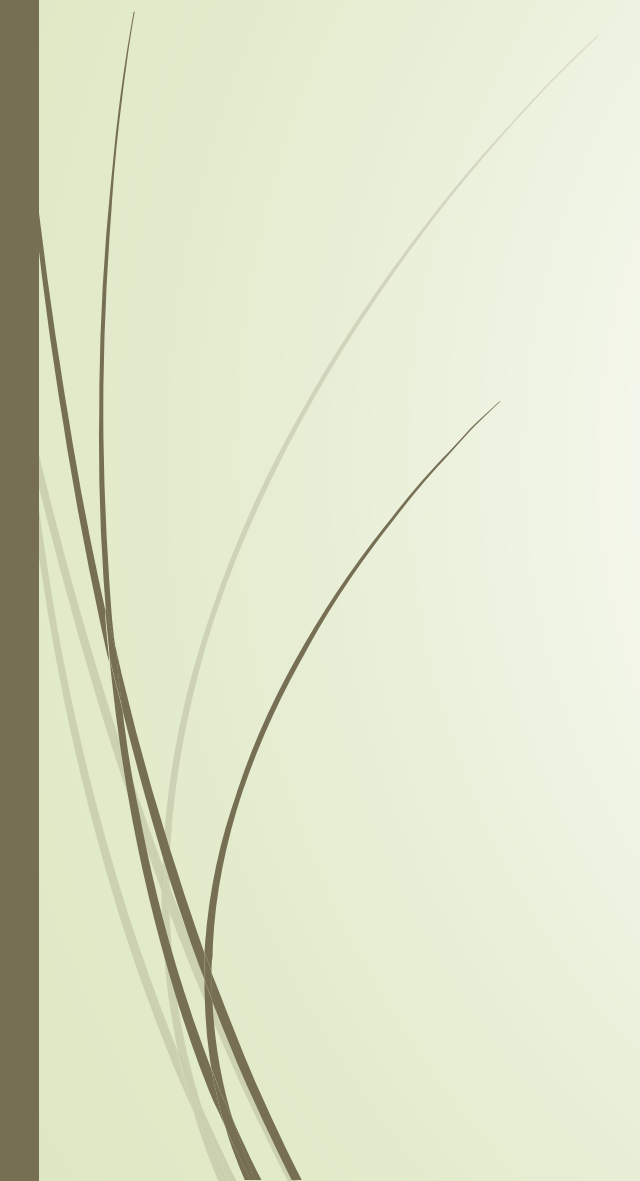




John Kiker Fishers Cove Public Hearing 8/21/19 Information Sources

- Fishers Cove preliminary drawings
 - The Lewes Flood Study report
 - The US government's StreamStats program
- 

Flood Study Models

NAVD88 used in study vs.

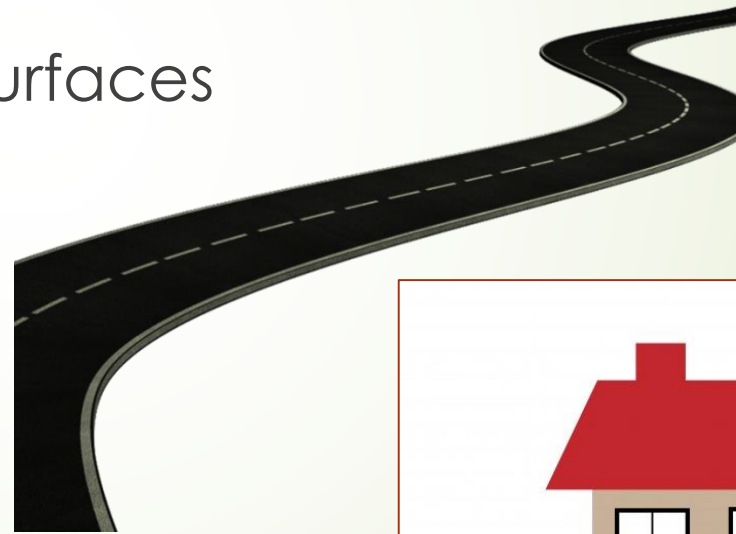
MLLW commonly used - 2.63' higher

Model	NAVD88 Tide Level	MLLW Tide Level	Rainfall
2-Yr Coastal Storm + 100-Yr Rain	4.93 feet	07.56 feet	9.2"
10-Yr Coastal Storm + 50-Yr Rain	6.64 feet	09.27 feet	8.0"
100-Yr Coastal Storm + 10-Yr Rain	8.20 feet	10.83 feet	5.5"

MLLW- Mean Lower Low Water is 2.63' higher than NAVD88
NAVD88 - North American Vertical Datum 1988
Both used as reference points

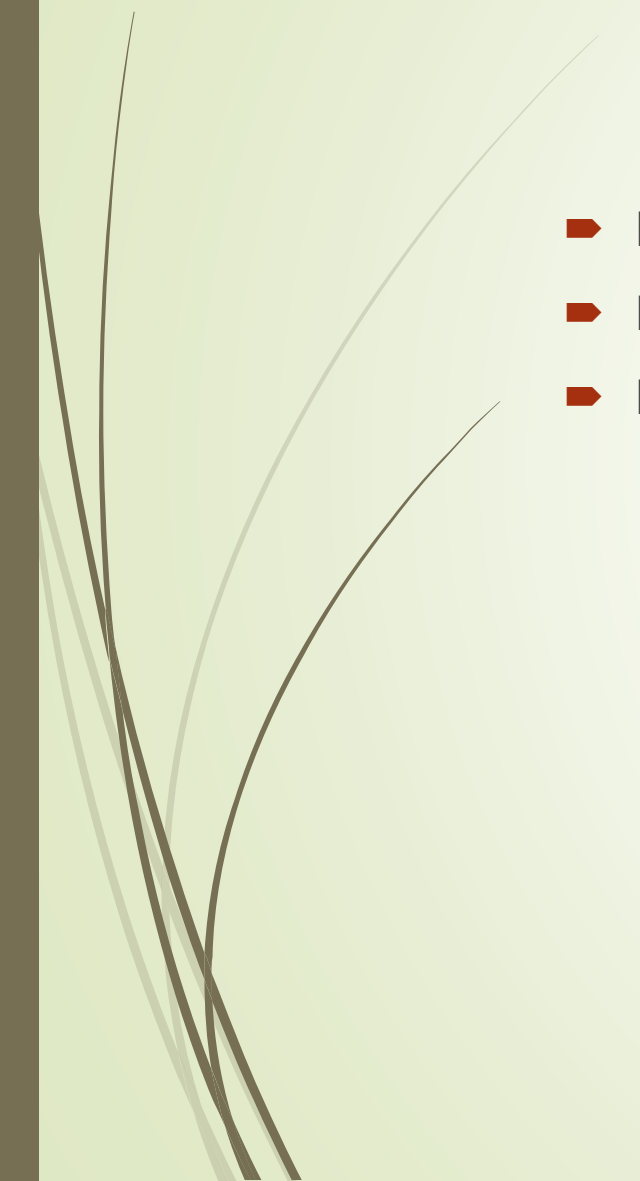
Models Limited by Available Data

- ▶ Two key components of the model
 - ▶ Storm water
 - ▶ Impervious surfaces





Fishers Cove Storm Water System

- Keeps changing
 - No proof the current proposal will operate as planned
 - Problems
 - Holding pond depth relative to water table
 - Holding capacity volume – 500,000 gallons ???
 - Water quality of water release from holding ponds
 - Operational procedures for water release
- 

Model Data vs. Lewes Code Impervious Surfaces

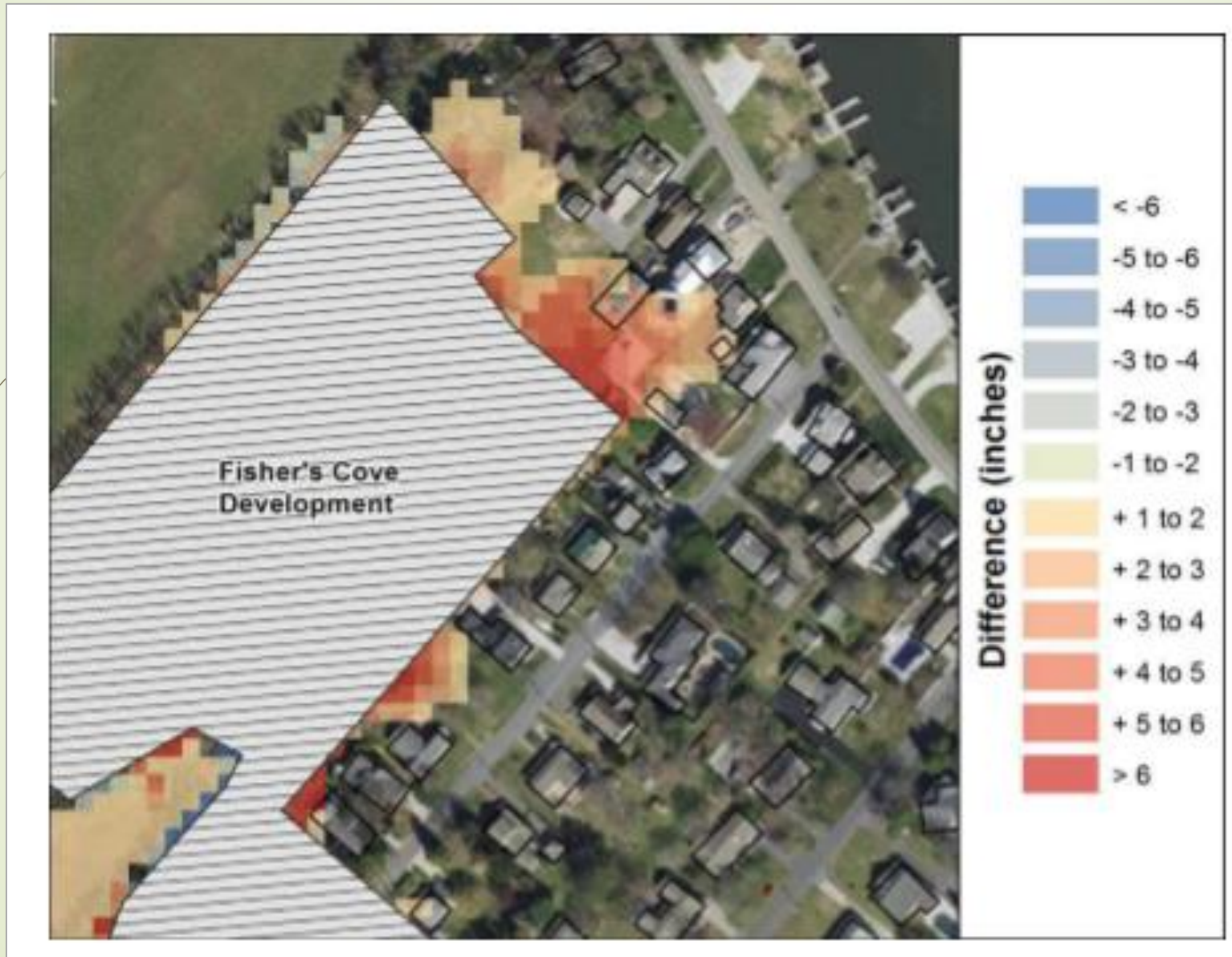
- ▶ 2-Yr Coastal Storm + 100-Yr Rain Model
- ▶ Model used preliminary drawings
 - ▶ Construction on 19% of the lot - 28% impervious + Rodney = 930,000 gallons
 - ▶ 930,000 gallons on a football field = 25.9 "
- ▶ Lewes building code allows
 - ▶ Construction on 65% of the lot - 51% impervious + Rodney = 1,416,000 gallons
 - ▶ 1,416,000 gallons on a football field = 43.7 "

120 yd
109.7 m

End zone
10 yd wide
9.1 m wide

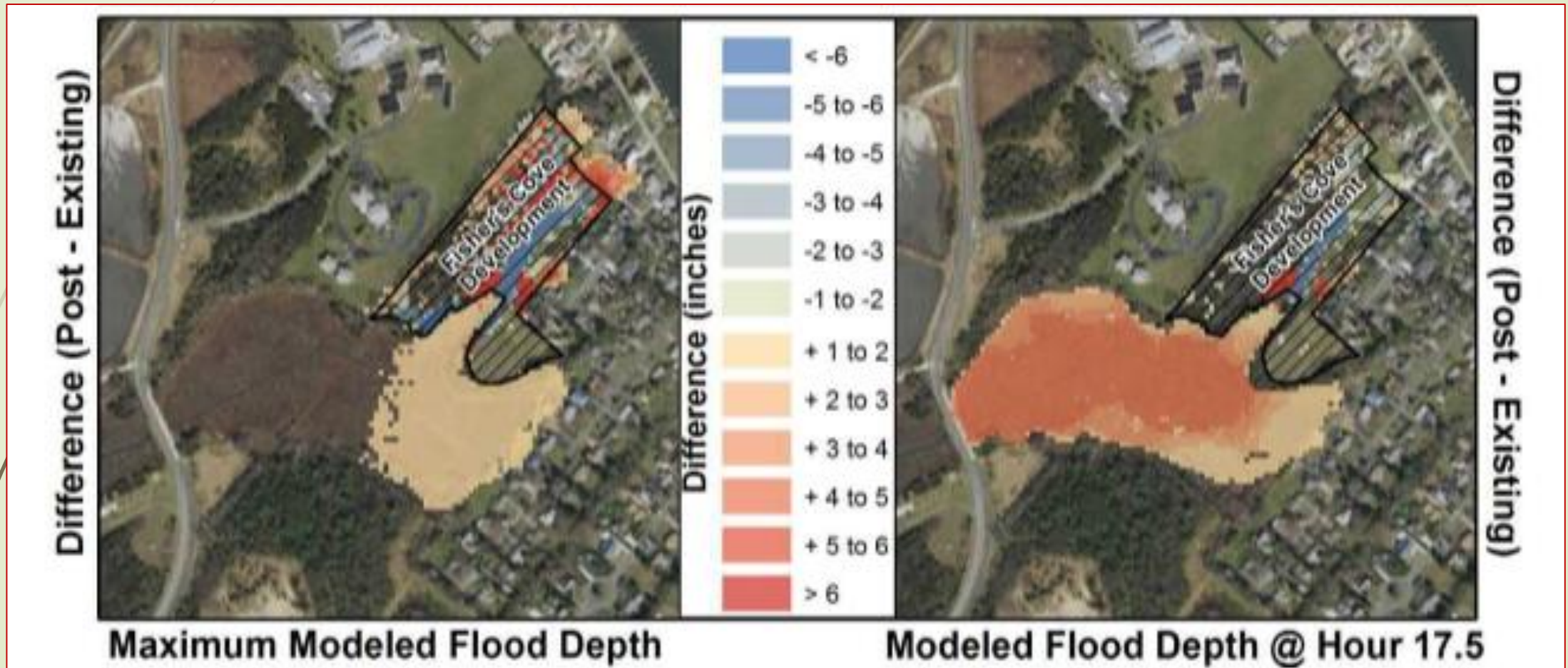
Rebound lines

2-Year Coastal Storm + 100-Year Rainfall Model



2-Year Coastal Storm + 100-Year Rainfall Model

Flood Depth One Hour before Peak



Differences in Model Flood Depth at 17.5 Hour

- ▶ Water varies by 5"
- ▶ One hour prior to peak flood
- ▶ Lagoon had not crested from the storm event at 17.5 hour
 - ▶ 7.6' MLLW or 4.93' NAVD88 high tide
- ▶ After peak high tide model difference was 1"

Differences in Model Flood Depth at 17.5 Hour

- ▶ Highlights sensitivity of lagoon water volume
- ▶ Demonstrate importance of water discharge timing
- ▶ What would happen in a Nor'easter
 - ▶ Multiple high tides over consecutive days
 - ▶ Lagoon will be at capacity
- ▶ Additional water added to lagoon will increase flooding

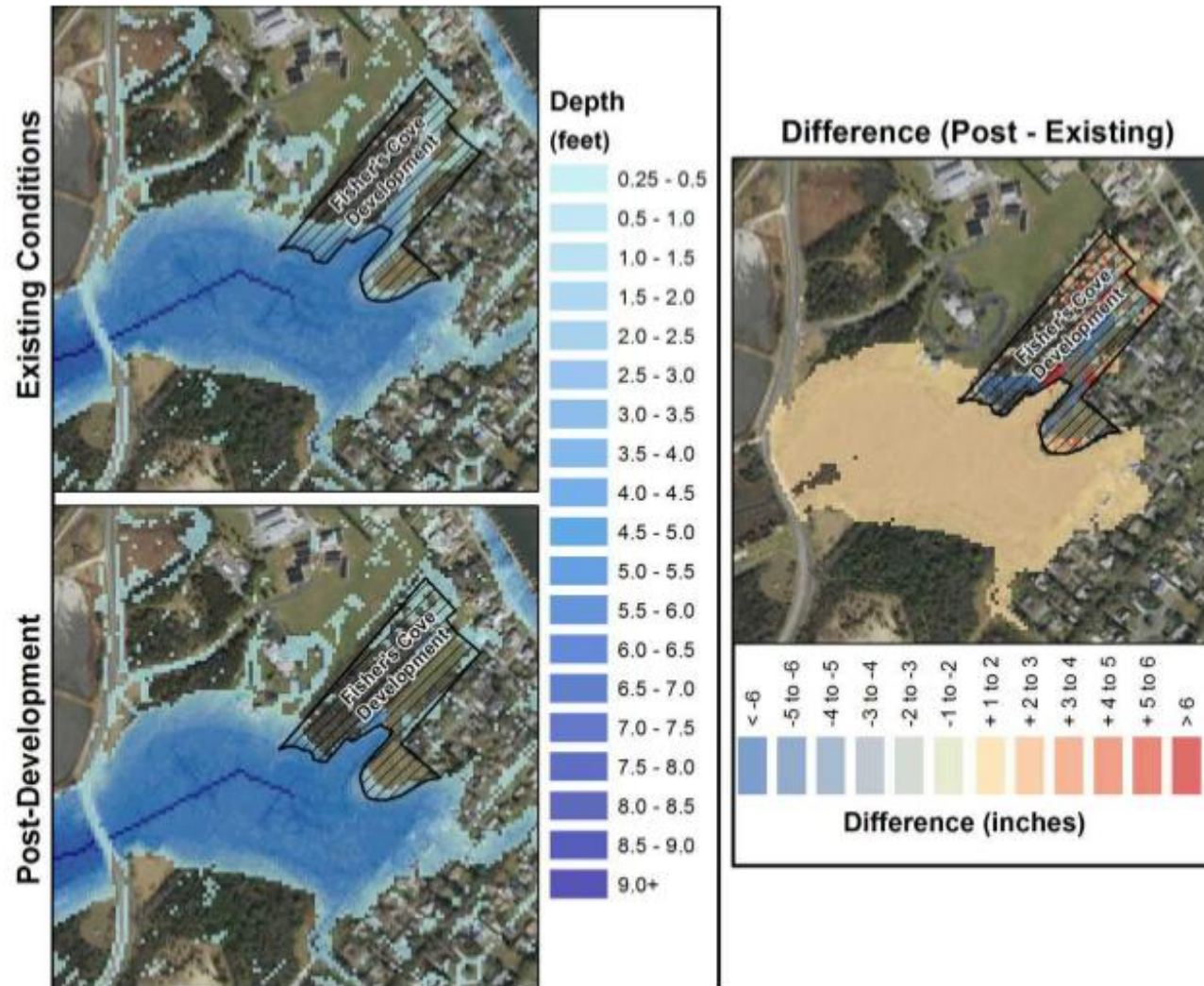
Model uses 2' high tide reduction 12 hours after peak tide
Page 23 figure 6.2



- **Models under estimate flooding**
 - Unproven storm water system
 - Impervious surface calculations
- Excluded from the models
 - Wind speed and direction
 - Consecutive high tides (Nor'easter)

100-Year Coastal Storm + 10-Year Rainfall Model

City of Lewes Flood Study





100-Yr Coastal Storm + 10-Yr Rainfall
Storm surge diverted – flood impact

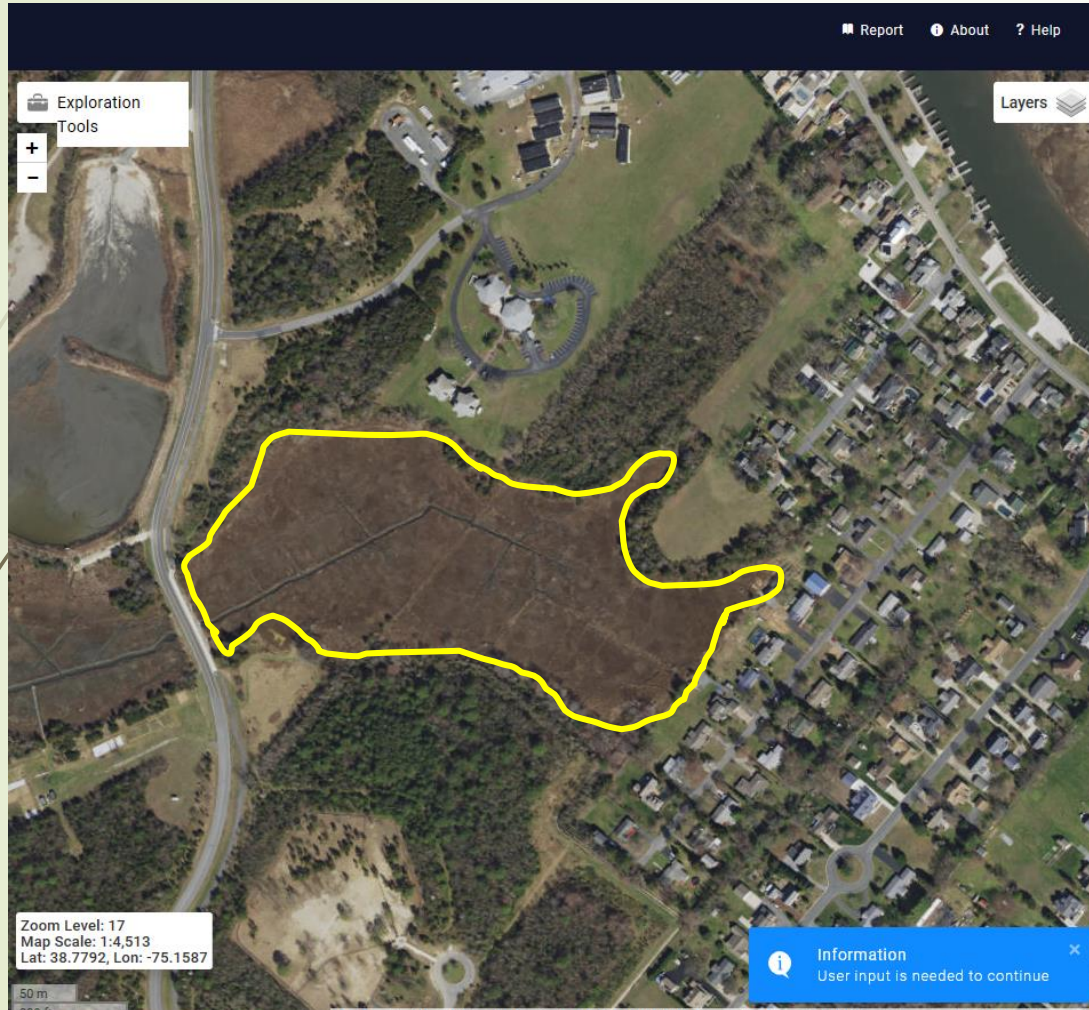
Location	Structures	Acres
Hoorncill Ave.	14 Homes	2.99
UDE Virden Center	Dorms	1.40
Pilottown Rd.	4 Homes	.36
Rodney Ave.	2 Homes	.16
Lagoon		18.0

Adverse Impact

- Construction of 18 Fishers Cove homes on 5.54 acres
- Adversely impacts:
 - Increases flooding on 21 adjacent properties totaling 4.91 acres
 - Rodney homes if road widened (14 additional)
- Total adverse impact on 35 properties



Lagoon Points Illustrated by Model



- Timing of high tide for the lagoon differs from high tide in the Bay
- The lagoon is sensitive to storm water runoff discharge
- The lagoon has a limited capacity
- The lagoon water level is critical in determining the effect of storm surge

<https://streamstats.usgs.gov/ss/>

Sea Level is Rising in Lewes

Lewes needs additional water holding capacity – not less





Summary

- ▶ The Fisher Cove Development Will
 - ▶ Adversely Impact the surrounding properties
 - ▶ Eliminate the beneficial effects of the flood plain
 - ▶ Adversely impact the quality of water entering the lagoon
 - ▶ Increase the water level in the lagoon
- ▶ **Please deny the Fishers Cove application for preliminary approval**