

My name is John Kiker. I live at 608 Pilottown Rd. Our property will be adversely impacted by the Fishers Cove development. The back corner of our lot is in the AE7 flood plain (7' elevation). The information I will present is collected from:

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

I commend the City of Lewes for conducting the Flood Study. It can improve your decision making process. I have a PhD in Quantitative Genetics. Basically I'm a statistician. I have never developed a weather or flooding simulation model, but I developed hundreds of different simulation models to evaluate productivity, safety, financial factors, etc. before retirement. I understand the process behind prediction models and the importance of accurate data, continually updating the data and evaluating new variables (data) to be used in the models.

The chart below helps to explain the Flood Study models by comparing NAVD88 (used in Flood Study) vs. MLLW (which is how the tide level is commonly reported). Mean Lower Low Water (MLLW) is 2.63' higher. Both MLLW and NAVD88 (North American Vertical Datum 1988) are used as reference points.

Model	NAVD88 Tide Level	MLLW Tide Level	Rainfall
2-Yr Coastal Storm + 100-Yr Rain	4.9 feet	07.5 feet	9.2"
10-Yr Coastal Storm + 50-Yr Rain	6.6 feet	09.2 feet	8.0"
100-Yr Coastal Storm + 10-Yr Rain	8.2 feet	10.8 feet	5.5"

As stated in the City of Lewes Flood Study report the models are limited by available data. Two key components in the models were storm water systems and impervious surfaces. The only data available to the study authors were preliminary Fishers Cove drawings. Unfortunately the Fishers Cove data is incomplete and most likely inaccurate. The storm water system keeps changing. To date there is no proof that the current proposal will operate as planned. The obvious problems are the depth of the holding ponds relative to the water table, the holding capacity, water quality entering the wetlands and the operation for releasing water relative to storm surge. Personally I think it will be extremely difficult if not impossible to build an adequate storm water system on this property for the 18 lots as proposed.

The Flood Study models used the preliminary Fishers Cove drawings to determine impervious surfaces on approximately 19% of the lot size. Lot owners usually determine the size and location of their house on the lot in custom developments. The Lewes building code allows construction on up to 65% of the lot size. In comparison to data used in the models there could be 180% more storm water runoff. To illustrate the potential difference and resulting concerns:

- Potential storm water runoff from 2-Yr Coastal Storm + 100-Yr Rain Model is 9.2"
- Construction on 19% of the lot with 28% impervious + Rodney equals 930,000 gallons
  - o 930,000 gallons on a football field equals 25.9 "
- Construction on 65% of the lot with 51% impervious + Rodney equals 1,416,000 gallons
  - o 1,416,000 gallons on a football field equals 43.7 "
- Rodney is included in the previous two bullets because the west side of Rodney's storm water goes into the proposed Fishers Cove storm water system
- The impervious percentages above include road surfaces

The model indicates flooding on Pilottown Rd. and Rodney (Figure 6.7 page 27). The water depth of the lagoon varies as much as 5" during the simulation at 17.5 hours (one hour prior to peak flood levels).

This highlights the sensitivity of the lagoon to water volume and timing of storm water discharge. This also illustrates the importance of reducing impervious surfaces for Fishers Cove and any other developments. The simulation used a 2' reduction in tide levels 12 hours after peak tide. In a Nor'easter you could have multiple high tides over multiple days. The lagoon will be at capacity therefore any additional water will increase flooding.

I believe the Flood Study has underestimated the amount of flooding because of the storm water system and impervious surface calculation. In addition wind speed/ direction and back to back multiple high tides (nor-eastern storms) were excluded from the models.

In Figure 6-8 on page 28 the Flood Study *100-Year Coastal Storm + 10-Year Rainfall* model showed the result of storm surge being diverted to adjoining properties. The flood impact is:

Location	Structures	Acres
Hoorntown Ave.	14 Homes	2.99
University of DE Virden Center	Dorms	1.40
Pilottown Rd.	4 Homes	.36
Rodney Ave.	2 Homes	.16
Lagoon		18

The increase of 1" throughout the lagoon (approximately 18 acres) and surrounding area is significant. This is equivalent to more than 600,000 gallons. Most of the flooding is caused by diverting the normal flow of storm surge away from the flood plain. Taken together the simulation model indicates the Fishers Cove construction of 18 new houses on 5.54 acres in the flood plain will increase flooding on 21 surrounding properties totaling 4.91 acres. If you add the additional homes on Rodney and Pilottown Rd. impacted by widening Rodney (12 on Rodney and 2 on Pilottown) there will be 35 existing homes negatively impacted.

The current flood plain is a significant buffer for the surrounding area. Fishers Cove will add additional water to the lagoon area thereby reducing its water holding capacity. The sea level is rising in Lewes. We need more water holding capacity not less.

The models illustrate the following points about the lagoon:

- 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 water level is critical in determining the effect of storm surge
- The lagoon has a limited capacity

Summary:

- The Fisher Cove development will:
  - o Adversely impact the surrounding properties
  - o Eliminate the beneficial effect of the current flood plain
  - o Increase the water level in the lagoon
  - o Adversely impact the quality of water entering the lagoon

For these reasons I ask you to deny the Fishers Cove application for preliminary approval.

Thank you