

CHAPTER 12 – MAN-MADE HAZARDS

Updates to the Wicomico County Chapter 12 – Man-Made Hazards included the following:

- Added dam rating classifications information
- Updated Wicomico County Dam Condition Information table
- Added images to the chapter
- Added most recent EPA Toxics Release Inventory for Wicomico County – Quick Facts
- New vulnerability analysis for community lifelines and public facilities within 1,000 feet of the centerline on major transportation corridors
- Updated Delmarva Water Transport Committee INC. river conditions data tables
- Updated Federal Railroad Administration Office Safety Analysis data table

CHAPTER 12 – MAN-MADE HAZARDS

12.1 INTRODUCTION

Man-made hazards for the purposes of this plan and as described herein include dam failure, transportation and fixed-site hazardous materials events, airplane accidents, and railway accidents. The effects of man-made hazards include power outages, communication failures, road closures, loss of infrastructure, evacuation, and loss of life. The location of their occurrence and effects may be predicted to some degree by past incidents.

12.2 DAM CHARACTERIZATION

Dam failure refers to a collapse, overtopping, breaching or any related condition that causes downstream flooding. Dam failure examples in the United States include the Johnstown Flood in 1889 resulting in 2,209 deaths, the Saugus, California dam collapse in the Los Angeles Aqueduct system in 1928 resulting in 450 deaths, and the Teton Dam breach on the Snake River in Idaho during a flash flood in 1976 resulting in 11 deaths. During Hurricane Agnes in 1972, concern about the Conowingo Dam on the Susquehanna River led to the opening of all flood gates to release pressure when the water level was three feet higher than the dam's rated capacity.

Approximately one-third of all dam failures are caused by overtopping due to inadequate spillway capacity; one-third are caused by seepage through or under the structure; and the remainder from improper design or construction or because of earthquake or landslide events which trigger the dam failure.

12.3 DAM HAZARD RISK, HISTORY & VULNERABILITY

According to the Maryland Department of the Environment (MDE) and the U.S. Army Corps of Engineers (USACE), Wicomico County currently has seventeen (17) dams within its jurisdiction.

MDE provides dam ratings based on an analysis of potential impacts in the event of a dam failure. The Dam Ratings are defined by MDE as follows:

High Hazard: Failure would likely result in loss of human life, extensive property damage to homes and other structures, or cause flooding of major highways such as State roads or interstates. There are 85 high hazard dams in Maryland.

Significant Hazard: Failure could possibly result in loss of life or increase flood risks to roads and buildings, with no more than 2 houses impacted and less than six lives in jeopardy. There are 125 significant hazard dams in Maryland.

Low Hazard Dam: Failure is unlikely to result in loss of life and only minor increases to existing flood levels at roads and buildings is expected. There are more than 240 low hazard dams in Maryland



Photo 1: Photo of Morris Mill Dam at South Division Street near Fruitland prior to rehabilitation. Photo by Liz Holland.

Within Wicomico County, three (3) dams are rated as a high hazard for the County: Beaglin Park Dam, Coulbourn Mill Dam, and Morris Mill Pond. Johnson Pond and Mitchell Pond #1 are currently rated as significant hazards. Johnson Pond may be upgraded to high hazard due to the population at risk. When looking at the combined risk for dam failure in the County, the probability of dam failure is low, however depending on location, the resulting impact is extremely high.



*Photo 2. The dam and road at Barren Creek Pond failed during a severe July 2016 storm. The County rebuilt the roadway but did not restore the dam.
Photo by Liz Holland.*

According to the MDE Dam Safety Division, the City of Salisbury is downstream of four dams that could pose a high or significant threat to the city in the event of a breach or failure. Emergency Action Plans (EAP) are maintained for the Beaglin Park Dam, Coulbourn Mill Dam, Johnson Pond, Mitchell Pond #1, and Morris Mill Pond in the County. The only other municipality downstream from a dam is Mardela Springs. Wicomico County dam inventory, conditions, and areas of impact are listed on Table 12.1. There are three (3) dams rated as “High Hazards” and two (2) rated as “Significant Hazards”.

In June 2016, heavy rains caused the state-owned Riawalkin Pond dam to fail and washed out a section of the Nanticoke Road. Following that event, in July, another severe storm caused the privately owned Barren Creek Dam to fail, removing a portion of Barren Creek Road (pictured above). That same year in September, due to unprecedented rainfall, officials ordered an evacuation of the entire Canal Woods condominium complex due to the concern that the nearby county-owned Morris Mill dam would breach.

The State Highway Administration repaired the Riawalkin Pond dam and Nanticoke Road. Wicomico County purchased the land surrounding the Barren Creek dam and rebuilt the roadway with culverts; removing the dam completely. In June 2020, the rehabilitation to the Morris Mill dam was completed. Improvements entailed brand new steel sheet piles, all new concrete outfall structure (not brick like the old one), all new concrete outfall pipes, steel sheet pile wing walls on the downstream outfall location, anti-seep collars, and new compliant guardrails.

The President signed the [Water Infrastructure Improvements for the Nation Act](#) or the “WIIN Act,” on December 16, 2016, which adds a new grant program under FEMA’s National Dam Safety Program ([33 U.S.C. 467f](#)). Section 5006 of the Act, Rehabilitation of High Hazard Potential Dams, provides technical, planning, design, and construction assistance in the form of grants for rehabilitation of eligible high hazard potential dams.

High Hazard Potential is a classification standard for any dam whose failure or mis-operation will cause loss of human life and significant property destruction.

Table 12.1: Wicomico County Dam Condition Information

Dam Name	Hazard/Condition	Areas of Impact
Allen Town Pond	Low Hazard/Good Condition	Dam failure will not flood downstream structures but road on top could washout.
Anderson Mill Pond	Low Hazard/Poor Condition	If the dam fails, Pemberton Drive will be impassable, and detours will have to be established. No downstream flood issues. Note: If Riawakin Pond upstream fails, it would overtop Pemberton Drive & possibly breach Anderson Pond. However, the increased flood depth with upstream pond failing is less than one foot (B. Harrington).
Beaglin Park Dam	High Hazard/Good Condition	Downstream flooding during failure would involve several hundred business & residential buildings, and many roads all the way to Riverside Drive.
Camden Avenue Dam	Low Hazard/Poor Condition	Failure of dam would washout Camden Avenue, but no downstream structures should be impacted.
Coulbourn Mill Dam	High Hazard /Fairly Good Condition	Canal Woods and other nearby residential developments would flood if the dam failed.
Johnson Pond	Significant Hazard/Fair Condition	There are several commercial buildings, residential structures, and roads in jeopardy of flooding. Flood increases with failure are less than 4 feet compared to non-failure conditions. Possible loss of life in the populated are downstream to Brew River Restaurant. Isabell Street would most likely fail, and Route 50 & Main Street would be overtopped by 5 feet or more. This will cause a definite traffic and possible public safety issue. May also take out US RT 50 and Main Street.
Leonard Pond	Low Hazard/Fair Condition	Tourism Building may be affected.
Mitchell Pond #1	Significant Hazard/Fair Condition	Failure of the dam would most likely fail Mitchell Pond 2 & 3 at Mitchell Road and Fitzwater Street. The flood wave would travel downstream to Fitzwater Street and cause some flooding to the Chesapeake Ship Buildings. Traffic would need to be detoured.
Mitchell Pond #2	Low Hazard/Fair Condition	If the dam fails, Mitchell Road would washout and result in some flooding of the Chesapeake Ship Buildings below Fitzwater Street building.
Mitchell Pond #3	Low Hazard/Fair Condition	Failure of the dam would wash out Fitzwater Street and cause some flooding of the Chesapeake Ship Buildings downstream.
Morris Mill Pond	High Hazard/Good Condition	Canal Woods and other nearby residential developments would flood if the dam failed.
Parker Pond	Low Hazard/Good Condition	Roadway will not flood during a 100-yr storm.
Powellville Dam	Low Hazard/Good Condition	Large sheet pile spillway capable of passing 100-yr storm.
Rewastico Pond	Low Hazard/Good Condition	Its outfall directly to tidal waters with no downstream structures. If dam overtops, could lose Athol Road on top of dam.
Riawakin Pond	Low Hazard/Good Condition	Access on MD RT 349 would be lost if the dam is breached. A breach would also overtop Anderson Mill Pond downstream and possibly cause Pemberton Drive to washout.
Shad Point Bridge Dam	Low Hazard/Good Condition	If the dam fails and road fails, lake sediments would be carried into the Wicomico River but no downstream structures in harm’s way.
<p>Note: Morris Mill Dam was previously listed as in “poor condition” in 2017. The Morris Mill Pond Dam Rehabilitation Project was completed in 2020.</p>		

Source: Wicomico DPW & Emergency Services, 2020 & MD Dam Safety, 2020

As part of the National Dam Inspection Act requirement, the U.S. Army Corps of Engineers (USACE) maintains an inventory of dams within the United States. The National Inventory of Dams (NID) consists of dams meeting at least one of the following criteria:

- 1) High hazard potential classification - loss of human life is likely if the dam fails,
- 2) Significant hazard potential classification - no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns,
- 3) Equal or exceed 25 feet in height and exceed 15 acre-feet in storage,
- 4) Equal or exceed 50 acre-feet storage and exceed 6 feet in height.

The USACE National Inventory of Dams provided additional information for fourteen (14) of the dams located in Wicomico County that met the NID criteria.

Table 12.2: USACE National Inventory of Dams – Wicomico County, MD

Name	Owner Type	River	Emergency Action Plan (EAP)	Last Inspection Date	Hazard Potential
Allen Town Pond	Local Government	Passerdyke Creek	Not Required	N/A	Low
Anderson Mill Pond	Local Government	Rockawalking Creek	Not Required	12/9/2020	Low
Beaglin Park Dam	Local Government	Beaver Dam Creek	Yes	12/09/2020	High
Camden Avenue Dam	Local Government	Tonytank Creek	Not Required	6/14/2017	Low
Columbia Creek Dam	Private	Rewastico Creek	Not Required	8/4/2016	Low
Coulbourn Mill Dam	Local Government	Tonytank Creek	Yes	4/13/2018	High
Johnsons Pond	Local Government	North Prong, Wicomico River	Yes	8/29/2019	Significant
Leonard Pond	Local Government	Leonard Pond Run	Not Required	6/14/2017	Low
Mitchell Pond #1	State	Owens Branch & Unknown Tributary	Yes	12/11/2019	Significant
Morris Mill Pond	Local Government	Slab Bridge Creek	Yes	4/13/2018	High
Parker Pond	Local Government	Beaver Dam Creek	Not Required	6/14/2017	Low
Powellville Dam	State	Adkins Race	Not Required	12/12/2018	Low
Rewastico Pond	Local Government	Rewastico Creek	Not Required	6/14/2017	Low
Riawakin Pond	State	Rockawalking Creek	Not Required	8/29/2019	Low
Note: Mitchell Pond #2 and #3 Dams and Shad Point Bridge Dam are not included in the USACE National Inventory of Dams.					

Source: USACE National Inventory of Dams - <https://nid.usace.army.mil/ords/f?p=105:113:8099183458183::NO::>

Dams classified as high hazard potential are those where failure or mis-operation could cause loss of lives. While significant hazard potential dams are classified as dams that will not cause loss of life if dam failure or mis-operation occurs, however could result in significant economic losses, including damages to downstream properties, critical infrastructure, environmental damage, or disruption of community lifeline facilities.

High and significant hazard potential dams should be reviewed each time the project is scheduled for inspection, or at least once each 5 years. This allows for periodic changes in the assigned hazard potential category based on changed reservoir or downstream development. The Mitchell Pond #1 is close to 5 years since previous inspection, should be inspection to ensure there is no potential for dam failure.

12.4 TRANSPORTATION & FIXED-SITE HAZMAT CHARACTERIZATION

A hazardous material (hazmat) may be defined as a substance or material, which, because of its chemical, physical or biological nature, poses a threat to life, health or property if released from a confined setting. A release may occur by spilling, leaking, emitting toxic vapors, or any other process that enables the material to escape its container, enter the environment, and create a potential hazard. Several common hazmats include materials that are explosive, flammable or combustible, poisonous or radioactive. Related combustible hazmats include oxidizers and reactive materials, while toxins produced by etiological (biological) agents are types of poison that can cause disease.

According to the Maryland Hazard Analysis, the release of hazmats while in transit is of great concern to the U.S. Department of Transportation. While most hazardous materials are stored and used at fixed sites, these materials are usually produced elsewhere and shipped to the fixed facility by rail car, truck, or onboard ships or barges. While these vehicles are identified by signs denoting the hazard, the possibility of release is present at any time. Hazardous materials are constantly being moved in Maryland on interstate highways, the rail system and on shipping lanes in the Chesapeake Bay and its tributaries. Fixed-site use of hazmat is particularly evident in the Baltimore area near rail, truck, and shipping terminals.

According to the Delmarva Freight Plan (2015), and its addendum (2017), there are three main hazardous material concerns:

- **Site-Specific Hazardous Materials Issues:** Where freight activities involve hazardous materials, planning efforts should continue to monitor and enhance emergency response efforts.
- **Hazardous Materials Tracking:** A partnership with security authorities for tracking of hazardous materials needs to be established considering social and environmental exposure, natural and man-made disasters, anticipated disruptions of traffic and business, and related economic impacts.
- **Security Screening:** Exploration of public-private partnership opportunities may help to identify tradeoffs, cost benefits, or other interests relative to increasing route or mode options and security screening for the transportation of hazardous materials.

12.5 TRANSPORTATION & FIXED-SITE HAZMAT RISK, HISTORY & VULNERABILITY

Historically, most hazardous materials moving through Wicomico County have been on U.S. Routes 50 and 13, the Norfolk Southern rail line, and by barge on the Wicomico River. In recent years, there have been several fixed-site hazmat incidents, including an ammonia leak at a Perdue Chicken Processing Plant in September 2002, a hypochlorite spill at Filtronic Comtek in August 2004. More recently, a hazmat spill at Salisbury Bypass near Northbound exit of Snow Hill Road and Colbourn Mill Road near Nutters Cross Road, February 2015, and a hazmat recycled oil spill during pick-up at the City Yard, August 2015.

According to the most recent 2019 Toxics Release Inventory (TRI) factsheet available for Wicomico County, there are four (4) TRI facilities located within the County. The TRI tracks the management of certain toxic chemicals that may pose a threat to human health and the environment. Certain industrial facilities in the U.S. must report annually how much of each chemical is recycled, combusted for energy recovery, treated for destruction, and disposed of or otherwise released on-and off-site. This information is collectively referred to as production-related waste managed. In Table 12.3 listed below are quick facts for 2019.

Table 12.3: Quick Facts for 2019

Types	Wicomico County, MD	United States
Number of TRI Facilities	4	21,458
Total Production Related Waste Managed:	793,632 lbs.	30.62 Billion lbs.
Total On-site and Off-site Disposal or Other Releases:	368,070 lbs.	3.42 Billion lbs.
Total On-Site	367,912 lbs.	2.96 Billion lbs.
- Air	367,912 lbs.	600.2 Million lbs.
- Water	0 Lbs.	201.2 Million lbs.
- Land	0 Lbs.	2.16 Billion lbs.
Total Off-Site:	158 Lbs.	458.3 Million lbs.

Source: EPA - 2019 Toxics Release Inventory for Wicomico County

These four (4) fixed-site TRI facilities within the county should be given priority consideration by the Local Emergency Planning Committee (LEPC) due to the threat it poses to human health and the environment.

According to the *Wicomico County U.S. Route 13 Hazardous Materials Commodity Flow Study* completed in June 2006, hazardous materials were usually transported by tanker truck along U.S. Route 13. The top three hazardous materials transported during the sample period were gasoline, butane, and liquid CO2. Additionally, peak truck movement occurred between 6:00 AM and 2:00 PM. According to the Study, 43.4 trucks per hour, with 1.6 of those total trucks per hour carrying hazardous materials during the peak truck movement hours traveled along U.S. Route 13.

No new Hazardous Materials Commodity Flow Studies have been completed since the last plan update; however, the update of these studies have been added as a new mitigation action item.

For this plan update, a vulnerability analysis was completed for community lifelines and public facilities. Tables 12.4 and 12.5 detail community lifelines and public facilities within 1,000 feet of the centerline along U.S. Route 13 and Business Route 13. These facilities may be at-risk depending upon the type and quantity of hazardous material spilled during a transportation accident.

Table 12.4: U.S. Route 13 Facilities at Risk

Facility Type	Facility Name	Location
County Owned	Tourist Information Center/Leonards Mill Park	8480 Ocean Highway
Medical	Your Doc's In	2425 N Salisbury Blvd
Police	Maryland State Police - Barrack E	2765 North Salisbury Blvd
Above Ground Storage Tanks	David A. Bramble, Inc. (5 tanks)	28101 Old Eden Road
Above Ground Storage Tanks	Hertrich of Salisbury East (7 tanks)	2531 N Salisbury Blvd
Above Ground Storage Tanks	Wal-Mart Store #1890 (5 tanks)	2702 N Salisbury Blvd
Underground Storage Tank	Shore Stop #241	3602 Stockyard Road
Underground Storage Tank	North 13 Shell	2513 N. Salisbury Blvd
Underground Storage Tank	Thirsty's	9534 Ocean Highway
Underground Storage Tank	Salisbury - Barrack "E"	2765 N. Salisbury Blvd
Underground Storage Tank	Wawa #561	2740 N. Salisbury Blvd
Underground Storage Tank	Beer Cave Inc.	8600 Ocean Highway
Underground Storage Tank	Tiger Mart, Inc.	2403 N. Salisbury Blvd
Underground Storage Tank	Sam's Club #6383	2700 N. Salisbury Blvd
Underground Storage Tank	Delmar Food Service	9521 Ocean Highway
Underground Storage Tank	George L. Elliott & Sons, Inc.	West Zion Road

Source: Smith Planning & Design

Table 12.5: U.S. Business Route 13 Facilities at Risk

Facility Type	Facility Name	Location
Fire Department	Fruitland Volunteer Fire Company	106 E Main Street
Fire Department	Salisbury Fire Station #2	801 Brown Street
County Owned	Housing Authority (18 structures)	(9) Buena Vista Ave., (3) Dulany Ave., (2) Leslie St., (1) E Locust St., (2) E Carroll St. (1) Theodore St.
Medical	Anchorage Nursing Home	105 Times Square
Medical	Tidal Health PRMC	100 Carroll Street
Medical	Lower Shore WIC Office/ES Adkins Building	801 N Salisbury Blvd
Medical	Your Doc's In	1135 S Salisbury Blvd
Medical	Express Care Urgent Care Center	659 S Salisbury Blvd
Police	Fruitland Police Department	208 S. Division Street
School	Salisbury University - Main Campus	1101 Camden Avenue
School	Asbury Child Development Center	1401 Camden Avenue
School	Bennett Middle School	532 S Division Street
School	North Salisbury Elementary	1213 Emerson Avenue
Above Ground Storage Tanks	John F. Tilghman and Sons Inc (7 tanks)	121 Columbia Road
Above Ground Storage Tanks	Valvoline Instant Oil Change BA-0013 (8 tanks)	1001 N Salisbury Blvd
Above Ground Storage Tanks	Wal-Mart Store #02931 (4 tanks)	409 N Fruitland Blvd
Above Ground Storage Tanks	Ryder Truck Rental Inc	404H Irl Lane
Above Ground Storage Tanks	Wal-Mart Store #02931	409 N Fruitland Blvd
Above Ground Storage Tanks	Peninsula Regional Medical Center	100 E Carroll St
Underground Storage Tank	Global Beverages, Inc. T/A Cheers	1324 South Salisbury Blvd
Underground Storage Tank	201 Holly St Warehouse	201 Holly St
Municipal Owned	Museum	117 Elizabeth Street
Municipal Owned	Water Tank Lot	1509 Edgemore Avenue
Municipal Owned	Fruitland Community Center	300 Morris Street
Underground Storage Tank	Country Farm	104 E. Gordy Road
Underground Storage Tank	Cooper Insurance Agency	100 N. Fruitland Boulevard
Underground Storage Tank	Pacific Pride I	436 Eastern Shore Drive
Underground Storage Tank	Higher Hope Temple Church	800 Johnson Street
Underground Storage Tank	Church of the Redeemer	1308 Westchester Street
Underground Storage Tank	Fruitland Wine Rack	100 West Cedar Lane
Underground Storage Tank	Go Getters, Inc.	716 N. Division Street
Underground Storage Tank	Peninsula Roofing	1209 N. Salisbury Blvd.
Underground Storage Tank	Tru Arc Welding	1535 Northwood Drive

Facility Type	Facility Name	Location
Underground Storage Tank	Center City Quick Mart	500 S. Salisbury Blvd.
Underground Storage Tank	Verizon Communications - Salisbury SOC	620 Truitt Street
Underground Storage Tank	Global Beverages, Inc. T/A Cheers	1324 South Salisbury Blvd.
Underground Storage Tank	Naylor Food Mart	1111 N. Salisbury Blvd.
Underground Storage Tank	Wawa Food Market #555	668 - 682 S. Salisbury Boulevard
Underground Storage Tank	Ambaji Inc.	617 N. Salisbury Blvd.
Underground Storage Tank	Thirsty's	1053 S. Salisbury Blvd.
Underground Storage Tank	Red Fox Market	107 South Fruitland Blvd
Underground Storage Tank	Phillips Enterprises LTD Partnership	317-319 South Division Street
Underground Storage Tank	Eagle Express Mart III, Inc.	1312 N. Salisbury Blvd.
Underground Storage Tank	Barnes TV & Appliances Company	1413 Salisbury Boulevard
Underground Storage Tank	Newton Properties LTD	204 Newton Street
Underground Storage Tank	Samuel Q. Johnson	620 South Salisbury Boulevard
Underground Storage Tank	Samuel Q. Johnson	108 Washington Street
Underground Storage Tank	Samuel Q. Johnson	615 South Division Street
Underground Storage Tank	South Division Street Laundry	602 South Division Street
Underground Storage Tank	201 Holly St Warehouse	201 Holly St
Underground Storage Tank	Royal Farms #283	1033 S Salisbury Blvd
Underground Storage Tank	Royal Farms #384	101 W Cedar Lane

Source: Smith Planning & Design

According to the *Wicomico County U.S. Route 50 Hazardous Materials Commodity Flow Study* completed in July 2006, hazardous materials were usually transported by tanker truck along U.S. Route 50. The top three hazardous materials transported during the sample period were gasoline, aviation fuel, and oxygen. Additionally, peak truck movement occurred between 6:00 AM and 2:00 PM. According to the Study, 41.9 trucks per hour, with 1.5 of those total trucks per hour carrying hazardous materials during the peak truck movement hours traveled along U.S. Route 50.

Tables 12.6 and 12.7 detail community lifelines and public facilities within 1,000 feet of centerline along U.S. Route 50 and Business Route 50. These facilities may be at-risk depending upon the type and quantity of hazardous material spilled during a transportation accident.

Table 12.6: U.S. Route 50 Facilities at Risk

Facility Type	Facility Name	Location
Fire Department	Mardela Fire Department	100 Station Street
Medical	Chesapeake Manor Assisted Living	7054 Bent Pine Road
School	Salisbury Christian School	807 Parker Road
School	Wor-Wic Community College	6573 Walston Switch Road
School	Mardela Middle School	24940 Delmar Road
School	Wicomico Middle School	619 E Main Street
School	Gateway Christian Academy	31525 John Deere Drive
Above Ground Storage Tanks	Tri-County Council Water & Sewer Ext. (3 tanks)	31901 Tri-County Way
Above Ground Storage Tanks	Royal Farms Store #127 (4 tanks)	27992 Ocean Gateway
Underground Storage Tank	Shore Stop #229	7126 Friendship Road
Underground Storage Tank	Shore Stop #225	27430 Ocean Gateway
Underground Storage Tank	Mardela Goose Creek	24948 Ocean Gateway
Underground Storage Tank	Pittsville Food Mart	7125 Sixty Foot Road
Underground Storage Tank	1109 - Willards Shell Dash In	7201 Main Street
Underground Storage Tank	ASO Willards, LLC	36308 Old Ocean City Road
Underground Storage Tank	UPS-Salisbury Facility	2236 Northwood Drive
Underground Storage Tank	Walston Switch Carry Out	31997 Beaver Run Drive
Underground Storage Tank	Pacific Pride II	2229 Northwood Drive
Underground Storage Tank	Shore Transit Maintenance Facility	31855 Tri-County Way

Facility Type	Facility Name	Location
Underground Storage Tank	Royal Farms #167	31954 Summer Drive
Municipal Owned	Mardela Springs Town Hall	201 Station Street

Source: Smith Planning & Design

Table 12.7: U.S. Business Route 50 Facilities at Risk

Facility Type	Facility Name	Location
County Owned	Government Office Building	125 N Division Street
County Owned	Office of State's Attorney	309 E MAIN ST
County Owned	Housing Authority	(1) Linwood Ave., (1) Grace St., (1) Davis St., (1) Booth St
County Owned	Office Building	113 N Division Street
County Owned	Clerk of Court	102 Court Street
County Owned	Housing Authority	147 Davis Street
County Owned	Library	122 S Division Street
County Owned	PW General Services Complex	28562 Owens Branch Road
Fire Department	Salisbury Fire Station #16	325 Cypress Street
Police	Salisbury Police Department	221 Delaware Avenue
Police	Salisbury Police Substation	501 E Church Street
Medical	Salisbury Rehabilitation & Nursing Center	200 Civic Avenue
Medical	Hurdle Health Center/Health Department	108 E Main Street
Medical	John B Parsons Assisted Living Community	300 Lemmon Hill Lane
Medical	Encompass Health Rehabilitation	220 Tilghman Road
Medical	Chesapeake Health Care	1665 Woodbrooke Drive
Medical	Atria Senior Living	1110 Healthway Drive
Medical	Chesapeake Health Care	223 Phillip Morris Drive
Medical	Blood Bank of Delaware	1309 Mount Hermon Road
Medical	Quest Diagnostics	712 E Main Street
Medical	MHC Healthcare - Med Clinic	310 Civic Avenue
School	WCBOE Office - Long Ave	101 Long Avenue
School	Wicomico Middle School	619 E Main Street
Above Ground Storage Tanks	Perdue Inc (3 tanks)	521 Willow Street
Underground Storage Tank	Springhill Manor	28721 Ocean Gateway, Suite 202
Underground Storage Tank	American Legion Post #64	1109 American Legion Road
Municipal Owned	Housing Authority	300 Delaware Avenue
Municipal Owned	Parking Garage	115 E Market Street
Municipal Owned	Pump Station M Park	N Park Drive
Municipal Owned	Parking Garage	101 E Market Street
Municipal Owned	Housing Authority	610 Pearl Street
Municipal Owned	Port Of Salisbury Marina	506 W Main Street
Municipal Owned	Office Building	501 E Church Street

Source: Smith Planning & Design

Hazardous material commodities shipped by rail through Wicomico County by the Norfolk Southern Corporation were also listed in the *Wicomico County U.S. Route 50 Hazardous Materials Commodity Flow Study*. These commodities included the following: petroleum gases, flammable liquids, ammonium nitrate, propanol and ethanol.

In terms of commodities that are transported along shipping lanes in Wicomico County, Table 12.8 details the flow of the Wicomico River, Nanticoke River, Pocomoke, Onancock, Cape Charles, and Tred Avon River Commodities.

Table 12.8: River Commodities

Products Shipped	2014 Incoming (Tons)	2014 Outgoing (Tons)	2014 Total Barge Trips	2014 Total Tonnage	Tonnage Forecast (2015)
Wicomico River Commodities					
Petroleum	488,166		151	488,166	424,704
Grain	97,650		60	97,650	116,560
Aggregates	231,665		59	231,665	232,850
Ships	6,221	8,558	12	14,779	15,000
Totals	823,702	8,558	282	832,260	789,114
Nanticoke River Commodities					
Grain	113,577	278,496	134	392,073	390,000
Liquid Fertilizer	-	-	-	-	-
Aggregates	118,942	80,725	55	199,667	225,463
Totals	232,519	359,221	189	591,740	615,463
Pocomoke River Commodities					
Aggregates	109,753	421,803	177	531,566	499,676
Totals	109,753	421,803	177	531,556	499,676
Onanoke River Commodities					
Aggregates	36,110	0	13	36,110	40,000
Cape Charles River Commodities					
Aggregates	67,131	0	21	37,131	76,513
Tred Avon River Commodities					
Aggregates	74,180	0	33	74,180	93,295

Source: Delmarva Water Transport Committee INC.

12.6 MAJOR TRANSPORTATION CHARACTERIZATION

In the context of this document, major transportation refers to modes of mass transportation including airplanes and railways. Major causes of airplane crashes are pilot error, mechanical failure and severe weather. The leading cause of rail accidents in Maryland is by far derailment, followed by rail-highway crossing incidents. Maryland has a relatively low rate of major accidents, with an average of 30 air accident/incidents per year as reported by the *National Transportation Safety Board*, and an average of 41 rail accidents per year, and 29 highway-rail incidents per year according to *Federal Railroad Administration Office of Safety Analysis*.



Source: SBY Airport Website - <https://www.flysbyairport.com/sby-airport>

12.7 MAJOR TRANSPORTATION RISK, HISTORY & VULNERABILITY

According to Wicomico County Emergency Management, there have been numerous accidents over the past decade, but no transportation accidents would be considered major. However, accidents and incidents do occur due to the fact that the Salisbury Wicomico Airport and the Norfolk Southern Railroad are located in the County. Tables 12.9 and 12.10 feature major transportation accidents that have occurred in Wicomico County.

Table 12.9: Airplane Accidents/Incidents

Date	Make / Model	Event Severity
February 12, 1978	Grumman AA1-B	Nonfatal
March 31, 1978	Aero Comdr 500B	Fatal – 5
December 24, 1982	Grumman AA1-B	Fatal - 2
October 24, 1984	Piper PA-32R301	Fatal – 4
April 20, 1987	Piper PA-24-250	Fatal – 1
June 26, 1988	Boeing 737	Nonfatal
July 01, 1989	Bell 47J	Nonfatal
July 11, 1996	Piper PA-38-112	Nonfatal
October 30, 1997	Cessna 172M	Nonfatal
September 28, 1999	Cessna 310Q	Nonfatal
December 11, 1997	Piper PA-32-260	Fatal - 3
June 30, 2001	Chek Avid Mark IV	Nonfatal
August 20, 2008	Ferree Prostar B	Nonfatal
July 19, 2005	Ratliff Hummel Bird	Fatal - 1
June 25, 2010	Cessna 172S	Nonfatal
September 21, 2013	Lennox Kenneth J Zodiac 601HDS	Nonfatal
June 24, 2015	Diamond Aircraft IND INC DA 20 C1	Nonfatal
August 4, 2016	N90HF: Beech / F33	Nonfatal

Source: National Transportation Safety Board

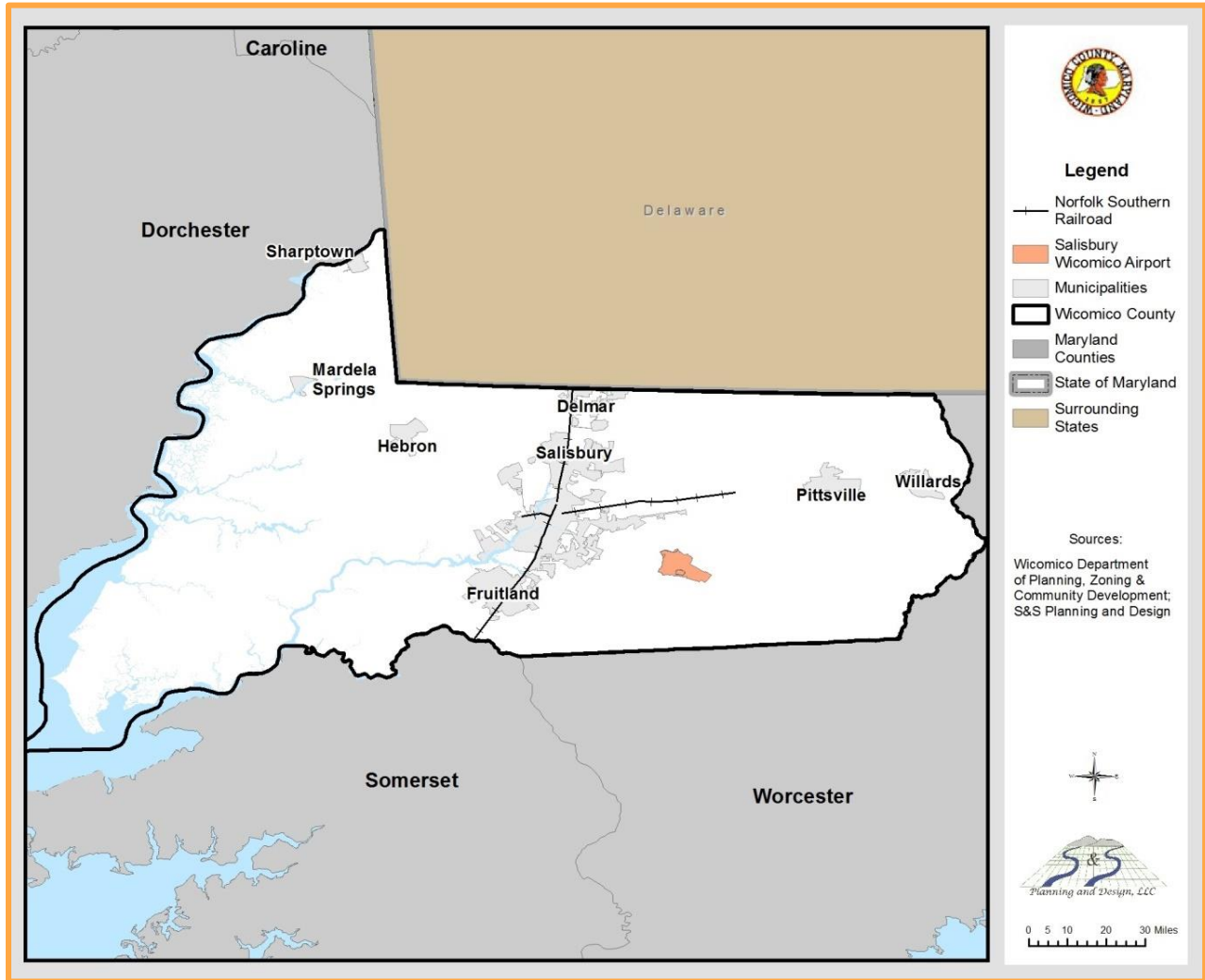
Table 12.10: Railroad Accidents/Incidents

Year(s)	Incidents at Public Crossings	Incident Injuries	Incident Fatalities
1975-1979	6	0	0
1980-1984	11	0	0
1985-1989	8	0	0
1990-1994	4	0	0
1995-1999	5	0	0
2000-2004	1	0	0
2005-2010	3	1	0
2011-2015	6	4	0
2016-2021	2	0	0
Total	46	5	0

Source: Federal Railroad Administration Office Safety Analysis

Both the Salisbury Wicomico Airport and the Norfolk Southern Railroad meet current safety standards set respectively by the FAA and the Railroad Safety Board. The map below depicts Wicomico County's major transportation systems.

Map 12.1: Major Transportation Systems



Reference documents utilized with the chapter include the 2006 Hazard Materials Commodity Flow Studies for U.S Routes 13 and 50. These studies should be updated every five years as recommended by the U.S. Department of Transportation, which updates national studies on a five-year cycle. In addition, hazardous materials transported by rail on the Norfolk Southern Line should be reviewed and discussed by the Local Emergency Planning Committee (LEPC).