



APPENDIX A:

**HAZARD IDENTIFICATION AND RISK
ASSESSMENT (HIRA) METHOD, HAZARD
RANKING RESULTS, & HAZARD DATA
TABLES**

HAZARD IDENTIFICATION & RISK ASSESSMENT (HIRA)

As part of the hazard mitigation plan update process for Talbot County, a Hazard Identification Risk Assessment (HIRA) has been completed. Results from the Hazard Risk Survey completed by Hazard Mitigation Planning Committee Members (HMPC) have been integrated into the updated HIRA.

A risk is the chance, high or low, that any hazard will occur and the severity or impact from that hazard.

Nine (9) natural hazards have been identified and a hazard risk has been assigned to each. Only natural hazards are included in this assessment as they lend themselves better to data collection related to geographic extent than technological and man-made hazards. A separate risk assessment (THIRA) will be conducted for the technological and man-made hazards (i.e., Complex Coordinated Terrorist Attack, Active Assailant, and Cyber Attack) that have been added for this plan update.

Natural Hazard Identification and Risk Assessment Ranking Results		
Hazards	2017 Hazard Ranking	2022 Hazard Ranking
Coastal Hazards	High	High
Thunderstorm	Medium-High	Medium High
Flood	High	High
High Wind	Medium-High	Medium-High
Tornado	Medium	Low
Extreme Heat	Medium-High	High
Drought	Medium	Medium
Winter Storm	Medium-High	Medium-High
Emerging Infectious Diseases	N/A	High

HAZARD IDENTIFICATION & RISK ASSESSMENT METHOD

To assess the hazard risk for the nine (9) natural hazards identified in this Plan Update a composite score method was undertaken. The composite score method was based on a blend of quantitative and qualitative factors extracted from the National Centers for Environmental Information (NCEI), stakeholder survey, and other available data sources. These included:

- Historical impacts, in terms of human lives and property
- Geographic extent
- Historical occurrence
- Future probability
- Community perspective

The following eight (8) ranking parameters were used to develop the composite risk score, which provide the hazard ranking results for the nine (9) identified natural hazards. Each parameter was rated on a scale of one (1) to four (4).

Injuries and Death Ranking	
Death	4
N/A	3
Injury	2
None	1
<i>Source: National Centers for Environmental Information</i>	

Property and Crop Damage Ranking	
> 2M	4
501K	3
50k	2
0	1
<i>Source: National Centers for Environmental Information</i>	

Annualized Events Ranking	
2.51	4
1.01	3
0.11	2
0	1
<i>Source: National Centers for Environmental Information</i>	

Probability and Future Ranking	
Highly Likely	4
Likely	3
Occasional	2
Unlikely	1
<i>Source: National Centers for Environmental Information, based upon annualized events</i>	

Community Perspective Ranking	
Very Concerned	4
Concerned	3
Somewhat Concerned	2
Not Concerned	1
<i>Source: Talbot County Hazard Mitigation & Resilience Plan Update: Public Survey</i>	

Max Geographical Extent (Hazard Dependent) Ranking							
Ranking	Coastal Hazards	Drought	Flood	Thunderstorm	Tornado	High Wind	Winter Storm
1	0.00	0	0.00	0-2 events	0-10 events	0.00	10"-19"
2	25.00	0.18	10.00	3-5 events	11-17 events	60.00	20"-29"
3	50.00	0.3421	20.00	6-8 events	18-22 events	74.00	30"-39"
4	75.00	0.49	30.00	>9 events	>23 event	95.00	>40"
Source:	COASTAL: Risk Area	DROUGHT: CDL MD	FLOOD: DFIRMS	THUNDERSTORM: NCDC	TORNADO: NCDC	WIND: ASCE	WINTER STORM: National Weather Service
Calculated Using:	% of Coastal Land Area	% Crop Area	% Area in 100-yr Floodplain	Average number based on: Number of events, 2"> hail and lightning events with Injuries/Deaths	Sum of all tornados weighted by F-scale (F1*1.5, F2*2, F3*3, F4*4)	ASCE Design Wind Speeds	Average Snowfall
<i>Source: 2016 State of Maryland Hazard Mitigation Plan</i>							

The following weighted risk factors were used in the equation below to determine the composite risk score for each identified hazard.

Weighted Risk Factors		
Injuries	IN	1
Deaths	DT	1
Property Damage	PD	1
Crop Damage	CD	1
Geographic Extent (Hazard Dependent)	GE	1.5
Events (Annualized)	EV	1
Future Probability	FP	1
Community Perspective	CP	1.5

Equation: Composite Score = IN + DT + PD + CD + (GE*1.5) + EV + FP + (CP*1.5)

Hazard Ranking Results: Using the data tables above to populate the parameters, the composite score was determined for each identified hazard. Hazard Rankings were assigned accordingly using the adjacent Composite Score chart.

Composite Score	
Score (≥)	Hazard Ranking
0	Low
15	Medium
20	Medium-High
25	High

The following table provides the hazard risk ranking update results. Flood, Coastal Hazards, Extreme Heat, and Emerging Infectious Diseases categories were ranked as “High” risk hazards. Thunderstorm, High Wind, and Winter Weather were ranked as “Medium-High” risk hazards. Drought was ranked as a “Medium” risk.

Composite Scores										
Hazard	Injuries & Deaths		Property & Crop Damage		Geographic Extent	Total Events Annualized	Future Probability	Community Perspective	Composite Score	HAZARD RANKING
	IN	DT	PD	CD	GE	EV	FP	CP	CS	
Flood (Flash Flood, Heavy Rain)	0 = 1	0 = 1	\$6.075 M = 4	0 = 1	28.17% = 3	2.92 = 4	Highly Likely = 4	Very Concerned = 4	25.5	HIGH
Drought	0 = 1	0 = 1	0 = 1	0 = 1	55% = 4	2.36 = 3	Occasional = 2	Somewhat Concerned = 2	18	MEDIUM
Tornado	0 = 1	0 = 1	\$76k = 2	0 = 1	9 = 1	0.16 = 2	Occasional = 2	Somewhat Concerned = 2	13.5	LOW
Thunderstorm (Thunderstorm Wind, Lightning, Hail)	6 = 2	0 = 1	\$1.39M = 3	0 = 1	114 = 4	1.75 = 3	Likely = 3	Somewhat Concerned = 2	22	MEDIUM-HIGH
High Wind	0 = 1	0 = 1	\$417.5k = 2	\$1.01k = 1	115 = 4	4.31 = 4	Highly Likely = 4	Concerned = 3	23.5	MEDIUM-HIGH
Extreme Heat	2 = 2	5 = 4	0 = 1	0 = 1	55% = 4	2.89 = 4	Highly Likely = 4	Somewhat Concerned = 2	25	HIGH
Winter Weather (Winter Storm, Blizzard, Ice Storm)	0 = 1	2 = 4	\$400k = 1	0 = 1	14" = 1	5.58 = 4	Highly Likely = 4	Concerned = 3	22	MEDIUM-HIGH
Coastal Hazards (Tropical Storm, Hurricane, Coastal Flooding)	0 = 1	0 = 1	\$250k = 2	0 = 1	98% = 4	0.39 = 4*	Highly Likely = 4	Very Concerned = 4	25	HIGH
Emerging Infectious Diseases	2	4	0 = 1	0 = 1	**100% = 4	***297.86 = 4	Highly Likely = 4	Very Concerned = 3	26.5	HIGH

* The data collection process does not include events related to sea level rise and shoreline erosion, which Talbot County includes with Coastal Hazards. Including sea level rise and shoreline erosion it is believed that future probability is high for this hazard.

Composite Scores

Hazard	Injuries & Deaths	Property & Crop Damage	Geographic Extent	Total Events Annualized	Future Probability	Community Perspective	Composite Score	HAZARD RANKING
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**Emerging Infectious Diseases' geographic extent is countywide (100%).
 *** Total Events/Annualized based on Cases of Selected Notifiable Conditions Reported Talbot County, Maryland 2013-2019. Source: Maryland Department of Health - Maryland's NEDSS And PRISM Databases

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DATA TABLES

The following data tables were developed and used to populate five (5) of the eight (8) parameters: Injuries, Death, Property Damage, Crop Damage, and Annualized Events.

FLOOD

Total Flood Hazard Risk Assessment Data Table					
<i>Hazards included within this table from NCEI Data: Flood, Flash Flood, and Heavy Rain</i>					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$6.075M	\$0	% in 100-yr Flood Zone (A, AE, AO &VE) = 28.17%	Total = 76 Annual Avg. = 2.92
<i>Source: National Centers for Environmental Information, as of February 2021 & 2016 State of Maryland Hazard Mitigation Plan</i> <i>*Note: Data collected for 1950-present, no data available for this event type prior to 1996.</i>					

Flood Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2011-2021)
0	0	\$2M	\$0	% in 100-yr Flood Zone (A, AE, AO &VE) = 28.17%	Total = 3 Annual Avg. = 0.27
<i>Note: Data collected for 1950-present, no data available for this event type prior to 2011.</i> <i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i> <i>Based on NCEI definitions/criteria: Flood (C). Any high flow, overflow, or inundation by water which causes damage. In general, this would mean the inundation of a normally dry area caused by an increased water level in an established watercourse, or ponding of water, that poses a threat to life or property. If the event is considered significant, it should be entered into Storm Data, even if it only affected a small area. Refer to the Flash Flood event (Section 14) for guidelines for differentiating between Flood and Flash Flood events.</i>					

Flash Flood Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$4.075M	\$0	% in 100-yr Flood Zone (A, AE, AO &VE) = 28.17%	Total = 18 Annual Avg. = 0.69
<i>Note: Data collected for 1950-present, no data available for this event type prior to 1996.</i> <i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i> <i>Based on NCEI definitions/criteria: Flash Flood (C). A life-threatening, rapid rise of water into a normally dry area beginning within minutes to multiple hours of the causative event (e.g., intense rainfall, dam failure, ice jam). Ongoing flooding can intensify to the shorter-term flash flooding in cases where intense rainfall results in a rapid surge of rising flood waters. Flash flooding, such as dangerous small stream or urban flooding and dam or levee failures, requires immediate action to protect life and property. Conversely, flash flooding can transition into flooding as rapidly rising waters abate. The Storm Data preparer uses professional judgment in determining when the event is no longer characteristic of a Flash Flood and becomes a Flood.</i>					

Heavy Rain Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$0	\$0	% in 100-yr Flood Zone (A, AE, AO &VE) = 28.17%	Total = 55 Annual Avg. = 2.16
<i>Note: Data collected for 1950-present, no data available for this event type prior to 1996.</i> <i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i> <i>Based on NCEI definitions/criteria: Heavy Rain (C). Unusually large amount of rain which does not cause a Flash Flood or Flood event, but causes damage, e.g., roof collapse or other human/economic impact. Heavy Rain will no longer be acceptable to record low-impact or isolated flood events.</i>					

DROUGHT

Total Drought Hazard Risk Assessment Data Table					
Hazards included within this table from NCEI Data: Drought					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1997-2021)
0	0	\$0	\$0	% Crop land cover from 2017 USDA Cropland Data = 55%	Total = 59 Annual Avg. = 2.36
<p>Source: National Centers for Environmental Information, as of February 2021, 2016 State of Maryland Hazard Mitigation Plan & USDA Cropland Data-2019</p> <p>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</p> <p>Based on NCEI definitions/criteria: Drought (Z). Drought is a deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area. Conceptually, drought is a protracted period of deficient precipitation resulting in extensive damage to crops, resulting in loss of yield. There are different kinds of drought: meteorological, agricultural, hydrological, and social-economic. Each kind of drought starts and ends at different times.</p>					

TORNADO

Total Tornado Hazard Risk Assessment Data Table					
Hazards included within this table from NCEI Data: Tornado, Funnel Cloud, and Waterspout					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1967-2021)
0	0	\$76k	\$0	SVRGIS (intensity & frequency) = 1	Total = 9 Annual Avg. = 0.16
<p>Source: National Centers for Environmental Information, as of February 2021 & 2016 State of Maryland Hazard Mitigation</p> <p>Note: Data collected for 1950-present, no data available for this event type prior to 1984.</p>					

Tornado Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1967-2021)
0	0	\$76k	\$0	SVRGIS (intensity & frequency) = 1	Total = 5 Annual Avg. = 0.09
<p>Note: Data collected for 1950-present, no data available for this event type prior to 1967.</p> <p>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</p> <p>Based on NCEI definitions/criteria: Tornado (C). A violently rotating column of air, extending to or from a cumuliform cloud or underneath a cumuliform cloud, to the ground, and often (but not always) visible as a condensation funnel. For a vortex to be classified as a tornado, it must be in contact with the ground and extend to/from the cloud base, and there should be some semblance of ground-based visual effects such as dust/dirt rotational markings/swirls, or structural or vegetative damage or disturbance.</p>					

Funnel Cloud Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2002-2021)
0	0	\$0	\$0	SVRGIS (intensity & frequency) = 1	Total = 3 Annual Avg. = 0.15
<p>Note: Data collected for 1950-present, no data available for this event type prior to 2002.</p> <p>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</p> <p>Based on NCEI definitions/criteria: Funnel Cloud (C). A rotating, visible extension of a cloud pendant from a convective cloud with circulation not reaching the ground. The funnel cloud should be large, noteworthy, or create strong public or media interest to be entered.</p>					

Waterspout Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2000-2021)
0	0	\$5k	\$0	SVRGIS (intensity & frequency) = 1	Total = 1 Annual Avg. = 0.05
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 2000.</i></p> <p><i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i></p> <p><i>Based on NCEI definitions/criteria: Waterspout (M). A rotating column of air, pendant from a convective cloud, with its circulation extending from cloud base to the water surface of bays and waters of the Great Lakes, and other lakes with assigned Marine Forecast Zones. A condensation funnel may or may not be visible in the vortex.</i></p>					

HIGH WIND

High Wind Hazard Risk Assessment Data Table					
<i>Hazards included within this table from NCEI Data: High Wind and Strong Wind</i>					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$417.5k	\$1.01k	ASCE Wind Design Speed = 115	Total = 112 Annual Avg. = 4.31
<p><i>Source: National Centers for Environmental Information, as of February 2021 & 2019 Building Code Administration</i></p> <p><i>Note: Data collected for 1950-present, no data available for this event type prior to 1996</i></p>					

High Wind Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$26.5k	\$0	ASCE Wind Design Speed = 115	Total = 23 Annual Avg. = 0.89
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 1996</i></p> <p><i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i></p> <p><i>Based on NCEI definitions/criteria: High Wind (Z). Sustained non-convective winds of 35 knots (40 mph) or greater lasting for 1 hour or longer, or gusts of 50 knots (58 mph) or greater for any duration (or otherwise locally/regionally defined). In some mountainous areas, the above numerical values are 43 knots (50 mph) and 65 knots (75 mph), respectively. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data.</i></p>					

Strong Wind Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1997-2021)
0	0	\$391k	\$1.01k	ASCE Wind Design Speed = 115	Total = 89 Annual Avg. = 3.56
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 1997</i></p> <p><i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i></p> <p><i>Based on NCEI definitions/criteria: Strong Wind (Z). Non-convective winds gusting less than 50 knots (58 mph), or sustained winds less than 35 knots (40 mph), resulting in a fatality, injury, or damage. Consistent with regional guidelines, mountain states may have higher criteria. A peak wind gust (estimated or measured) or maximum sustained wind will be entered.</i></p>					

WINTER WEATHER

Winter Weather Hazard Risk Assessment Data Table					
<i>Hazards included within this table from NCEI Data: Winter Storm, Winter Weather, Blizzard, Ice Storm, Frost/Freeze, Heavy Snow and Sleet.</i>					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	2	\$400k	\$0	Average snowfall total: 14.0" (1893-2008 UMD-Climatologist Office)	Total = 145 Annual Avg. = 5.58
<i>Source: National Centers for Environmental Information, as of February 2021, 2016 State of Maryland Hazard Mitigation Plan, & NOAA/NWS</i>					

Winter Storm Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$400k	\$0	Average snowfall total: 14.0" (1893-2008 UMD-Climatologist Office)	Total = 20 Annual Avg. = 0.77
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 1996.</i></p> <p><i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i></p> <p><i>Based on NCEI definitions/criteria: Winter Storm (Z). A winter weather event that has more than one significant hazard (i.e., heavy snow and blowing snow; snow and ice; snow and sleet; sleet and ice; or snow, sleet and ice) and meets or exceeds locally/regionally defined 12 and/or 24-hour warning criteria for at least one of the precipitation elements. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data. Normally, a Winter Storm would pose a threat to life or property.</i></p>					

Winter Weather Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	2	\$0	\$0	Average snowfall total: 14.0" (1893-2008 UMD-Climatologist Office)	Total = 74 Annual Avg. = 2.85
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 1996.</i></p> <p><i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i></p> <p><i>Based on NCEI definitions/criteria: Winter Weather (Z). A winter precipitation event that causes a death, injury, or a significant impact to commerce or transportation, but does not meet locally/regionally defined warning criteria. A Winter Weather event could result from one or more winter precipitation types (snow, or blowing/drifted snow, or freezing rain/drizzle). The Winter Weather event can also be used to document out-of-season and other unusual or rare occurrences of snow, or blowing/drifted snow, or freezing rain/drizzle. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data.</i></p>					

Sleet Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1997-2021)
0	0	\$0	\$0	Average snowfall total: 14.0" (1893-2008 UMD-Climatologist Office)	Total = 3 Annual Avg. = 0.12
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 1997.</i></p> <p><i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i></p> <p><i>Based on NCEI definitions/criteria: Sleet (Z). Sleet accumulations meeting or exceeding locally/regionally defined warning criteria (typical value is ½ inch or more). The Storm Data preparer should include in the narrative the times that sleet accumulation began, met criteria, and ended.</i></p>					

Cold / Wind Chill Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$0	\$0	Average snowfall total: 14.0" (1893-2008 UMD-Climatologist Office)	Total = 24 Annual Avg. = 0.92
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 1996.</i></p> <p><i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i></p> <p><i>Based on NCEI definitions/criteria: Cold / Wind Chill (Z). (Z). Period of low temperatures or wind chill temperatures reaching or exceeding locally/regionally defined advisory (typical value is -180 F or colder) conditions. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data. There can be situations where advisory criteria are not met, but the combination of seasonably cold temperatures and low wind chill values (roughly 150 F below normal) may result in a fatality. In these situations, a cold/wind chill event may be documented if the weather conditions were the primary cause of death as determined by a medical examiner or coroner. Normally, cold/wind chill conditions should cause human and/or economic impact.</i></p>					

Blizzard Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2010-2021)
0	0	\$0	\$0	Average snowfall total: 14.0" (1893-2008 UMD-Climatologist Office)	Total = 1 Annual Avg. = 0.08
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 2010.</i></p> <p><i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i></p> <p><i>Based on NCEI definitions/criteria: Blizzard (Z). A winter storm which produces the following conditions for 3 consecutive hours or longer: (1) sustained winds or frequent gusts 30 knots (35 mph) or greater, and (2) falling and/or blowing snow reducing visibility frequently to less than 1/4 mile. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data.</i></p>					

Heavy Snow Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$0	\$0	Average snowfall total: 14.0" (1893-2008 UMD-Climatologist Office)	Total = 21 Annual Avg. = 0.81
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 1996.</i></p> <p><i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i></p> <p><i>Based on NCEI definitions/criteria: Heavy Snow (Z). (Z). Snow accumulation meeting or exceeding locally/regionally defined 12 and/or 24 hour warning criteria. This could mean values such as 4, 6, or 8 inches or more in 12 hours or less; or 6, 8, or 10 inches in 24 hours or less. If the event that occurred is considered significant, even if it affected a small area, it should be entered into Storm Data. In some heavy snow events, structural damage, due to the excessive weight of snow accumulations, may occur in the few days following the meteorological end of the event.</i></p>					

Extreme Cold Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2014-2021)
0	0	\$0	\$0	Average snowfall total: 14.0" (1893-2008 UMD-Climatologist Office)	Total = 1 Annual Avg. = 0.125
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 2014.</i></p> <p><i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i></p> <p><i>Based on NCEI definitions/criteria: Extreme Cold (Z). A period of extremely low temperatures or wind chill temperatures reaching or exceeding locally/regionally defined warning criteria (typical value around -350 F or colder). If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data. Normally these conditions should cause significant human and/or</i></p>					

economic impact. However, if fatalities occur with cold temperatures/wind chills but extreme cold/wind chill criteria are not met, the event should also be included in Storm Data as a Cold/Wind Chill event and the fatalities are direct.

Frost / Freeze Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2007-2021)
0	0	\$0	\$0	Average snowfall total: 14.0" (1893-2008 UMD-Climatologist Office)	Total = 1 Annual Avg. = 0.067
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 2007.</i> <i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i> <i>Based on NCEI definitions/criteria: Frost / Freeze (Z). A surface air temperature of 32 degrees Fahrenheit (F) or lower, or the formation of ice crystals on the ground or other surfaces, for a period of time long enough to cause human or economic impact, during the locally defined growing season. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data.</i></p>					

COASTAL EVENTS

Total Coastal Events Hazard Risk Assessment Data Table					
<i>Hazards included within this table from NCEI Data: Tropical Storm, and Coastal Flooding. There are no Tropical Depressions or Hurricanes recorded in the NCEI Database for this county.</i>					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$250k	\$0	% of County in Coastal Land Area = 98%	Total = 10 Annual Avg. = 0.39
<p><i>Source: National Centers for Environmental Information, as of February 2021 & 2016 State of Maryland Hazard Mitigation Plan</i> <i>Note: Data collected for 1950-present, no data available for this event type prior to 1996</i> <i>**The data collection process does not include events related to sea level rise and shoreline erosion, which Talbot County includes with Coastal Hazards. Including sea level rise and shoreline erosion, it is believed that future probability is high for this hazard.</i></p>					

Tropical Storm Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2003-2021)
0	0	\$250k	\$0	% of County in Coastal Land Area = 98%	Total = 4 Annual Avg. = 0.21
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 2003.</i> <i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i> <i>Based on NCEI definitions/criteria: Tropical Storm (Z). A tropical cyclone in which the 1-minute sustained surface wind ranges from 34 to 63 knots (39 to 73 mph). A Tropical Storm should be included as an entry when these conditions are experienced in the WFO's (Weather Forecast Office) CWA (County Warning Area).</i></p>					

Coastal Flooding Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
0	0	\$0	\$0	% of County in Coastal Land Area = 98%	Total = 6 Annual Avg. = 0.23
<p><i>Note: Data collected for 1950-present, no data available for this event type prior to 1996.</i> <i>Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.</i> <i>Based on NCEI definitions/criteria: Coastal Flood (Z). Flooding of coastal areas due to the vertical rise above normal water level caused by strong, persistent onshore wind, high astronomical tide, and/or low atmospheric pressure, resulting in damage, erosion, flooding, fatalities, or injuries. Coastal areas are defined as those portions of coastal land zones (coastal county/parish) adjacent to the waters, bays, and estuaries of the oceans. Farther inland, the Storm Data preparer determines the boundary between coastal and inland areas, where flood events will be</i></p>					

encoded as Flash Flood or Flood rather than Coastal Flood. Terrain (elevation) features will determine how far inland the coastal flooding extends.

THUNDERSTORM

Thunderstorm Hazard Risk Assessment Data Table					
Hazards included within this table from NCEI Data: Thunderstorm Wind, Lightning, and Hail.					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1957-2021)
6	0	\$1.393M	\$0	ASCE Wind Design Speed = 115 2"> hail and lightning events with Injuries/Deaths = 1	Total = 114 Annual Avg. = 1.75
Source: National Centers for Environmental Information, as of February 2021, & 2019 Building Code Administration & 2016 State of Maryland Hazard Mitigation Plan					
Note: Data collected for 1950-present, no data available for this event type prior to 1957.					

Thunderstorm Wind Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1965-2021)
0	0	\$180k	\$0	ASCE Wind Design Speed = 115	Total = 108 Annual Avg. = 1.90
Note: Data collected for 1950-present, no data available for this event type prior to 1965.					
Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.					
Based on NCEI definitions/criteria: Thunderstorm Wind (C). Winds, arising from convection (occurring within 30 minutes of lightning being observed or detected), with speeds of at least 50 knots (58 mph), or winds of any speed (non-severe thunderstorm winds below 50 knots) producing a fatality, injury, or damage. Maximum sustained winds or wind gusts (measured or estimated) equal to or greater than 50 knots (58 mph) will always be entered. Events with maximum sustained winds or wind gusts less than 50 knots (58 mph) should be entered as a Storm Data event only if the result in fatalities, injuries, or serious property damage. Storm Data software permits only one event name for encoding severe and non-severe thunderstorm winds. The Storm Data software program requires the preparer to indicate whether the sustained wind or wind gust value was measured or estimated.					

Lightning Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1997-2021)
6	0	\$1.213M	\$0	Countywide	Total = 15 Annual Avg. = 0.60
Note: Data collected for 1950-present, no data available for this event type prior to 1997.					
Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.					
Based on NCEI definitions/criteria: Lightning (C). A sudden electrical discharge from a thunderstorm, resulting in a fatality, injury, and/or damage.					

Hail Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1957-2021)
0	0	\$0	\$0	2"> hail and lightning events with Injuries/Deaths = 0	Total = 21 Annual Avg. = 0.32
Note: Data collected for 1950-present, no data available for this event type prior to 1957.					
Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.					
Based on NCEI definitions/criteria: Hail (C). Frozen precipitation in the form of balls or irregular lumps of ice. Hail 3/4 of an inch or larger in diameter will be entered. Hail accumulations of smaller size, which cause property and/or crop damage or casualties, should be entered. Maximum hail size will be encoded for all hail reports entered.					

EXTREME HEAT

Total Extreme Heat Hazard Risk Assessment Data Table					
<i>Hazards included within this table from NCEI Data: Excessive Heat and Heat</i>					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
2	5	\$0	\$0	% Crop from 2017 Agriculture Census = 55%	Total = 75 Annual Avg. = 2.89

Source: National Centers for Environmental Information, as of February 2021.

Excessive Heat Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (2000-2021)
0	0	\$0	\$0	% Crop from 2017 Agriculture Census = 55%	Total = 16 Annual Avg. = 0.73

*Note: Data collected for 1950-present, no data available for this event type prior to 2000.
Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.
Based on NCEI definitions/criteria: Excessive Heat (Z). Excessive Heat results from a combination of high temperatures (well above normal) and high humidity. An Excessive Heat event occurs and is reported in Storm Data whenever heat index values meet or exceed locally/regionally established excessive heat warning thresholds. Fatalities (directly related) or major impacts to human health that occur during excessive heat warning conditions are reported using this event category. If the event that occurred is considered significant, even though it affected a small area, it should be entered into Storm Data.*

Heat Hazard Data Table					
Injuries	Deaths	Property Damage	Crop Damage	Geographic Extent	Days with Events (1996-2021)
2	5	\$0	\$0	% Crop from 2017 Agriculture Census = 55%	Total = 59 Annual Avg. = 2.68

*Note: Data collected for 1950-present, no data available for this event type prior to 1996.
Legend: There are three designators: C - County/Parish; Z - Zone; and M – Marine Zone.
Based on NCEI definitions/criteria: Heat (Z). A period of heat resulting from the combination of high temperatures (above normal) and relative humidity. A Heat event occurs and is reported in Storm Data whenever heat index values meet or exceed locally/regionally established advisory thresholds. Fatalities or major impacts on human health occurring when ambient weather conditions meet heat advisory criteria are reported using the Heat event. If the ambient weather conditions are below heat advisory criteria, a Heat event entry is permissible only if a directly related fatality occurred due to unseasonably warm weather, and not man-made environments.*

EMERGING INFECTIOUS DISEASES

Cases of Selected Notifiable Conditions Reported - Talbot County, Maryland							
Condition	2013	2014	2015	2016	2017	2018	2019
Anaplasmosis	0	0	0	0	1	0	0
Animal Bites	88	95	83	75	84	81	104
Babesiosis	1	0	0	0	1	0	0
Campylobacteriosis	11	7	10	5	6	9	8
Chlamydia	125	125	76	89	100	103	119
Cryptosporidiosis	3	1	2	3	2	4	0
Cyclosporiasis	0	0	0	0	0	0	1
Ehrlichiosis	0	1	1	0	1	6	3
Encephalitis – non-Arboviral	0	0	0	0	1	0	0
Giardiasis	2	1	1	1	2	2	1
Gonorrhea	18	17	25	26	24	16	24

Cases of Selected Notifiable Conditions Reported - Talbot County, Maryland							
Condition	2013	2014	2015	2016	2017	2018	2019
H. influenzae – invasive disease	0	0	1	0	2	2	3
Hepatitis A (acute symptomatic)	0	0	1	0	0	1	0
Hepatitis B (acute symptomatic)	0	1	1	0	0	0	0
Hepatitis C (acute symptomatic)	1	0	0	0	1	0	1
Legionellosis	0	0	2	0	0	2	0
Listeriosis	1	0	0	0	0	0	0
Lyme Disease	45	30	20	15	28	12	18
Malaria	0	0	0	0	0	1	0
Meningitis, aseptic	1	0	0	0	1	0	0
Mycobacteriosis, Other than TB & Leprosy	4	1	4	2	9	7	7
Pertussis	2	4	0	1	0	2	0
Rabies - Animal	3	7	7	9	7	14	9
Salmonellosis – other than typhoid fever	5	7	10	9	8	18	14
Shiga toxin producing E. coli (STEC)	0	1	0	0	0	1	0
Shigellosis	0	0	1	0	0	1	1
Spotted Fever Rickettsiosis	0	0	0	0	7	20	22
Strep Group A – Invasive Disease	0	0	1	1	1	1	2
Strep Group B – Invasive Disease	4	4	11	6	7	5	0
Strep pneumoniae - Invasive Disease	0	0	2	1	4	2	2
Syphilis – primary and secondary	1	1	0	0	1	1	1
Tuberculosis	0	0	0	0	3	0	0
Typhoid Fever - acute							
West Nile Virus	0	0	0	0	0	1	0
Vibriosis (non-cholera)	1	3	0	3	1	2	2
Zika virus disease	*	*	*	0	0	0	0
Zika virus infection	*	*	*	0	0	0	0
TOTALS:	316	306	259	246	302	314	342
<p>Data sources: Maryland's NEDSS and PRISM databases. Data is current as of 4/15/2021. These are active databases and counts may vary slightly over time, as well as differ slightly from counts published by the Centers for Disease Control and Prevention (CDC). HIV/AIDS data are not included here but available at http://phpa.dhmh.maryland.gov/OIDEOR/CHSE/SitePages/statistics.aspx.</p> <p>* Zika virus infections not reported for the years 2013- 2015 in the database.</p>							