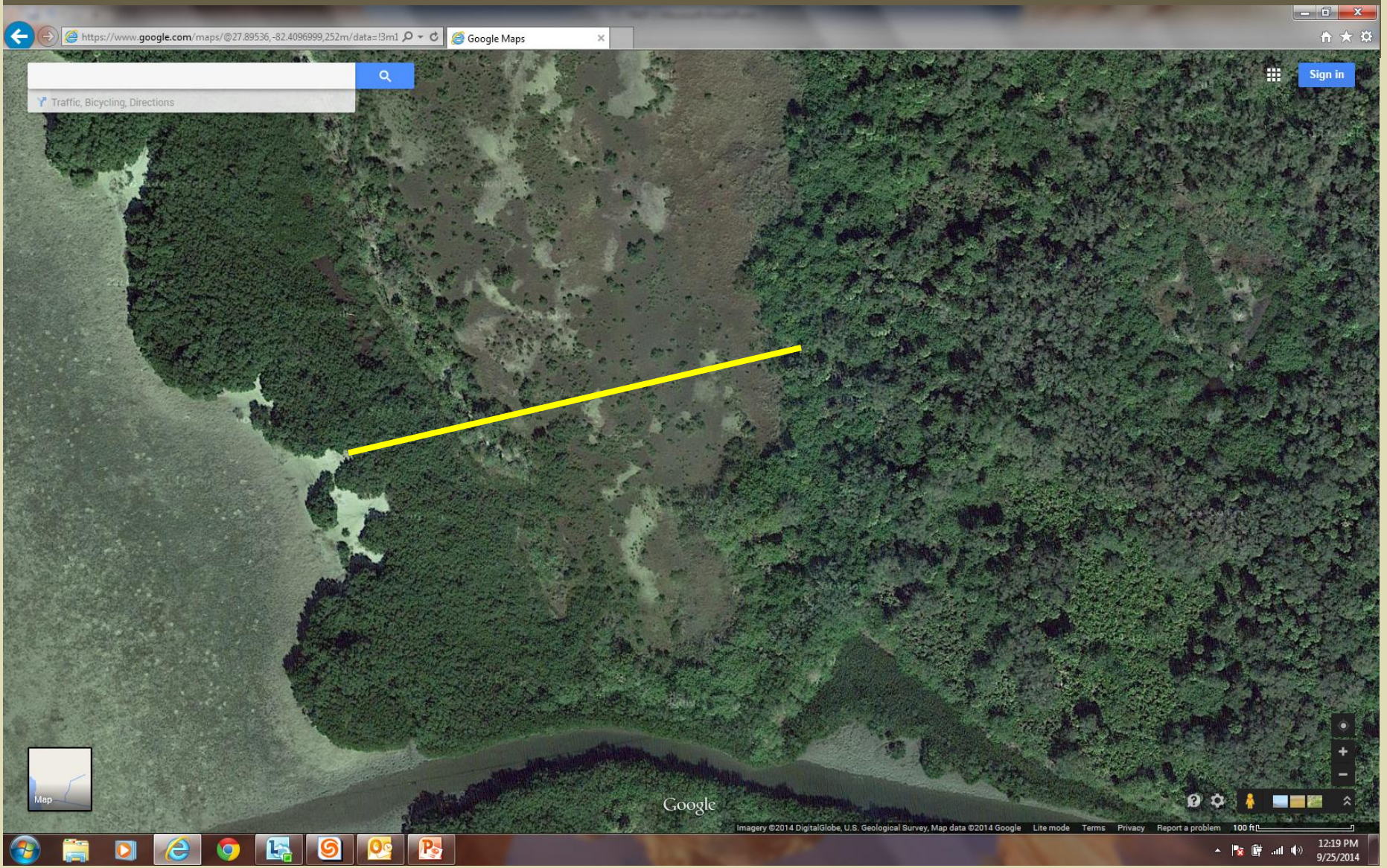
HILLSBOROUGH BAY SITES



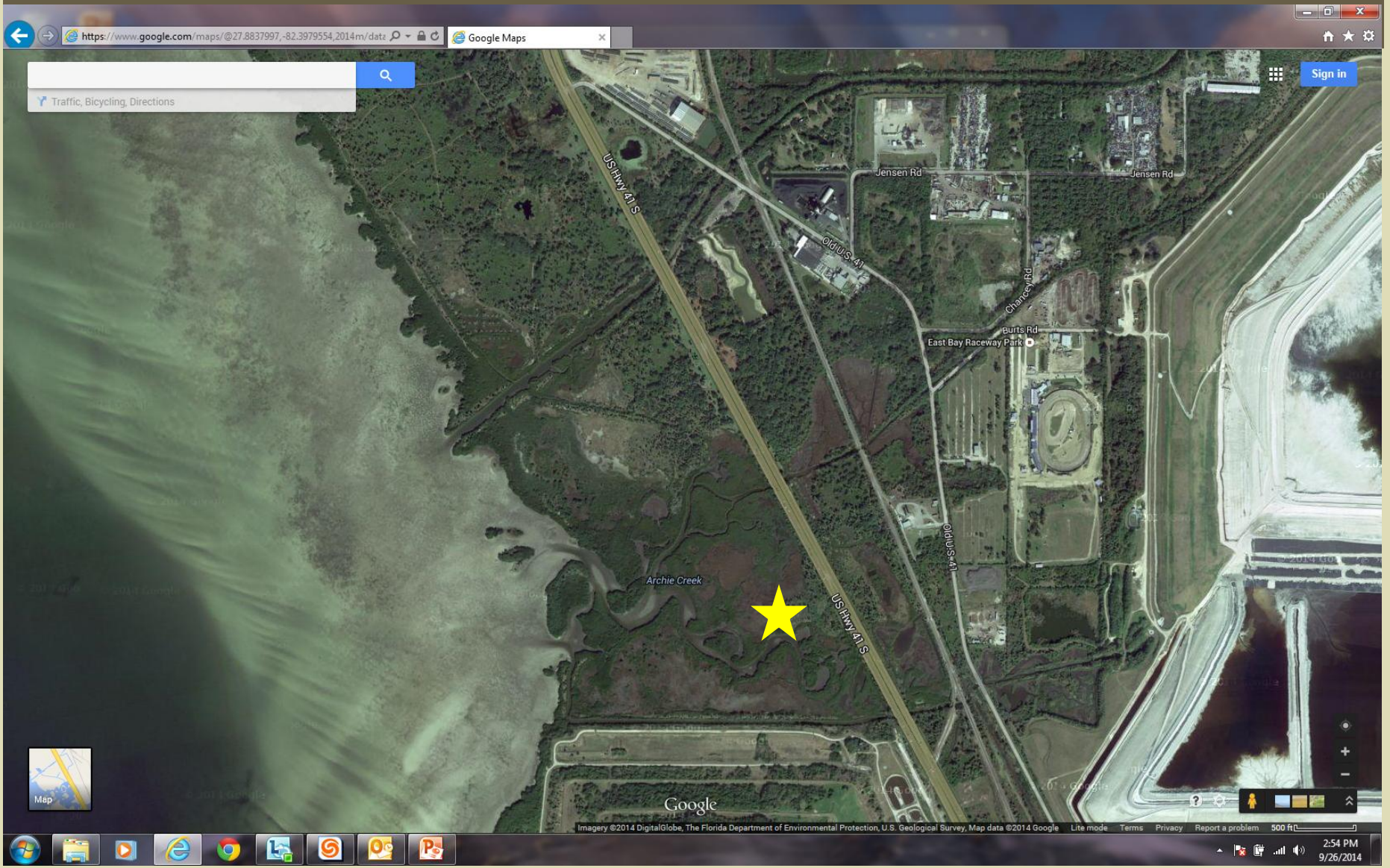
PENDOLA POINT SITE



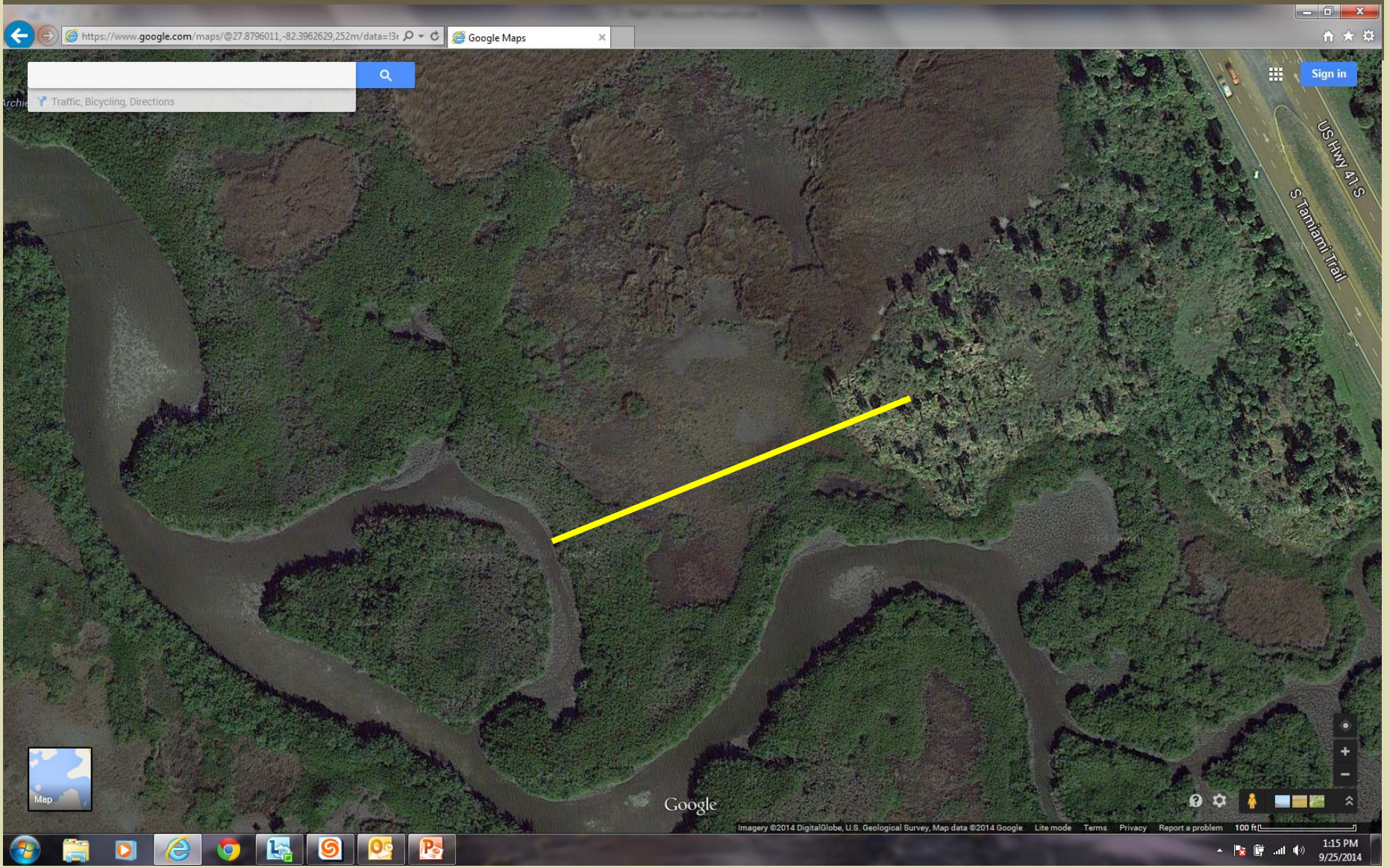
PENDOLA POINT SITE



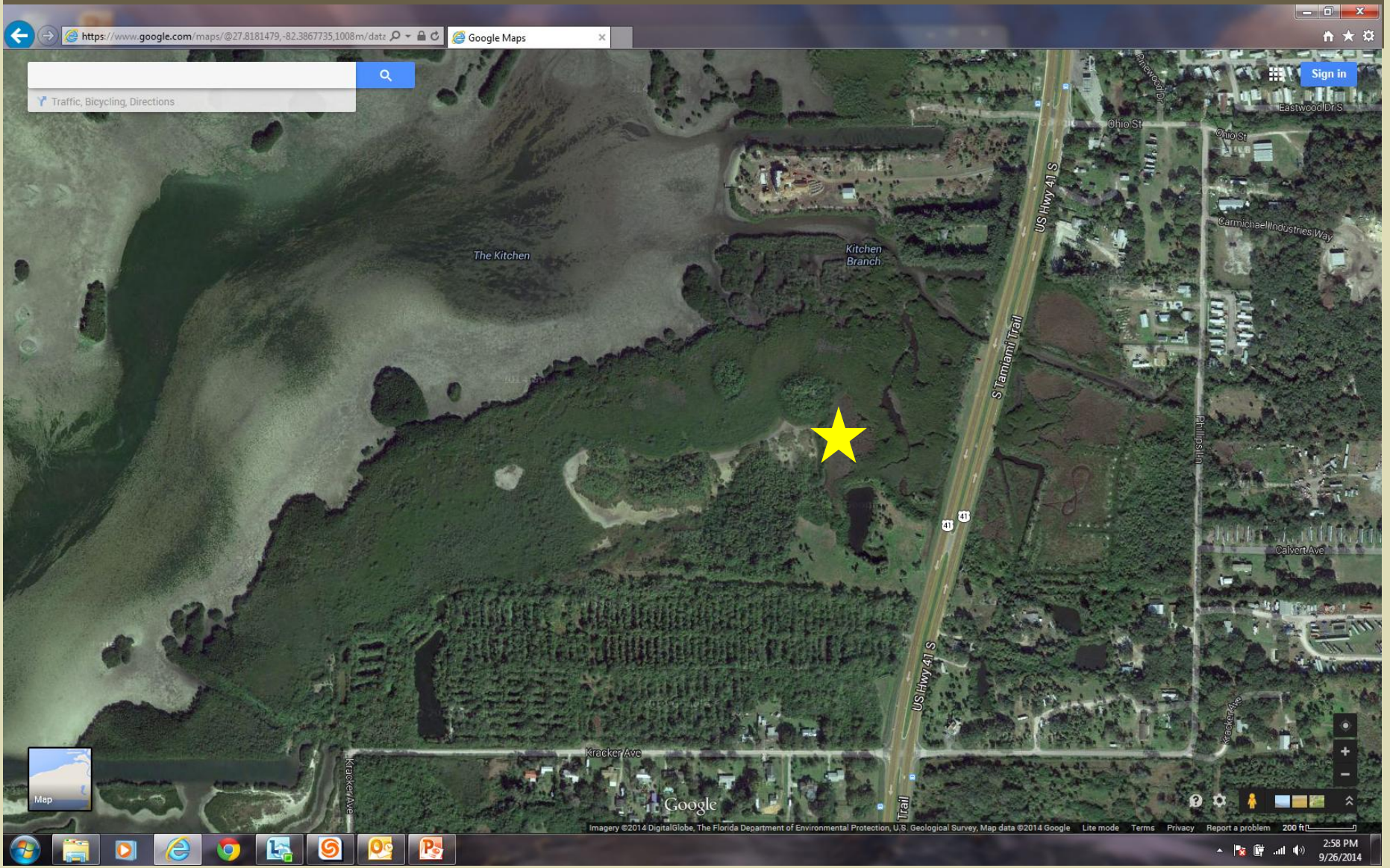
ARCHIE CREEK SITE



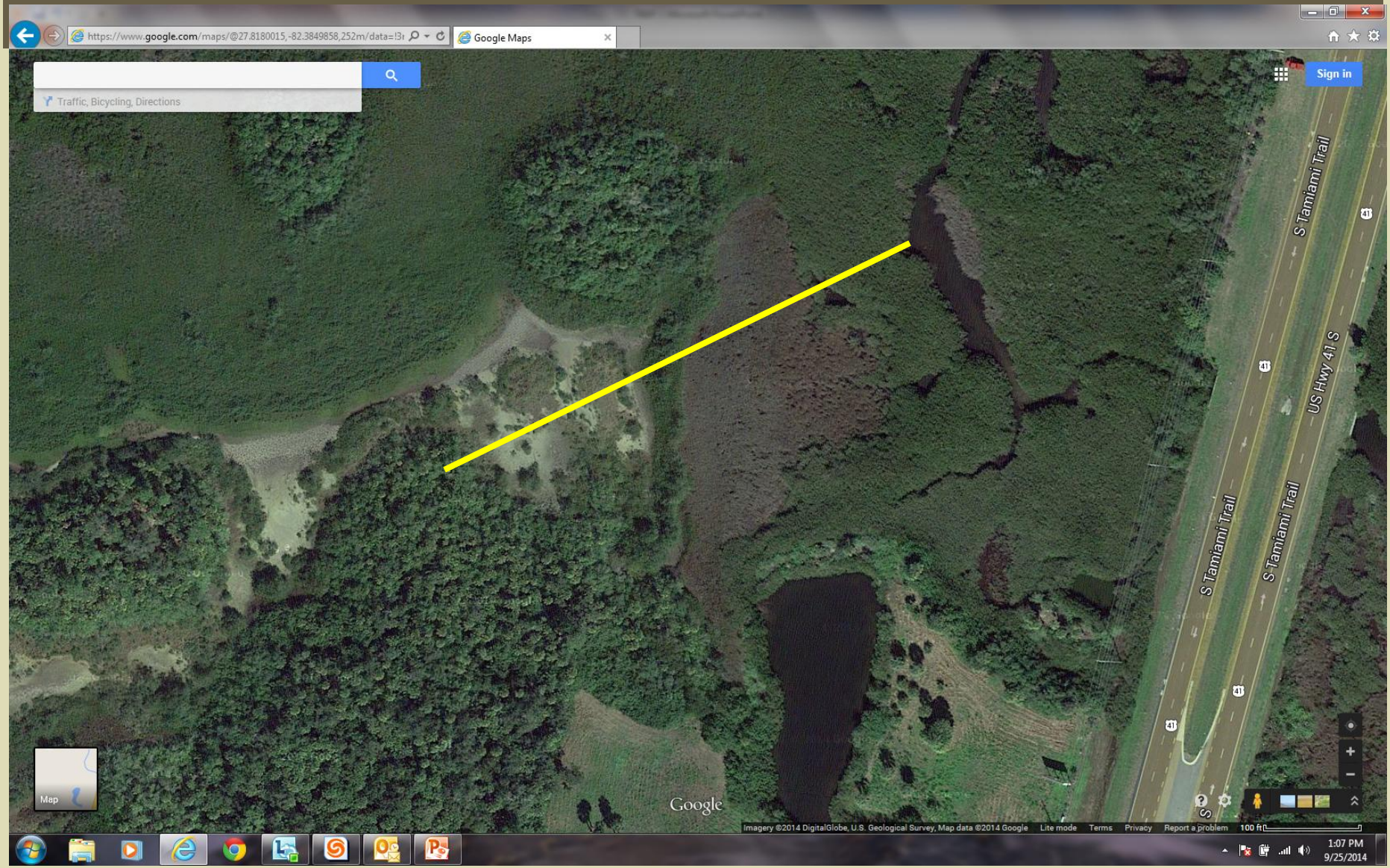
ARCHIE CREEK SITE



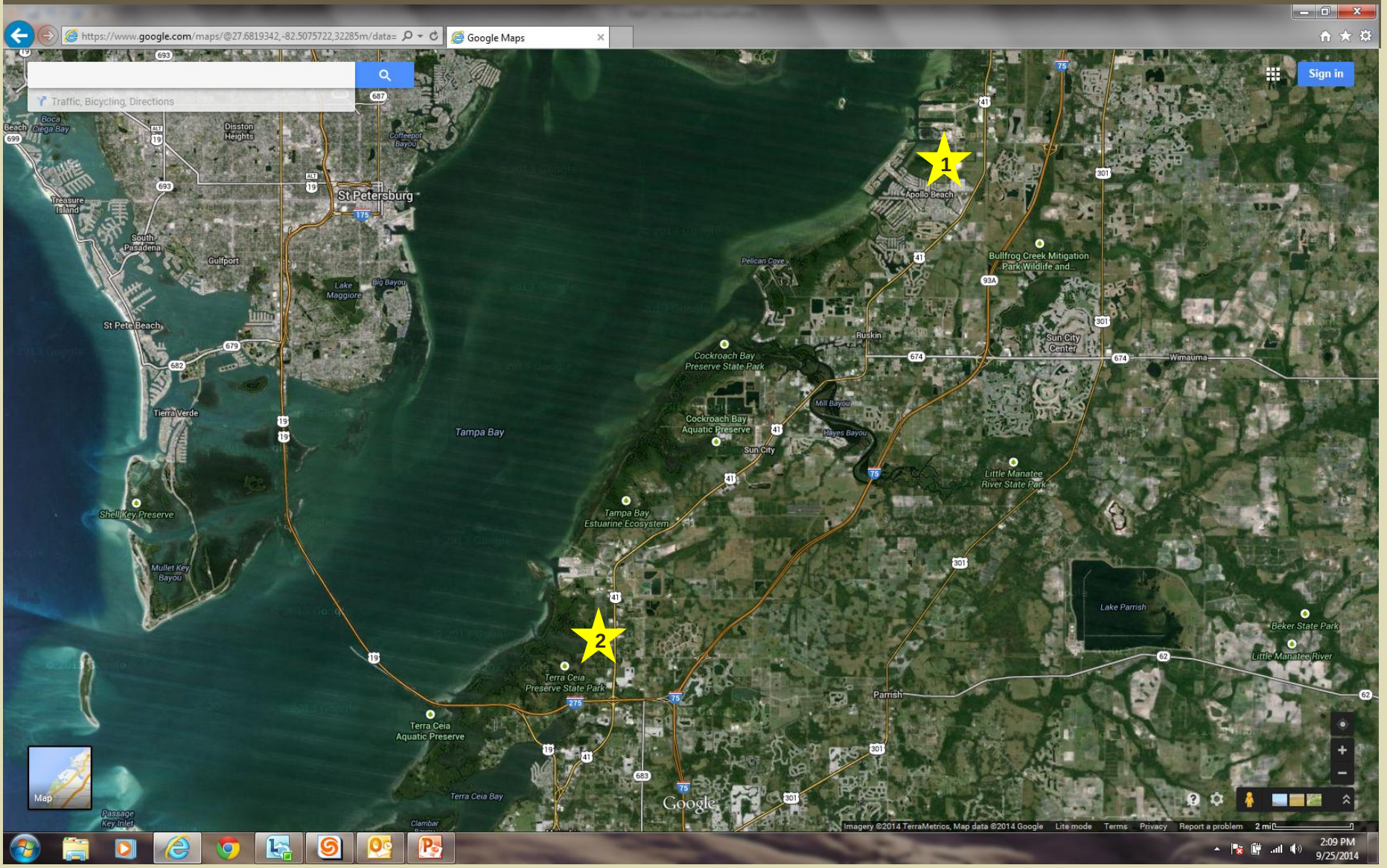
KITCHEN BRANCH SITE



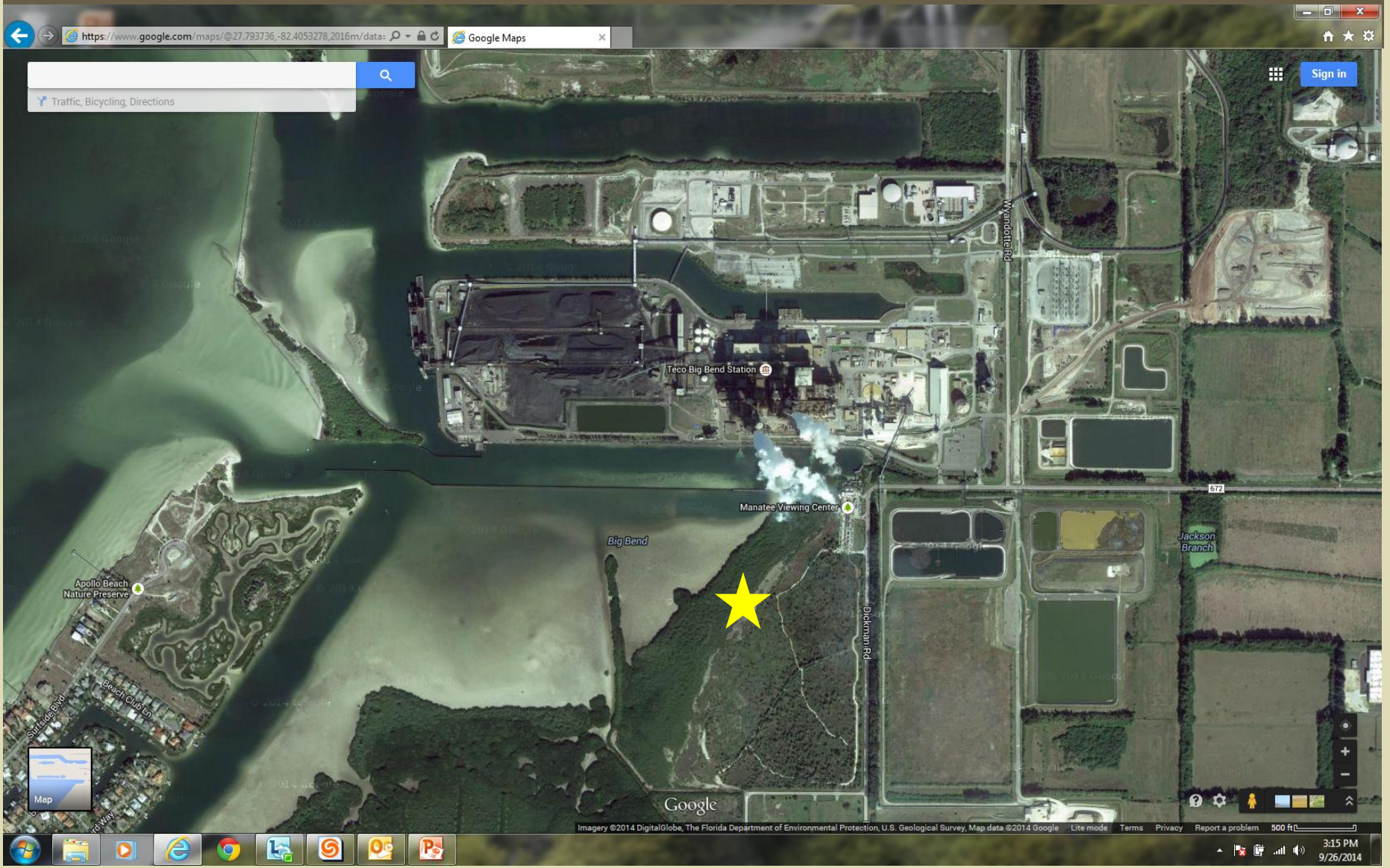
KITCHEN BRANCH SITE



MIDDLE/LOWER TAMPA BAY SITES



BIG BEND SITE



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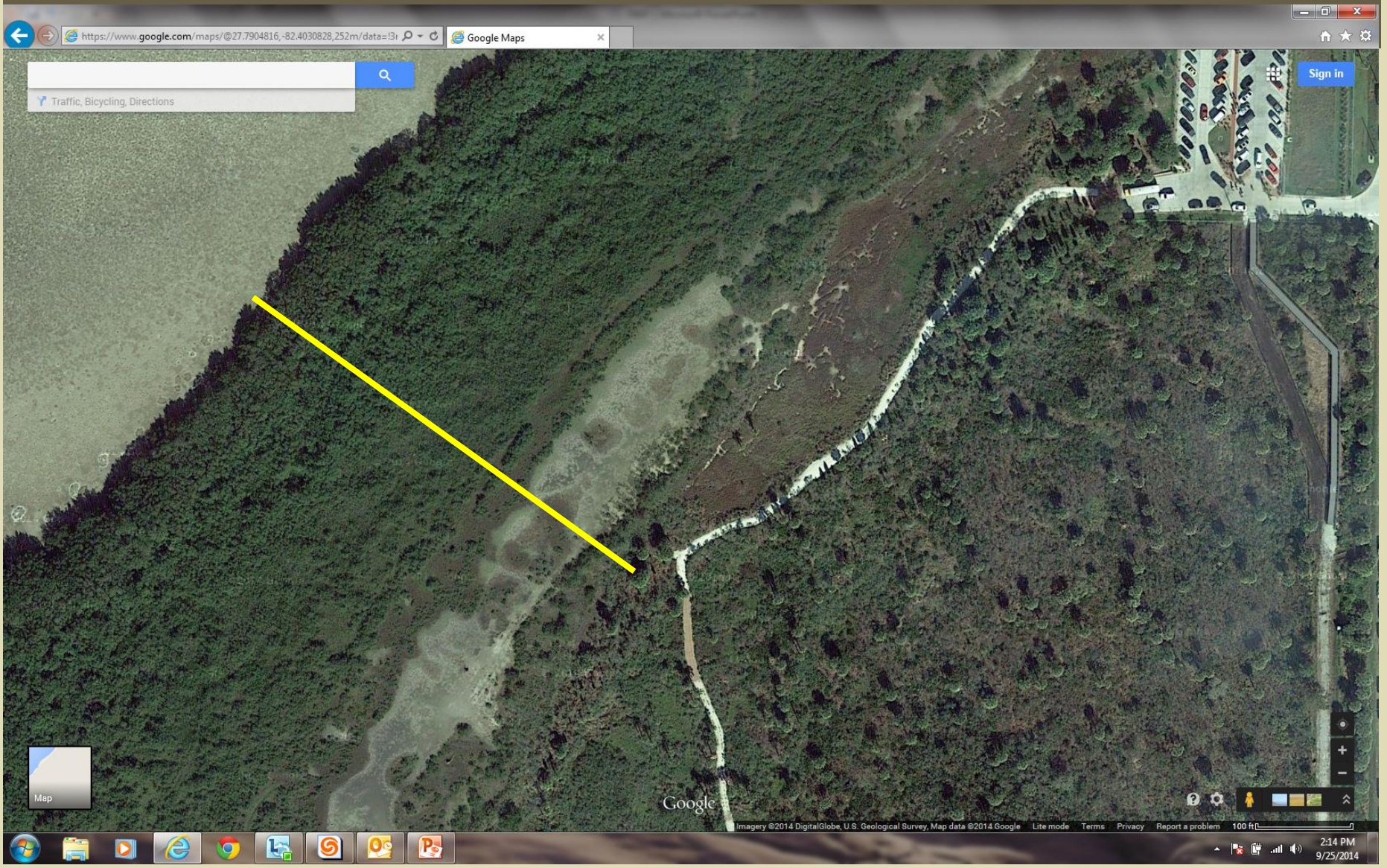
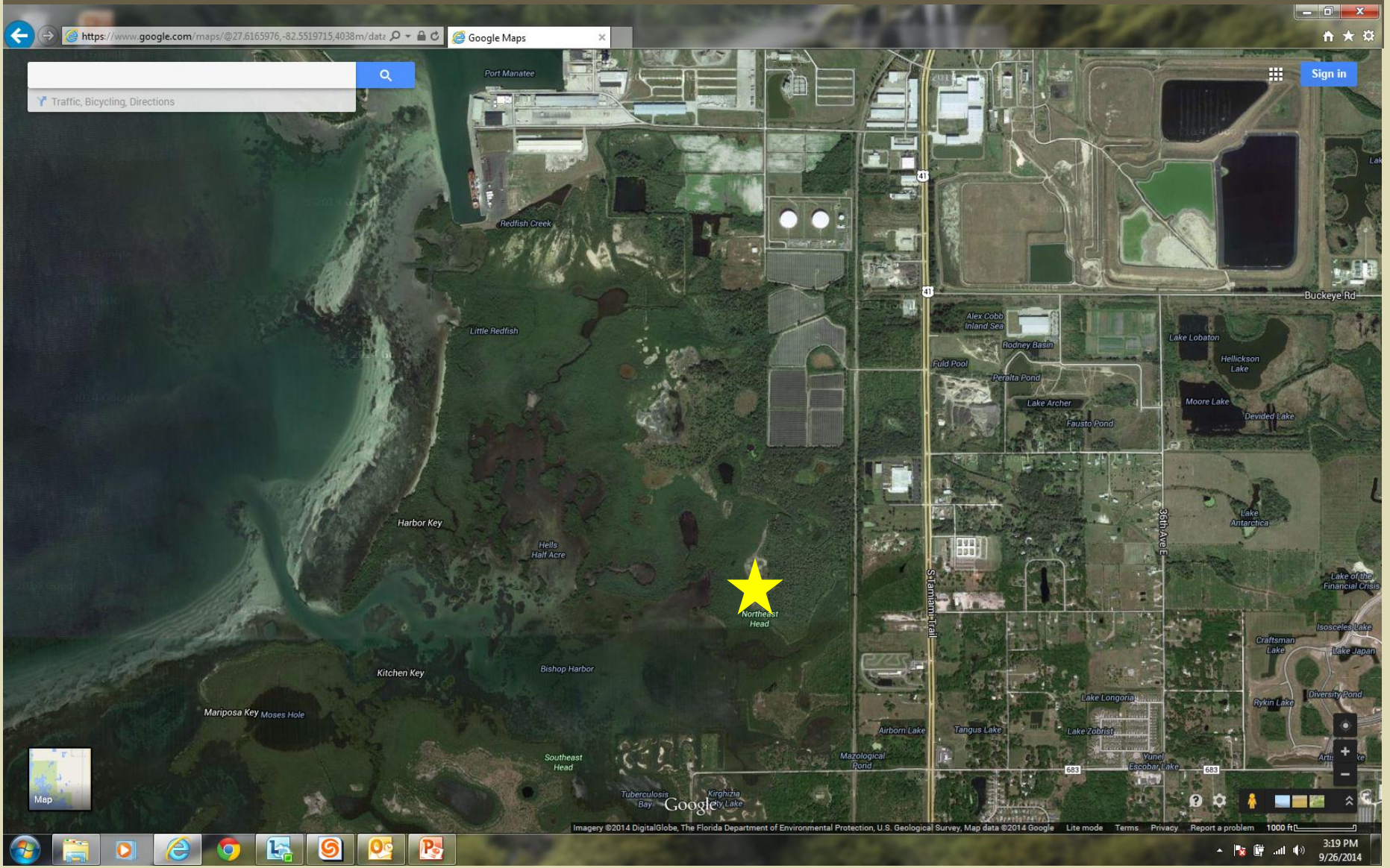
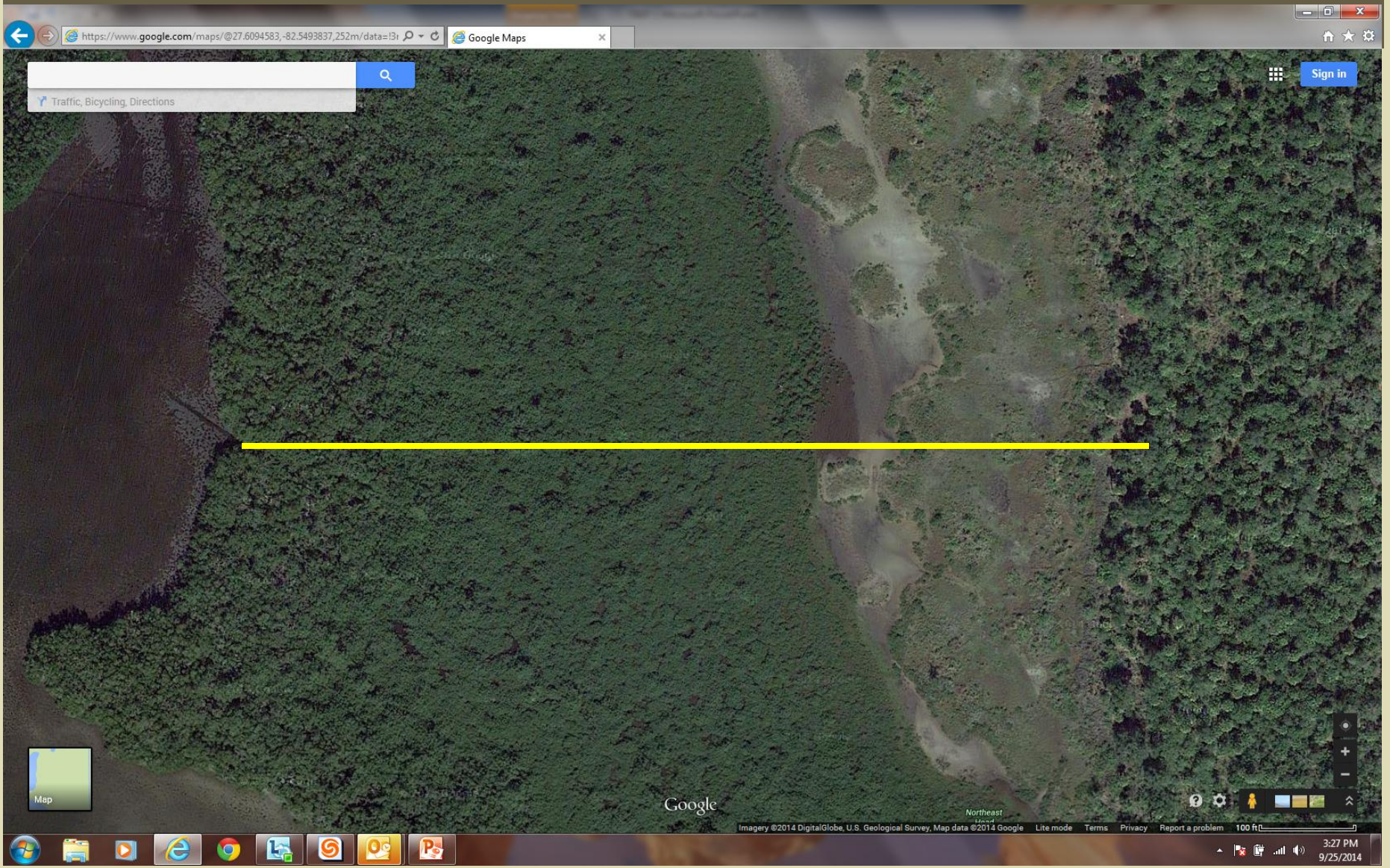


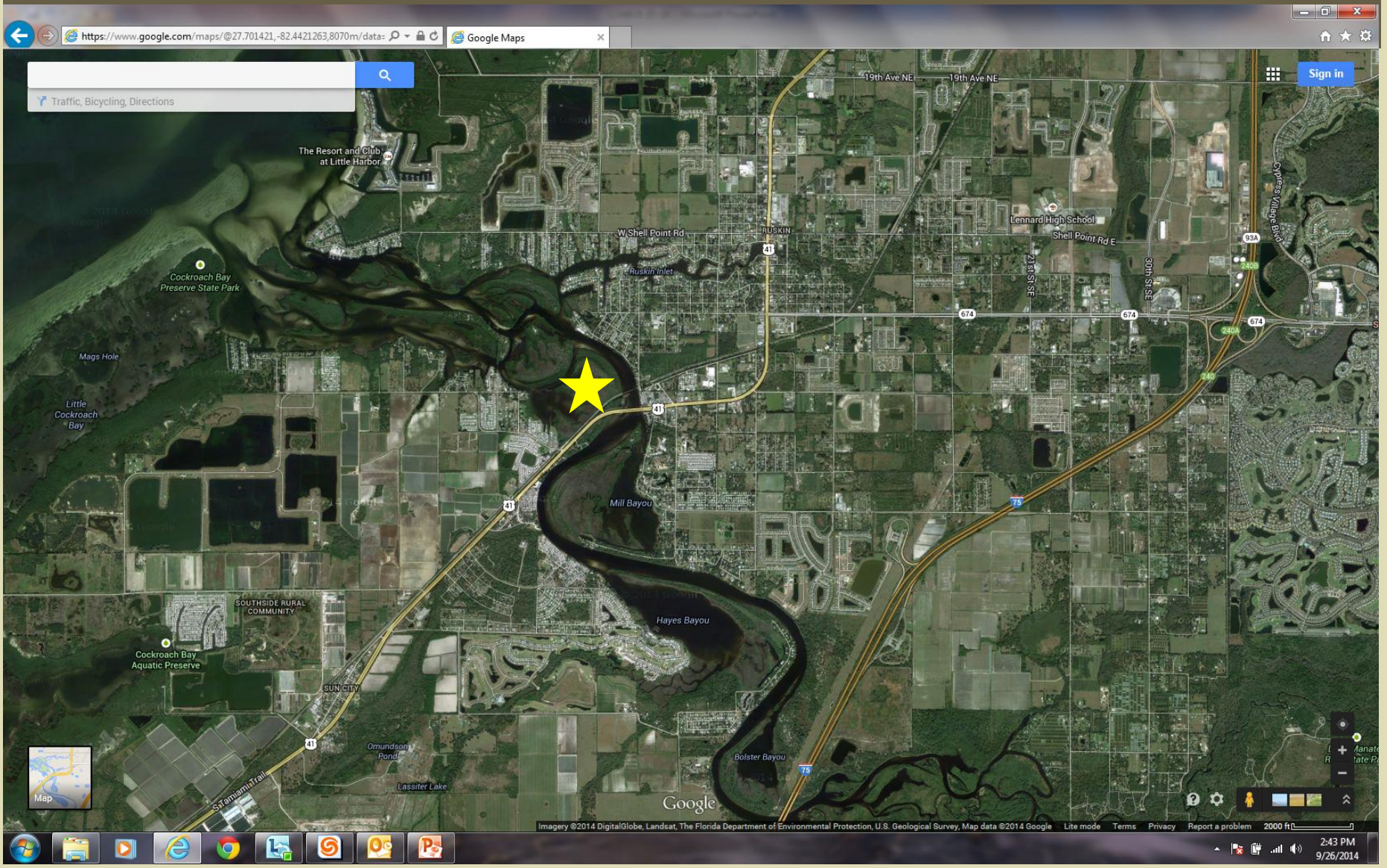
BISHOPS HARBOR SITE



BISHOPS HARBOR SITE



LITTLE MANATEE RIVER SITE



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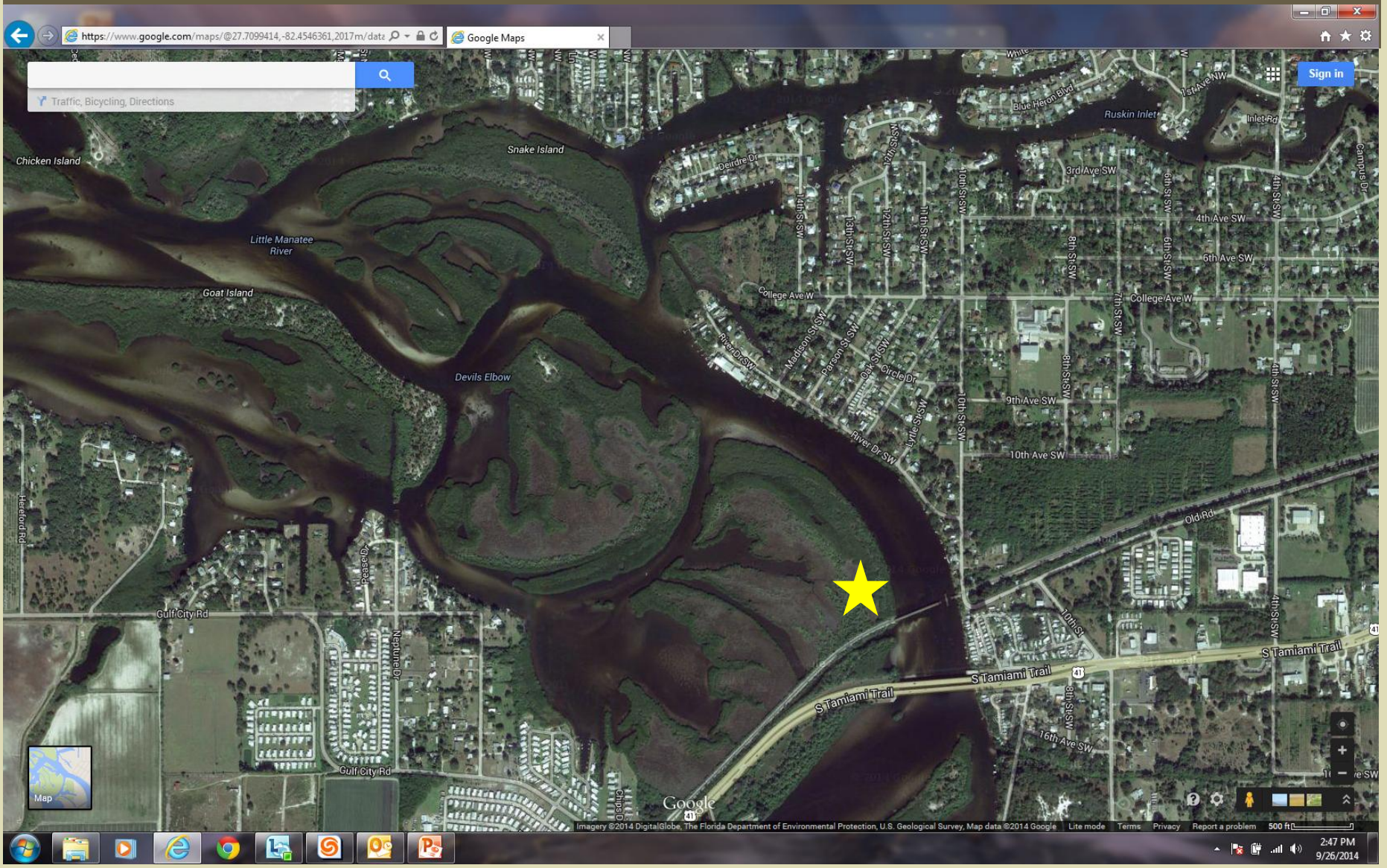

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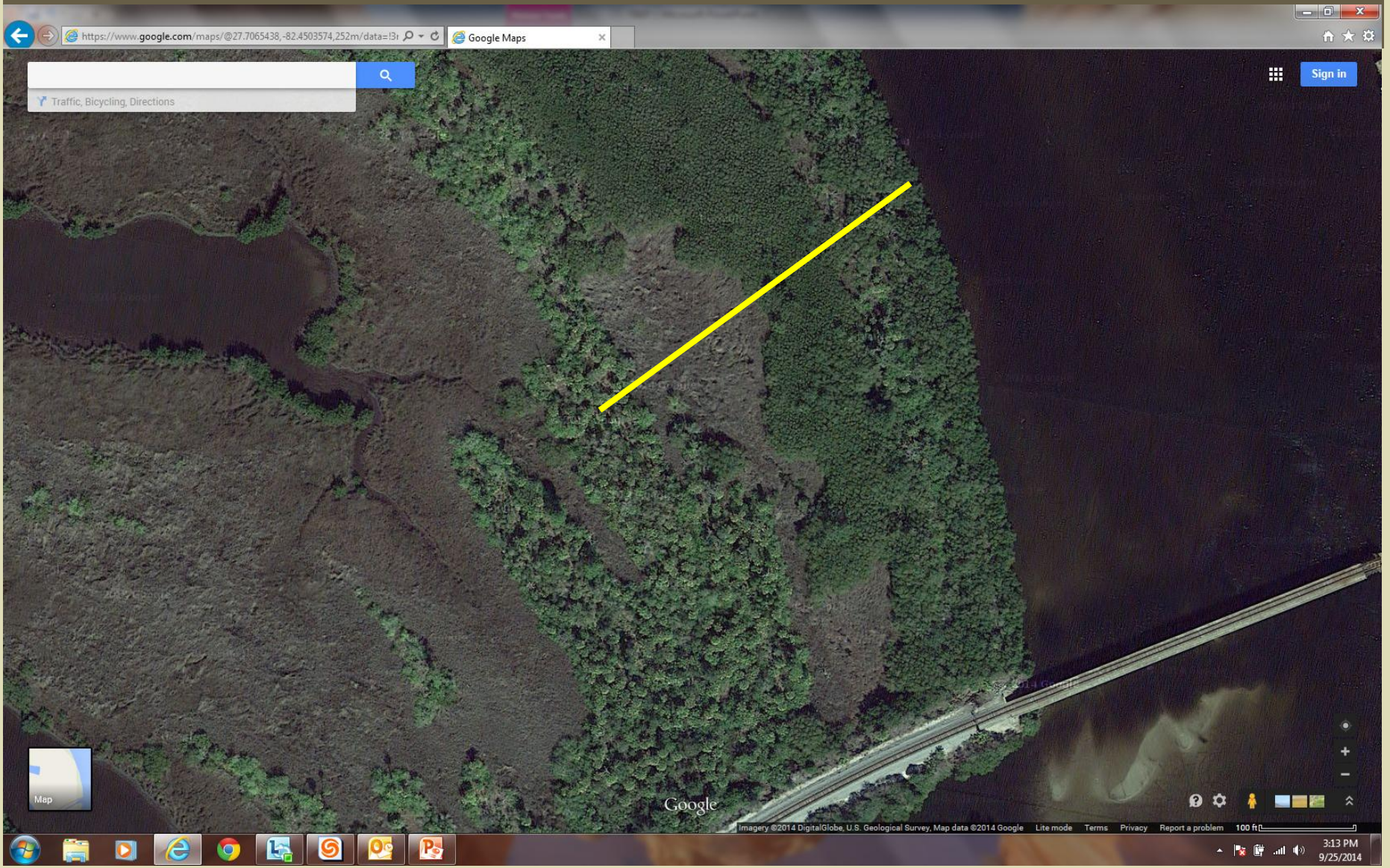

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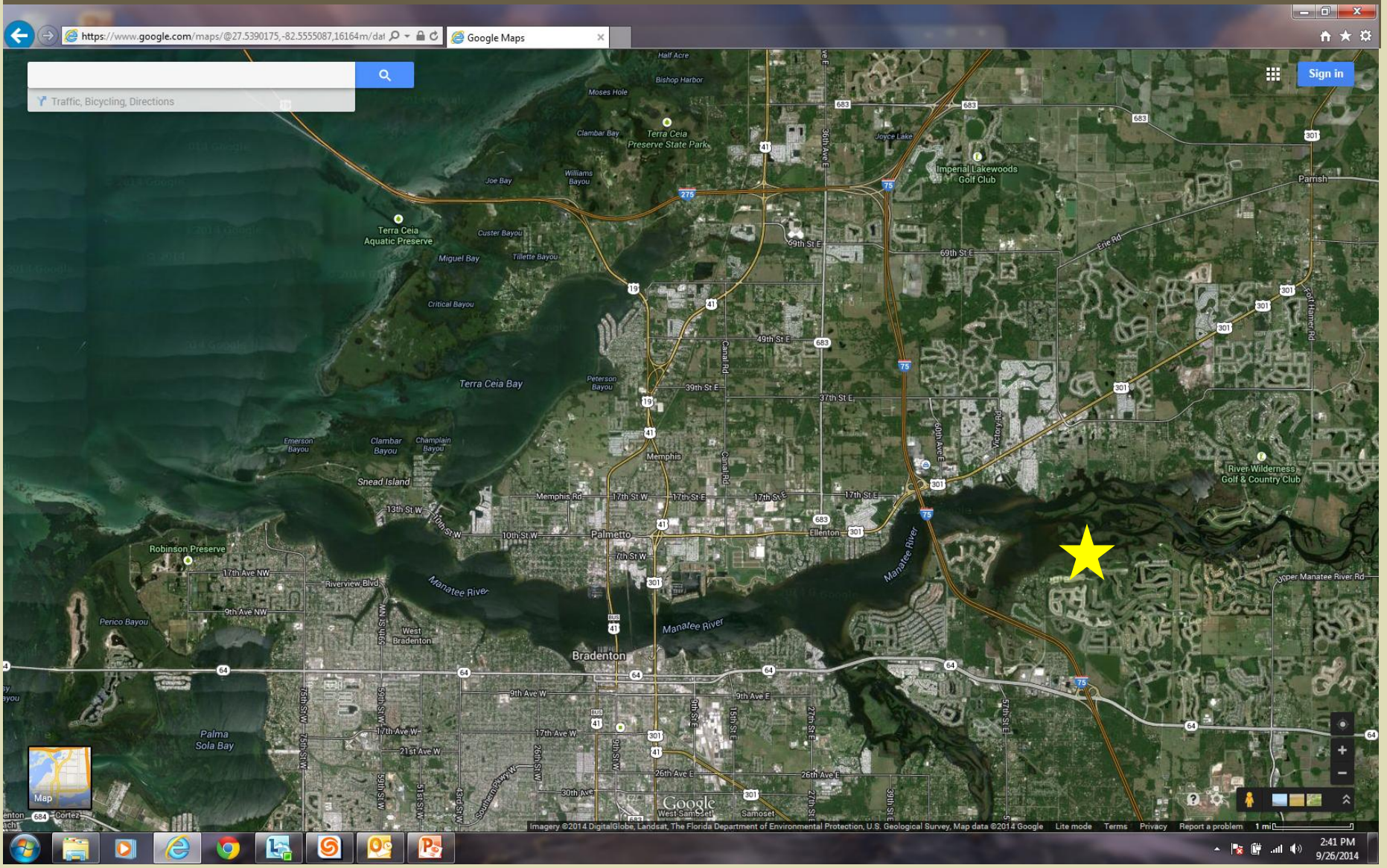

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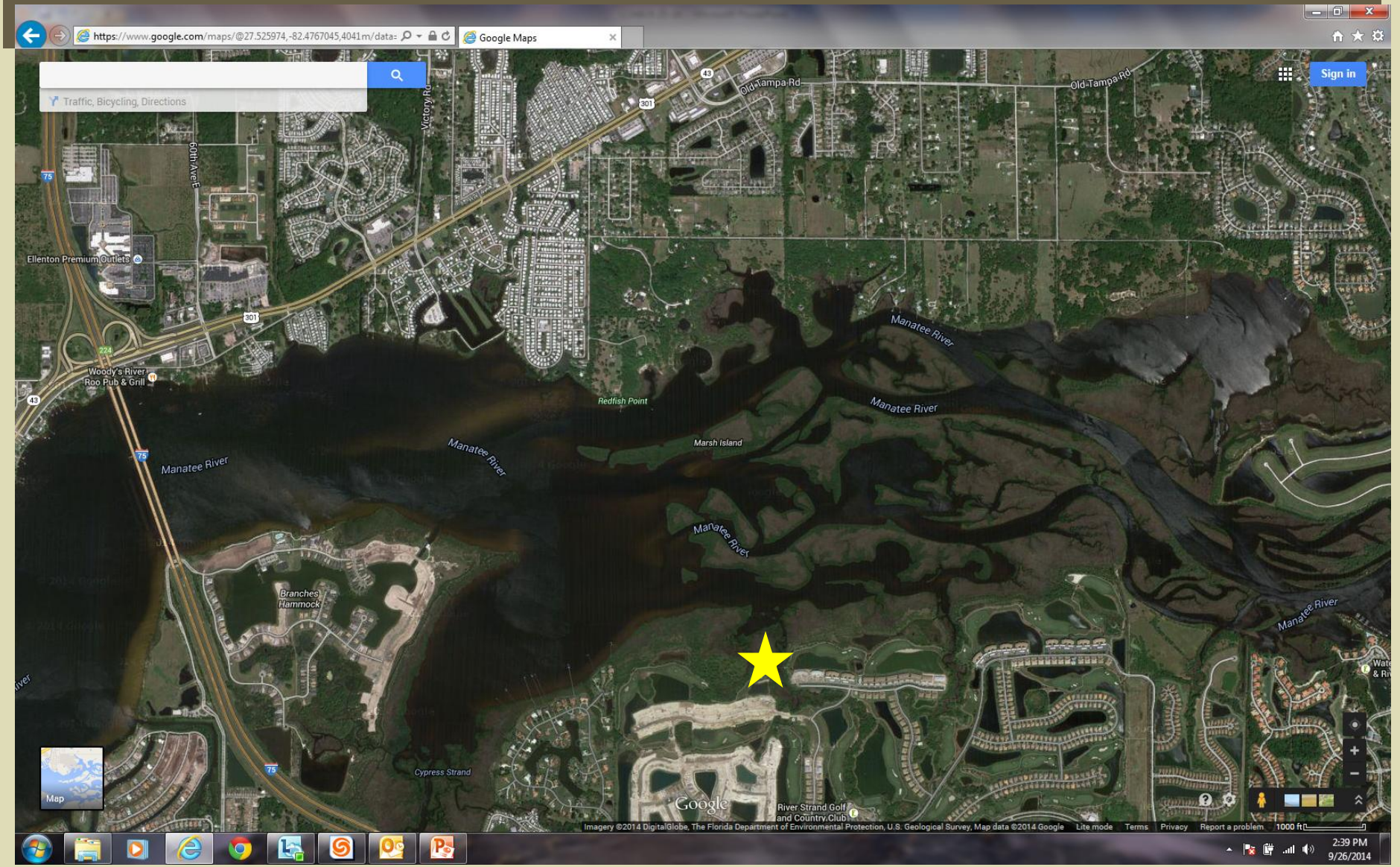

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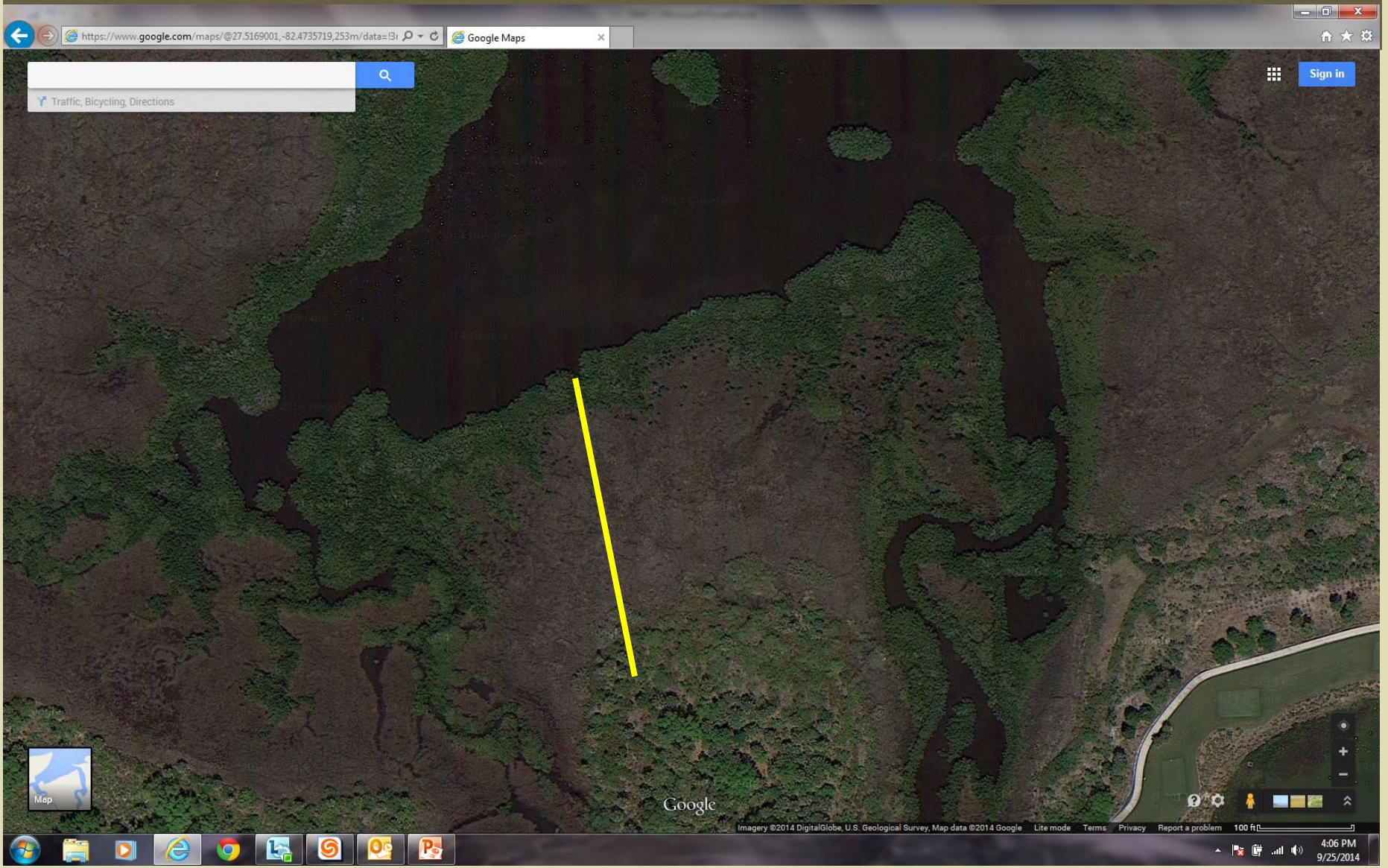
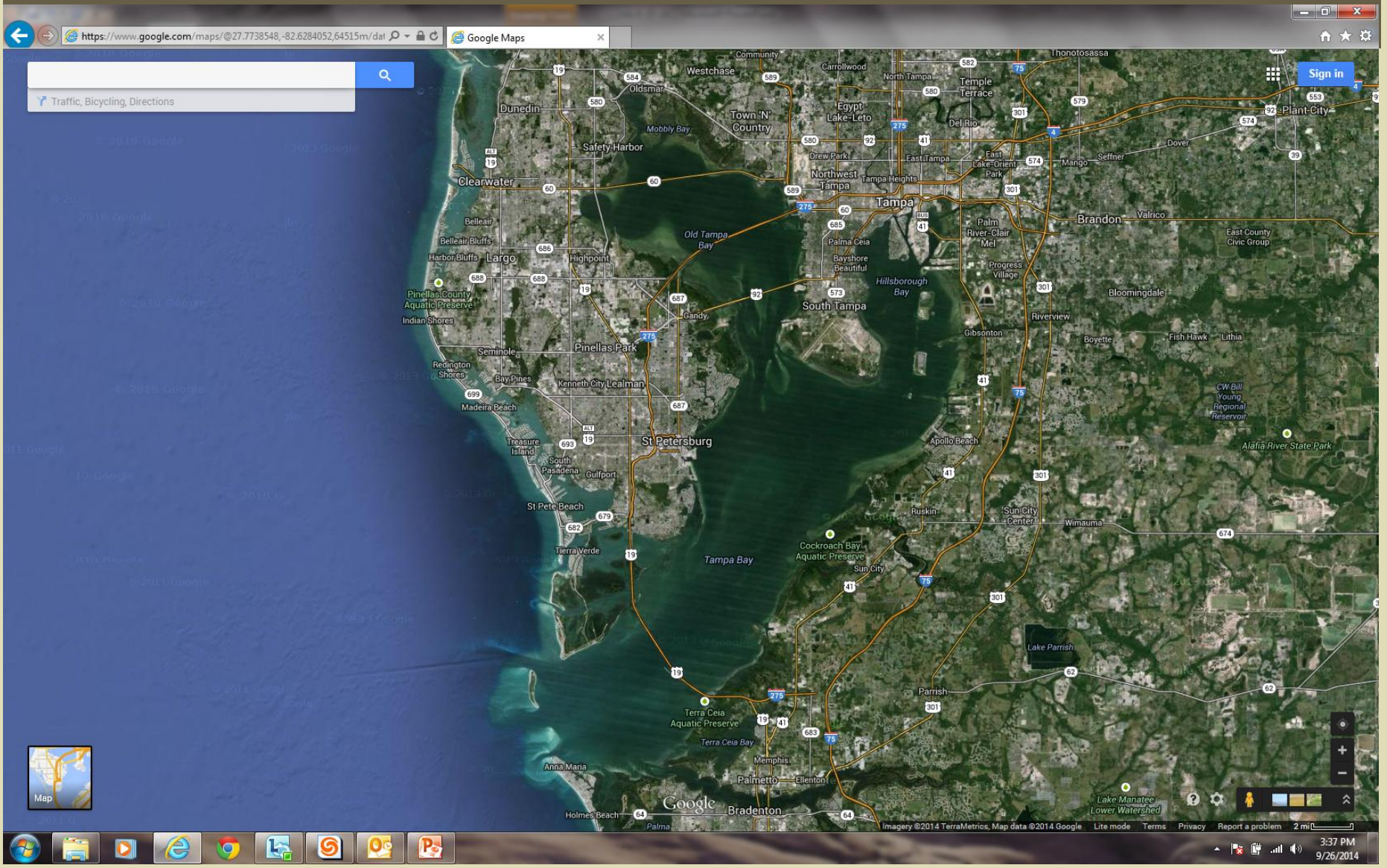


OTHER SITES TO CONSIDER?



QUESTIONS?

lcross@tbep.org

(727) 893-2765