6.0 APPENDIX A: HAZARD AND VULNERABILITY DATA

The information included in this appendix supplements the discussion of Wood County's hazards and vulnerabilities from Section 2: Hazard Identification and Risk Assessment. A complete list of historical incidents of each hazard is provided here. Additionally, detailed data on the anticipated damage to Wood County from a 100-year flood and earthquake, per HAZUS estimates, is provided.

5.1 HAZARD HISTORY DATA

The National Climactic Data Center has maintained records on weather incidents across the United States since 1950. The tables below provide a complete history of the incidents in Wood County from 1950 through present day.

5.1.1 Drought and Extreme Heat

These incidents include all occurrences categorized as drought or extreme heat.

Hazard	Location	Date	Injuries	Deaths	Property Damage	Crop Damage
Drought	Wood (Zone)	08/01/1996	0	0	0	0
Drought	Wood (Zone)	06/01/1999	0	0	0	0
Drought	Wood (Zone)	07/01/1999	0	0	0	0
Drought	Wood (Zone)	08/01/1999	0	0	0	0
Drought	Wood (Zone)	09/01/1999	0	0	0	16M

5.1.2 Flood

The flood incidents identified in this table include events classified as flood and flash flood that occurred in Wood County since 1950.

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Flash Flood	Bowling Green	05/16/1996	0	0	0	0
Flash Flood	Wayne	06/18/1996	0	0	0	0
Flood	Wood (Zone)	01/23/1997	0	0	200K	0
Flood	Wood (Zone)	02/27/1997	0	0	25K	0
Flood	Wood (Zone)	02/28/1997	0	0	5K	0
Flood	Wood (Zone)	03/01/1997	0	0	0	0
Flash Flood	Countywide	05/25/1997	0	0	0	0
Flash Flood	Countywide	06/01/1997	0	0	70K	20K
Flood	Wood (Zone)	06/01/1997	0	0	50K	0

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Flood	Wood (Zone)	06/02/1997	0	0	25K	0
Flash Flood	Countywide	07/08/1997	0	0	0	0
Flash Flood	Perrysburg	09/19/1997	0	0	0	0
Flash Flood	Central Portion	02/17/1998	0	0	0	0
Flash Flood	Bowling Green	05/01/1998	0	0	0	0
Flash Flood	North Baltimore	05/03/1998	0	0	0	0
Flash Flood	Hoytville	05/03/1998	0	0	0	0
Flash Flood	Weston	08/25/1998	0	0	0	0
Flash Flood	Cygnet	08/25/1998	0	0	75K	0
Flood	Wood (Zone)	08/26/1998	0	0	75K	0
Flash Flood	North Portion	04/20/2000	0	0	0	0
Flash Flood	Countywide	08/04/2003	0	0	750K	0
Flood	Wood (Zone)	08/27/2004	0	0	150K	0
Flood	Wood (Zone)	01/04/2005	0	0	2.1M	0
Flash Flood	North Portion	06/21/2006	0	0	750K	0
Flood	Pemberville	08/20/2007	0	0	35K	0
Flood	Grand Rapids	02/28/2011	0	0	10K	0
Flood	Hoytville	05/26/2011	0	0	0	0
Flood	Grand Rapids	11/30/2011	0	0	2K	0
Flood	Perrysburg	03/13/2015	0	0	25K	75K
Flood	Pemberville	06/28/2015	0	0	50K	0
Flood	Grand Rapids	06/29/2015	0	0	2.5M	0
Flood	Risingsun	07/13/2017	0	0	50K	0

5.1.3 Severe Thunderstorm

Thunderstorm incidents include events that produced any combination of hail, lightning and thunderstorm wind; all hazards were not necessarily present in all incidents.

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Thunderstorm Wind	Wood County	04/05/1957	0	0	0	0
Thunderstorm Wind	Wood County	03/06/1959	0	0	0	0
Thunderstorm Wind	Wood County	11/26/1965	0	0	0	0
Hail	Wood County	07/12/1966	0	0	0	0
Hail	Wood County	05/08/1967	0	0	0	0
Thunderstorm Wind	Wood County	04/14/1968	0	0	0	0
Thunderstorm Wind	Wood County	06/11/1968	0	0	0	0
Hail	Wood County	07/12/1969	0	0	0	0
Thunderstorm Wind	Wood County	07/12/1969	0	0	0	0

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Thunderstorm Wind	Wood County	05/12/1970	0	0	0	0
Thunderstorm Wind	Wood County	06/17/1970	0	0	0	0
Thunderstorm Wind	Wood County	06/07/1971	0	0	0	0
Thunderstorm Wind	Wood County	06/03/1973	0	0	0	0
Thunderstorm Wind	Wood County	01/26/1974	0	0	0	0
Thunderstorm Wind	Wood County	08/13/1974	0	0	0	0
Thunderstorm Wind	Wood County	01/11/1975	0	0	0	0
Thunderstorm Wind	Wood County	04/03/1980	0	0	0	0
Thunderstorm Wind	Wood County	04/03/1980	0	0	0	0
Thunderstorm Wind	Wood County	05/13/1980	0	0	0	0
Thunderstorm Wind	Wood County	06/07/1980	0	0	0	0
Thunderstorm Wind	Wood County	06/07/1980	0	0	0	0
Thunderstorm Wind	Wood County	07/09/1980	0	0	0	0
Hail	Wood County	04/28/1981	0	0	0	0
Thunderstorm Wind	Wood County	04/28/1981	0	0	0	0
Thunderstorm Wind	Wood County	09/26/1981	0	0	0	0
Hail	Wood County	03/16/1982	0	0	0	0
Thunderstorm Wind	Wood County	06/15/1982	0	0	0	0
Thunderstorm Wind	Wood County	06/15/1982	0	0	0	0
Thunderstorm Wind	Wood County	06/15/1982	0	0	0	0
Hail	Wood County	05/02/1983	0	0	0	0
Hail	Wood County	05/02/1983	0	0	0	0
Thunderstorm Wind	Wood County	05/02/1983	0	0	0	0
Hail	Wood County	06/10/1983	0	0	0	0
Hail	Wood County	06/10/1983	0	0	0	0
Hail	Wood County	07/02/1983	0	0	0	0
Thunderstorm Wind	Wood County	09/06/1983	0	0	0	0
Thunderstorm Wind	Wood County	08/08/1984	0	0	0	0
Hail	Wood County	08/10/1984	0	0	0	0
Hail	Wood County	08/10/1984	0	0	0	0
Hail	Wood County	05/27/1985	0	0	0	0
Hail	Wood County	06/09/1985	0	0	0	0
Thunderstorm Wind	Wood County	07/09/1985	0	0	0	0
Thunderstorm Wind	Wood County	07/14/1985	0	2	0	0
Thunderstorm Wind	Wood County	05/06/1986	0	0	0	0
Hail	Wood County	07/15/1986	0	0	0	0
Thunderstorm Wind	Wood County	07/25/1986	0	0	0	0
Thunderstorm Wind	Wood County	07/25/1986	0	0	0	0
Thunderstorm Wind	Wood County	07/16/1988	0	0	0	0
Thunderstorm Wind	Wood County	07/30/1988	0	0	0	0
Thunderstorm Wind	Wood County	05/31/1989	0	0	0	0
Thunderstorm Wind	Wood County	06/14/1989	0	0	0	0

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Thunderstorm Wind	Wood County	08/05/1989	0	0	0	0
Thunderstorm Wind	Wood County	06/02/1990	0	0	0	0
Thunderstorm Wind	Wood County	03/27/1991	0	0	0	0
Thunderstorm Wind	Wood County	03/27/1991	0	0	0	0
Thunderstorm Wind	Wood County	05/31/1991	0	0	0	0
Thunderstorm Wind	Wood County	06/15/1991	0	0	0	0
Thunderstorm Wind	Wood County	07/07/1991	0	0	0	0
Thunderstorm Wind	Wood County	07/07/1991	0	0	0	0
Thunderstorm Wind	Wood County	04/16/1992	0	0	0	0
Thunderstorm Wind	Wood County	05/17/1992	0	20	0	0
Thunderstorm Wind	Wood County	05/17/1992	0	0	0	0
Hail	Wood County	06/17/1992	0	0	0	0
Thunderstorm Wind	Wood County	06/17/1992	0	0	0	0
Thunderstorm Wind	Wood County	07/14/1992	0	0	0	0
Hail	Wood County	09/09/1992	0	0	0	0
Thunderstorm Wind	Wood County	09/09/1992	0	0	0	0
Hail	Bloomdale	05/24/1994	0	0	0	0
Thunderstorm Wind	Wood County	05/24/1995	0	0	20K	0
Thunderstorm Wind	Youngstown and Boardm	05/24/1995	0	0	3K	0
Thunderstorm Wind	Wood County	05/24/1995	0	0	5K	0
Thunderstorm Wind	Mt. Hope	05/28/1995	0	0	3K	0
Hail	Perrysburg	06/14/1995	0	0	0	0
Thunderstorm Wind	North Baltimore	06/23/1995	0	0	3K	0
Thunderstorm Wind	Luckey	06/27/1995	0	0	2K	0
Thunderstorm Wind	Milton Center	07/04/1995	0	0	3K	0
Thunderstorm Wind	Countywide	07/13/1995	0	0	10K	0
Hail	Bowling Green	08/01/1995	0	0	0	0
Thunderstorm Wind	Lake Township	08/15/1995	0	0	30K	0
Thunderstorm Wind	North Half	05/09/1996	0	0	20K	0
Thunderstorm Wind	Weston	06/04/1996	0	0	0	0
Hail	Wayne	06/12/1996	0	0	0	0
Lightning	Liberty Township	06/12/1996	0	0	5K	0
Thunderstorm Wind	Wayne	06/12/1996	0	0	0	0
Thunderstorm Wind	Southeast	06/14/1996	0	0	0	0
Thunderstorm Wind	Lime City	07/24/1996	0	0	0	0
Hail	Bowling Green	05/18/1997	0	0	0	0
Thunderstorm Wind	Countywide	05/18/1997	0	0	60K	0
Thunderstorm Wind	Hoytville	06/21/1997	0	0	5K	0
Thunderstorm Wind	Perrysburg	06/25/1997	0	0	10K	0
Thunderstorm Wind	Countywide	06/29/1997	0	0	30K	0
Thunderstorm Wind	Tontogany	07/08/1997	0	0	2K	0

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Hail	Perrysburg	08/03/1997	0	0	0	0
Hail	Bowling Green	08/16/1997	0	0	0	0
Thunderstorm Wind	Weston	05/31/1998	0	0	2K	0
Hail	Countywide	06/12/1998	0	0	0	0
Thunderstorm Wind	Countywide	06/12/1998	0	0	50K	0
Thunderstorm Wind	Jerry City	06/12/1998	0	0	5K	0
Thunderstorm Wind	Risingsun	06/19/1998	0	0	5K	0
Hail	Millbury	06/27/1998	0	0	0	0
Hail	Bowling Green	06/27/1998	0	0	0	0
Thunderstorm Wind	Countywide	06/27/1998	0	0	5K	0
Hail	Pemberville	06/30/1998	0	0	0	0
Thunderstorm Wind	Pemberville	06/30/1998	0	0	75K	0
Hail	Perrysburg	07/19/1998	0	0	0	0
Thunderstorm Wind	Weston	07/19/1998	0	0	0	0
Hail	Bowling Green	07/21/1998	0	0	0	0
Lightning	Wayne	07/21/1998	0	0	40K	0
Lightning	Perrysburg	07/21/1998	0	0	250K	0
Thunderstorm Wind	Countywide	07/21/1998	0	0	10K	0
Thunderstorm Wind	Countywide	07/21/1998	0	0	25K	0
Hail	Tontogany	08/24/1998	0	0	0	10K
Thunderstorm Wind	Countywide	08/24/1998	0	0	5K	0
Thunderstorm Wind	Countywide	08/25/1998	0	0	15K	0
Thunderstorm Wind	Bowling Green	11/10/1998	0	0	20K	0
Thunderstorm Wind	Weston	11/10/1998	0	0	0	0
Thunderstorm Wind	Walbridge	12/06/1998	0	0	2K	0
Hail	Perrysburg	05/17/1999	0	0	0	0
Thunderstorm Wind	Rossford	05/17/1999	0	0	0	0
Thunderstorm Wind	Perrysburg	05/17/1999	0	0	3K	0
Thunderstorm Wind	North Baltimore	07/09/1999	0	0	5K	0
Thunderstorm Wind	Countywide	07/17/1999	0	0	15K	0
Thunderstorm Wind	Countywide	07/17/1999	0	0	15k	0
Thunderstorm Wind	Countywide	07/23/1999	0	0	25K	0
Hail	Bowling Green	07/25/1999	0	0	0	5K
Lightning	Walbridge	08/13/1999	0	0	100K	0
Thunderstorm Wind	New Rochester	08/13/1999	0	0	5K	0
Hail	Bowling Green	04/07/2000	0	0	0	0
Hail	Dundridge	05/09/2000	0	0	0	0
Hail	Weston	05/09/2000	0	0	0	0
Hail	Weston	05/09/2000	0	0	0	0
Hail	Tontogany	05/09/2000	0	0	1M	100K
Hail	Walbridge	05/09/2000	0	0	0	0
Thunderstorm Wind	Luckey	05/09/2000	0	0	5K	0

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Thunderstorm Wind	Countywide	05/09/2000	0	0	0	0
Hail	Bowling Green	06/14/2000	0	0	0	0
Thunderstorm Wind	Risingsun	06/14/2000	0	0	5K	0
Hail	Perrysburg	08/02/2000	0	0	0	0
Thunderstorm Wind	Perrysburg	08/02/2000	0	0	10K	0
Thunderstorm Wind	Tontogany	08/02/2000	0	0	5K	0
Thunderstorm Wind	Perrysburg	08/02/2000	0	0	5K	0
Thunderstorm Wind	Countywide	08/06/2000	0	0	15K	0
Thunderstorm Wind	North Baltimore	08/09/2000	0	0	10K	0
Thunderstorm Wind	West Millgrove	09/23/2000	0	0	15K	0
Thunderstorm Wind	Perrysburg	10/04/2000	0	0	5K	0
Hail	Rossford	04/07/2001	0	0	0	0
Thunderstorm Wind	Bowling Green	04/07/2001	0	0	30K	0
Thunderstorm Wind	Bowling Green	04/08/2001	0	0	20K	0
Hail	North Baltimore	05/29/2001	0	0	0	0
Thunderstorm Wind	Hoytville	07/04/2001	0	0	2K	0
Thunderstorm Wind	North Baltimore	09/07/2001	0	0	40K	0
Thunderstorm Wind	Bradner	09/07/2001	0	0	20K	0
Thunderstorm Wind	Countywide	10/24/2001	0	0	500K	0
Hail	Perrysburg	05/25/2002	0	0	600K	0
Hail	Perrysburg	05/25/2002	0	0	35K	0
Thunderstorm Wind	Dunbridge	05/25/2002	0	0	10K	0
Thunderstorm Wind	Perrysburg	05/25/2002	0	0	250K	0
Thunderstorm Wind	Rudolph	06/18/2002	0	0	1K	0
Thunderstorm Wind	Risingsun	07/04/2002	0	0	10K	0
Thunderstorm Wind	Bowling Green	07/28/2002	0	0	0	0
Thunderstorm Wind	Perrysburg	07/29/2002	0	0	25K	0
Thunderstorm Wind	Bradner	07/29/2002	0	0	15K	0
Thunderstorm Wind	Bowling Green	09/19/2002	0	0	5K	0
Thunderstorm Wind	Perrysburg	09/19/2002	0	0	2K	0
Thunderstorm Wind	Countywide	11/10/2002	0	0	500K	0
Thunderstorm Wind	Bowling Green	11/10/2002	0	0	100K	0
Hail	Bradner	03/20/2003	0	0	2K	0
Thunderstorm Wind	Wayne	04/04/2003	0	0	10K	0
Thunderstorm Wind	Bowling Green	04/04/2003	0	0	25K	0
Hail	Weston	05/09/2003	0	0	2K	0
Hail	Walbridge	05/10/2003	0	0	0	0
Thunderstorm Wind	Bowling Green	06/12/2003	0	0	1K	0
Thunderstorm Wind	Pemberville	07/04/2003	0	0	2K	0
Thunderstorm Wind	Perrysburg	07/06/2003	0	0	1K	0
Thunderstorm Wind	Perrysburg	07/07/2003	0	0	10K	0
Thunderstorm Wind	Rossford	07/08/2003	0	0	15K	0

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Thunderstorm Wind	Tontogany	07/08/2003	0	0	15K	0
Thunderstorm Wind	Bowling Green	07/08/2003	0	0	2M	0
Thunderstorm Wind	Countywide	07/08/2003	0	0	500K	2M
Thunderstorm Wind	Custar	07/20/2003	0	0	10K	0
Hail	Bowling Green	08/01/2003	0	0	0	0
Thunderstorm Wind	Bowling Green	08/01/2003	0	0	50K	0
Hail	Weston	08/03/2003	0	0	0	0
Hail	Portage	08/04/2003	0	0	0	0
Hail	Bowling Green	08/21/2003	0	0	0	0
Thunderstorm Wind	Sugar Ridge	08/21/2003	0	0	15K	0
Thunderstorm Wind	Luckey	08/21/2003	0	0	25K	0
Thunderstorm Wind	Bowling Green	08/21/2003	0	0	5K	0
Thunderstorm Wind	Rudolph	08/26/2003	0	0	8K	0
Thunderstorm Wind	West Millgrove	09/26/2003	0	0	25K	0
Thunderstorm Wind	Bloomdale	09/26/2003	0	0	3K	0
Thunderstorm Wind	Pemberville	10/14/2003	0	0	10K	0
Thunderstorm Wind	Bowling Green	11/12/2003	0	0	3K	0
Hail	Rossford	05/21/2004	0	0	0	0
Hail	Perrysburg	05/21/2004	0	0	125K	0
Thunderstorm Wind	Countywide	05/21/2004	0	0	100K	0
Thunderstorm Wind	Countywide	05/23/2004	0	0	50K	0
Thunderstorm Wind	North Baltimore	06/13/2004	0	0	3K	0
Thunderstorm Wind	Countywide	06/14/2004	0	0	30K	0
Thunderstorm Wind	Perrysburg	06/17/2004	0	0	3K	0
Thunderstorm Wind	North Baltimore	08/27/2004	0	0	8K	0
Hail	Walbridge	05/13/2005	0	0	0	0
Hail	Haskins	05/13/2005	0	0	5K	0
Thunderstorm Wind	Walbridge	05/13/2005	0	0	4K	0
Thunderstorm Wind	Weston	05/13/2005	0	0	15K	0
Thunderstorm Wind	Countywide	06/05/2005	0	0	50K	0
Thunderstorm Wind	Bowling Green	06/30/2005	0	0	2K	0
Hail	Bowling Green	07/08/2005	0	0	0	0
Hail	Tontogany	07/25/2005	0	0	0	0
Thunderstorm Wind	Risingsun	09/22/2005	0	0	6K	0
Thunderstorm Wind	Bowling Green	11/06/2005	0	0	35K	0
Hail	Cygnet	04/07/2006	0	0	0	0
Hail	Bowling Green	05/17/2006	0	0	0	0
Hail	Bowling Green	05/25/2006	0	0	0	0
Hail	Bowling Green	05/25/2006	0	0	4K	0
Hail	Perrysburg	05/25/2006	0	0	0	0
Hail	Luckey	05/26/2006	0	0	0	0
Hail	Bowling Green	05/26/2006	0	0	0	0

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Hail	Perrysburg	05/30/2006	0	0	0	0
Hail	Millbury	05/30/2006	0	0	0	0
Thunderstorm Wind	Bloomdale	06/18/2006	0	0	5K	0
Hail	Custar	06/19/2006	0	0	0	0
Hail	Risingsun	06/19/2006	0	0	5K	0
Thunderstorm Wind	Perrysburg	06/21/2006	0	0	75K	0
Thunderstorm Wind	Perrysburg	06/21/2006	0	0	30K	0
Thunderstorm Wind	Tontogany	06/21/2006	0	0	3K	0
Thunderstorm Wind	Wood County Airport	06/21/2006	0	0	2M	0
Hail	Pemberville	06/22/2006	0	0	0	0
Thunderstorm Wind	Bowling Green	06/28/2006	0	0	4K	0
Thunderstorm Wind	North Baltimore	07/26/2006	0	0	75K	0
Thunderstorm Wind	Cygnet	07/26/2006	0	0	35K	0
Hail	Bates	03/14/2007	0	0	0	0
Hail	Woodville Gardens	03/14/2007	0	0	0	0
Hail	Bowling Green	05/01/2007	0	0	0	0
Hail	Luckey	05/01/2007	0	0	0	0
Hail	Luckey	05/01/2007	0	0	0	0
Hail	Stony Ridge	05/01/2007	0	0	0	0
Thunderstorm Wind	Bowling Green	05/15/2007	0	0	12K	0
Thunderstorm Wind	Rudolph	05/21/2007	0	0	45K	0
Thunderstorm Wind	Grand Rapids	05/26/2007	0	0	1K	0
Thunderstorm Wind	Perrysburg	06/03/2007	0	0	30K	0
Hail	Pemberville	06/08/2007	0	0	0	0
Thunderstorm Wind	Perrysburg	06/08/2007	0	0	20K	0
Thunderstorm Wind	Portage	07/27/2007	0	0	2K	0
Hail	Luckey	08/07/2007	0	0	15K	0
Thunderstorm Wind	Bowling Green	05/30/2008	0	0	3K	0
Thunderstorm Wind	Bowling Green	06/06/2008	0	0	5K	0
Thunderstorm Wind	Perrysburg	06/06/2008	0	0	15K	0
Thunderstorm Wind	Haskins	06/06/2008	0	0	25K	0
Thunderstorm Wind	Bowling Green	06/09/2008	0	0	6K	0
Thunderstorm Wind	Perrysburg	06/09/2008	0	0	3K	0
Thunderstorm Wind	Luckey	06/15/2008	0	0	2K	0
Hail	Grand Rapids	06/22/2008	0	0	0	0
Hail	Haskins	06/23/2008	0	0	0	0
Hail	Bowling Green	07/08/2008	0	0	0	0
Thunderstorm Wind	Perrysburg	07/08/2008	0	0	25K	0
Thunderstorm Wind	BGSU Airport	07/08/2008	0	0	50K	0
Thunderstorm Wind	North Baltimore	07/08/2008	0	0	10K	0
Thunderstorm Wind	Walbridge	12/28/2008	0	0	0	0
Thunderstorm Wind	Perrysburg	06/25/2009	0	0	5K	0

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Thunderstorm Wind	Perrysburg	06/25/2009	0	0	5K	0
Hail	North Baltimore	07/28/2009	0	0	0	0
Hail	Perrysburg	05/05/2010	0	0	0	0
Hail	Perrysburg	05/05/2010	0	0	0	0
Hail	Perrysburg	05/05/2010	0	0	0	0
Hail	Perrysburg	05/05/2010	0	0	0	0
Hail	Perrysburg	05/05/2010	0	0	75K	0
Hail	Woodville Gardens	05/05/2010	0	0	0	0
Hail	Bowling Green	05/05/2010	0	0	0	0
Hail	Rossford	05/05/2010	0	0	0	0
Hail	Perrysburg	05/05/2010	0	0	15K	0
Hail	Perrysburg	05/05/2010	0	0	15K	0
Hail	Walbridge	05/05/2010	0	0	0	0
Hail	Bowling Green	05/05/2010	0	0	0	0
Hail	Wayne	05/07/2010	0	0	0	0
Hail	Rudolph	05/07/2010	0	0	0	0
Hail	Lime City	05/07/2010	0	0	25K	0
Hail	Bradner	05/07/2010	0	0	0	0
Thunderstorm Wind	Grand Rapids	05/07/2010	0	0	300K	0
Thunderstorm Wind	Bowling Green	05/07/2010	0	0	15K	0
Hail	North Baltimore	05/10/2010	0	0	5K	0
Thunderstorm Wind	Weston	05/27/2010	0	0	6K	0
Thunderstorm Wind	Perrysburg	05/31/2010	0	0	20K	0
Thunderstorm Wind	Bowling Green	06/27/2010	0	0	0	0
Thunderstorm Wind	Bowling Green	06/27/2010	0	0	2K	0
Thunderstorm Wind	Bowling Green	07/18/2010	0	0	5K	0
Hail	Perrysburg	08/15/2010	0	0	0	0
Hail	Millbury	08/15/2010	0	0	5K	0
Hail	Cygnet	09/16/2010	0	0	20K	0
Hail	Wayne	09/16/2010	0	0	0	0
Thunderstorm Wind	Perrysburg	10/26/2010	0	0	50K	0
Thunderstorm Wind	Grand Rapids	10/26/2010	0	0	10K	0
Hail	Perrysburg	03/23/2011	0	0	2K	0
Thunderstorm Wind	North Baltimore	04/19/2011	0	0	50K	0
Thunderstorm Wind	Perrysburg	04/27/2011	0	0	1K	0
Thunderstorm Wind	Weston	05/23/2011	0	0	25K	0
Thunderstorm Wind	Portage	05/29/2011	0	0	1K	0
Thunderstorm Wind	Rossford	06/21/2011	0	0	75K	0
Thunderstorm Wind	Bowling Green	07/11/2011	0	0	1K	0
Thunderstorm Wind	Bradner	07/18/2011	0	0	1K	0
Thunderstorm Wind	Bradner	07/18/2011	0	0	100K	0
Thunderstorm Wind	Perrysburg	07/22/2011	0	0	15K	0

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Thunderstorm Wind	Bowling Green	08/06/2011	0	0	0	0
Hail	Walbridge	08/18/2011	0	0	0	0
Hail	Walbridge Airport	08/18/2011	0	0	0	0
Hail	Luckey	08/24/2011	0	0	0	0
Thunderstorm Wind	Luckey	08/24/2011	0	0	0	0
Thunderstorm Wind	Galatea	09/03/2011	0	0	40K	0
Hail	Haskins	11/14/2011	0	0	0	0
Hail	Haskins	11/14/2011	0	0	50K	0
Hail	Perrysburg	11/14/2011	0	0	0	0
Hail	Bowling Green	03/15/2012	0	0	50K	0
Hail	Walbridge	03/15/2012	0	0	0	0
Hail	Portage	06/18/2012	0	0	0	0
Hail	Bowling Green	06/18/2012	0	0	0	0
Hail	Bowling Green	06/18/2012	0	0	0	0
Thunderstorm Wind	Haskins	07/01/2012	0	0	4K	0
Thunderstorm Wind	Bowling Green	07/01/2012	0	0	3K	0
Thunderstorm Wind	Dowling	07/01/2012	0	0	2K	0
Thunderstorm Wind	Pemberville	07/01/2012	0	0	10K	0
Thunderstorm Wind	Perrysburg	07/05/2012	0	0	250K	0
Thunderstorm Wind	Hoytville	07/05/2012	0	0	75K	0
Hail	Perrysburg	07/27/2012	0	0	0	0
Thunderstorm Wind	Pemberville	08/04/2012	0	0	25K	0
Thunderstorm Wind	Tontogany	06/12/2013	0	0	5K	0
Thunderstorm Wind	Bowling Green	06/12/2013	0	0	100K	0
Thunderstorm Wind	Risingsun	06/12/2013	0	0	0	0
Thunderstorm Wind	Weston	06/22/2013	0	0	15K	0
Thunderstorm Wind	Bowling Green	06/22/2013	0	0	65K	0
Thunderstorm Wind	Cygnet	06/22/2013	0	0	3K	0
Hail	Perrysburg	06/27/2013	0	0	0	0
Hail	Latchie	06/27/2013	0	0	0	0
Thunderstorm Wind	Perrysburg	06/27/2013	0	0	1K	0
Thunderstorm Wind	Perrysburg	06/27/2013	0	0	10K	0
Thunderstorm Wind	Pemberville	06/27/2013	0	0	10K	0
Thunderstorm Wind	Weston	07/10/2013	0	0	5K	0
Thunderstorm Wind	Weston	07/10/2013	0	0	125K	0
Thunderstorm Wind	Bowling Green	07/10/2013	0	0	250K	0
Thunderstorm Wind	Risingsun	07/10/2013	0	0	150K	0
Thunderstorm Wind	Wayne	07/10/2013	0	0	25K	0
Hail	Bradner	08/31/2013	0	0	0	0
Thunderstorm Wind	Bradner	08/31/2013	0	0	3K	0
Thunderstorm Wind	Haskins	11/17/2013	0	0	0	0
Thunderstorm Wind	Portage	11/17/2013	0	0	10K	0

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Thunderstorm Wind	Wayne	11/17/2013	0	0	6K	0
Hail	Weston	05/07/2014	0	0	0	0
Thunderstorm Wind	Grand Rapids	05/13/2014	0	0	2K	0
Thunderstorm Wind	Tontogany	06/18/2014	0	0	2K	0
Thunderstorm Wind	Bowling Green	06/18/2014	0	0	1K	0
Thunderstorm Wind	Bloomdale	06/18/2014	0	0	150K	0
Thunderstorm Wind	Walbridge Airport	06/23/2014	0	0	60K	0
Thunderstorm Wind	Perrysburg	09/20/2014	0	0	1K	0
Hail	Perrysburg	04/09/2015	0	0	7K	0
Thunderstorm Wind	Bowling Green	05/26/2015	0	0	6K	0
Hail	Pemberville	05/27/2015	0	0	0	0
Hail	Pemberville	05/27/2015	0	0	0	0
Hail	Perrysburg	05/27/2015	0	0	0	0
Hail	Pemberville	05/27/2015	0	0	0	0
Thunderstorm Wind	Bowling Green	05/27/2015	0	0	0	0
Thunderstorm Wind	Custar	05/27/2015	0	0	0	0
Hail	Pemberville	06/22/2015	0	0	1K	0
Hail	Dowling	03/27/2016	0	0	0	0
Hail	Perrysburg	03/27/2016	0	0	0	0
Hail	Bradner	03/27/2016	0	0	0	0
Hail	Walbridge	03/27/2016	0	0	0	0
Hail	Walbridge	03/27/2016	0	0	0	0
Hail	Perrysburg	04/26/2016	0	0	0	0
Hail	Perrysburg	05/01/2016	0	0	0	0
Thunderstorm Wind	Woodside	07/13/2016	0	0	4K	0
Thunderstorm Wind	Pemberville	03/01/2017	0	0	20K	0
Thunderstorm Wind	Bradner	03/01/2017	0	0	2K	0
Hail	Bowling Green	03/30/2017	0	0	0	0
Hail	Perrysburg	03/30/2017	0	0	0	0
Hail	North Baltimore	04/30/2017	0	0	0	0
Hail	Pemberville	06/13/2017	0	0	0	0
Lightning	Bowling Green	06/22/2017	0	1	0	0
Thunderstorm Wind	Latchie	06/22/2017	0	0	60K	0
Thunderstorm Wind	Walbdridge	06/22/2017	0	0	0	0
Thunderstorm Wind	Walbridge	06/22/2017	0	0	8K	0
Hail	Bowling Green	06/30/2017	0	0	0	0

5.1.4 Tornado

Confirmed tornadoes occurring in Wood County since 1950 are listed below.

Hazard	Location	Date	Fujita Scale	Deaths	Injuries	Property Damage	Crop Damage
Tornado	Wood County	06/08/1953	F4	3	8	0	0
Tornado	Wood County	08/05/1961	F0	0	0	2.5K	0
Tornado	Wood County	06/24/1968	F0	0	0	0	0
Tornado	Wood County	05/18/1969	F0	0	3	2.5K	0
Tornado	Wood County	05/16/1971	F2	0	0	25K	0
Tornado	Wood County	10/08/1977	F0	0	0	250K	0
Tornado	Wood County	01/11/1981	F0	0	0	250K	0
Tornado	Wood County	04/03/1980	F1	0	0	250K	0
Tornado	Wood County	04/08/1981	F2	0	7	250K	0
Tornado	Wood County	05/02/1983	F3	1	22	25M	0
Tornado	Wood County	07/12/1992	F2	0	0	2.5M	0
Tornado	Wood County	07/12/1992	F2	0	5	250K	0
Tornado	Wood County	07/12/1992	F2	0	5	25K	0
Tornado	Custar	06/04/1996	F0	0	0	2K	0.5K
Tornado	Hoytville	05/09/2000	F0	0	0	100K	0
Tornado	Pemberville	05/09/2000	F0	0	0	0	0
Tornado	Pemberville	06/14/2000	F1	0	0	250K	0
Tornado	Jerry City	11/10/2002	F1	0	0	850K	0
Tornado	Stony Ridge	11/10/2002	F0	0	0	0	0
Tornado	Millbury	11/10/2002	F1	0	0	325K	0
Tornado	Portage	05/01/2007	EF0	0	0	0	1K
Tornado	Cloverdale	05/07/2010	EF1	0	0	500K	0
Tornado	Moline	06/05/2010	EF4	7	28	100M	0
Tornado	Custar	06/12/2013	EF0	0	0	100K	0
Tornado	North Baltimore	11/17/2013	EF2	0	0	1.5M	0
Tornado	Lime City	11/17/2013	EF1	0	0	200K	0
Tornado	Pemberville	08/24/2016	EF0	0	0	35K	0

5.1.5 Windstorm

Incidents identified as windstorms are limited to wind-only events. Events in which severe wind occurred along with another hazards, such as winter weather or severe thunderstorms, are identified under the primary hazard.

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
High Wind	Wood (Zone)	01/27/1996	0	0	0	0
High Wind	Wood (Zone)	01/29/1996	0	0	0	0
High Wind	Wood (Zone)	02/10/1996	0	0	3K	0
High Wind	Wood (Zone)	03/25/1996	0	0	4K	0
High Wind	Wood (Zone)	10/30/1996	0	1	500K	100K
High Wind	Wood (Zone)	02/27/1997	0	0	5K	0
High Wind	Wood (Zone)	04/19/1998	0	0	20K	0
High Wind	Wood (Zone)	11/10/1998	0	0	15K	0
High Wind	Wood (Zone)	12/11/2000	0	0	100K	0
High Wind	Wood (Zone)	02/09/2001	0	0	30K	0
High Wind	Wood (Zone)	02/25/2001	0	0	15K	0
High Wind	Wood (Zone)	04/12/2001	0	0	25K	0
High Wind	Wood (Zone)	10/25/2001	0	0	15K	0
High Wind	Wood (Zone)	02/01/2002	0	0	40K	0
High Wind	Wood (Zone)	03/09/2002	0	0	750K	0
High Wind	Wood (Zone)	11/12/2003	0	0	75K	0
High Wind	Wood (Zone)	03/05/2004	0	0	75K	0
High Wind	Wood (Zone)	10/30/2004	0	0	40K	0
High Wind	Wood (Zone)	11/06/2005	0	0	25K	0
High Wind	Wood (Zone)	12/01/2006	0	0	25K	0
High Wind	Wood (Zone)	12/23/2007	0	0	3K	0
High Wind	Wood (Zone)	12/23/2007	0	0	30K	0
High Wind	Wood (Zone)	01/29/2008	0	0	35K	0
High Wind	Wood (Zone)	01/30/2008	0	0	35K	0
High Wind	Wood (Zone)	09/14/2008	0	0	5M	1.5M
High Wind	Wood (Zone)	02/11/2009	0	0	400K	0
High Wind	Wood (Zone)	12/09/2009	0	0	500K	0
High Wind	Wood (Zone)	04/28/2011	0	0	0	0
High Wind	Wood (Zone)	03/02/2012	0	0	0	0
High Wind	Wood (Zone)	10/29/2012	0	0	50K	0
High Wind	Wood (Zone)	11/24/2014	0	1	500K	0
High Wind	Wood (Zone)	04/10/2015	0	0	20K	0
High Wind	Wood (Zone)	01/10/2017	0	0	0	0
High Wind	Wood (Zone)	01/10/2017	0	0	0	0

5.1.6 Winter Storm

Winter storm events include incidents classified as blizzard, cold/ extreme cold/wind chill, ice storm, or winter storm that occurred in Wood County since 1950.

Hazard	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
Ice Storm	Wood (Zone)	03/13/1997	0	0	40K	0
Winter Storm	Wood (Zone)	01/02/1999	0	2	15K	0
Winter Storm	Wood (Zone)	03/11/2000	0	0	35K	0
Winter Storm	Wood (Zone)	12/13/2000	0	0	125K	0
Ice Storm	Wood (Zone)	01/30/2002	0	0	800K	0
Winter Storm	Wood (Zone)	03/24/2002	0	0	50K	0
Winter Storm	Wood (Zone)	03/26/2002	0	0	100K	0
Winter Storm	Wood (Zone)	01/04/2004	0	0	200K	0
Winter Storm	Wood (Zone)	01/26/2004	0	0	350K	0
Winter Storm	Wood (Zone)	12/22/2004	0	0	1.8M	0
Ice Storm	Wood (Zone)	01/05/2005	0	0	6.2M	0
Winter Storm	Wood (Zone)	01/22/2005	0	0	350K	0
Winter Storm	Wood (Zone)	02/13/2007	0	0	60K	0
Ice Storm	Wood (Zone)	12/09/2007	0	0	100K	0
Winter Storm	Wood (Zone)	12/15/2007	0	0	150K	0
Winter Storm	Wood (Zone)	02/25/2008	0	0	100K	0
Winter Storm	Wood (Zone)	03/04/2008	0	0	300K	0
Winter Storm	Wood (Zone)	12/19/2008	0	0	50K	0
Winter storm	Wood (Zone)	01/09/2009	0	0	150K	0
Extreme Cold/Wind Chill	Wood (Zone)	01/15/2009	0	0	0	0
Winter Storm	Wood (Zone)	01/28/2009	0	0	250K	0
Winter Storm	Wood (Zone)	02/09/2010	0	0	300K	0
Winter Storm	Wood (Zone)	02/01/2011	0	0	300K	0
Winter Storm	Wood (Zone)	01/01/2014	0	0	100K	0
Winter Storm	Wood (Zone)	01/05/2014	0	0	250K	0
Extreme Cold/Wind Chill	Wood (Zone)	01/06/2014	0	0	0	0
Extreme Cold/Wind Chill	Wood (Zone)	01/28/2014	0	0	0	0
Winter Storm	Wood (Zone)	03/12/2014	0	0	250K	0
Winter Storm	Wood (Zone)	02/01/2015	0	0	300K	0
Extreme Cold/Wind Chill	Wood (Zone)	02/15/2015	0	0	0	0
Winter Storm	Wood (Zone)	04/08/2016	0	0	200K	0

5.2 HAZUS LOSS ESTIMATES

HAZUS is a nationally accepted methodology that utilizes U.S. Census and local Geographic Information Systems (GIS) data to estimate losses for earthquakes, hurricanes, and floods. Because floods and earthquakes are identified as risks for Wood County, HAZUS was used to generate and evaluate the county's vulnerability to these incidents. Estimates from HAZUS were generated using 2010 U.S. Census Bureau data, which calculated the population of Wood County as 125,488.

5.2.1 Flood

To evaluate Wood County's vulnerability to flood, a 100-year flood scenario was utilized to generate loss estimates. For a flood of this magnitude, the damage to the county would be significant. The incident would expose a significant portion of the county's buildings to damage. Table 5-1 identifies buildings by occupancy type for all of Wood County and those exposed to risk in this scenario.

Table 5-1: Building Occupancy Type

Occupancy	Wood County		100-Year Flood Scenario	
	Exposure ($1000)	Percent of Total	Exposure ($1000)	Percent of Total
Residential	11,559,279	69.6%	3,127,561	69.7%
Commercial	2,715,129	16.3%	786,519	17.5%
Industrial	1,408,713	8.5%	352,780	7.9%
Agricultural	121,756	0.7%	40,091	0.9%
Religion	274,441	1.7%	59,785	1.3%
Government	90,470	0.5%	12,611	0.3%
Education	447,504	2.7%	110,525	2.5%
Total	***16,617,288***	***100%***	***4,489,872***	***100%***

Essential Facility Inventory

Essential facilities are healthcare facilities like hospitals and clinics, fire and EMS stations, police stations, and operations and dispatch centers. Schools are included in essential facilities. Wood County's essential facilities are identified in Table 5-2.

Table 5-2: Essential Facility Inventory

Facility Type	Number
Hospital	1 (85 beds)
Schools	66
Fire Stations	23
Police Stations	21

Estimated Building Damage

Per HAZUS estimates, 209 buildings will sustain at least moderate damage. This accounts for 58% of the total buildings identified for the scenario. Additionally, 2 buildings are likely to be completely destroyed. Tables 5-3 and 5-4 identify the anticipated building damage based on occupancy type and building type.

Table 5-3: Expected Building Damage by Occupancy

Occupancy	Percent Damaged					
	1-10%	11-20%	21-30%	31-40%	41- 50 %	> 50%
Agriculture	0	0	0	0	0	0
Commercial	6	0	0	0	0	0
Education	0	0	0	0	0	0
Government	0	0	0	0	0	0
Industrial	8	0	0	0	0	0
Religious	0	0	0	0	0	0
Residential	611	178	23	5	1	2
Total	***625***	***178***	***23***	***5***	***1***	***2***

Table 5-4: Expected Building Damage by Building Type

Building Type	Percent Damaged					
	1-10%	11-20%	21-30%	31-40%	41- 50 %	> 50%
Concrete	2	0	0	0	0	0
Manufactured Housing	0	0	0	0	0	1
Masonry	102	25	2	2	0	0
Steel	5	0	0	0	0	0
Wood	514	153	21	3	1	1
Total	***623***	***178***	***23***	***5***	***1***	***2***

Based on this scenario, HAZUS does not predict that any critical facilities will sustain moderate or significant damage. Therefore, it is anticipated that the hospital beds, emergency services, and institutional services normally present in the county would continue to be functional in a 100-year flood scenario. Several schools are anticipated to experience moderate damage and complete loss of use.

Table 5-5: Expected Damage to Essential Facilities

Classification	Total	Moderate Damage	Substantial Damage	Loss of Use
Fire Stations	23	0	0	0
Hospitals	1	0	0	0
Police Stations	21	0	0	0
Schools	66	3	0	2

Shelter Requirements

When flooding forces people from their homes, some will seek refuge at a public shelter. In this incident, it is anticipated that 2,496 households would be displaced and approximately 4,246 people would seek temporary shelter.

Building Related Losses
The total economic loss for the identified 100-year flood event is estimated to be $125.81M.

Building-related losses are separated into two loss categories: direct building loss and business interruption loss. Building losses include structural damage and damage to contents. Business interruption losses include the costs associated with not being able to conduct normal business, displaced workers, and lost opportunities. Table 5-6 provides a summary of the anticipated losses.

Table 5-6: Building-Related Economic Loss Estimates

Area	Residential	Commercial	Industrial	Others	Total
Building Loss					
Building	45.52	8.03	4.63	1.32	**59.61**
Content	20.47	24.10	9.98	7.96	**62.51**
Inventory	0	0.45	1.85	0.09	**2.39**
Business Interruption					
Income	0.01	0.33	0	0	**0.39**
Relocation	0.10	0.05	0.01	0.02	**0.17**
Rental Income	0.01	0.03	0	0	**0.04**
Wage	0.01	0.36	0.01	0.43	**0.81**
Total	***66.13***	***33.34***	***16.47***	***9.86***	***125.81***

5.2.2 Earthquake

The simulated earthquake epicenter was assumed to be inside Bowling, Wood County's most populated jurisdiction, for a worst-case scenario. The magnitude of the simulated earthquake measured 5.0 on the Richter Scale with a dept of 5 km. The HAZUS loss estimation program utilized 2010 U.S. Census data for this scenario. There are an estimated 47,000 buildings in the county with a replacement value of $16,617M.

Critical Facility Inventory
HAZUS separates critical facilities into essential facilities and high potential loss (HPL) facilities. Essential facilities are healthcare facilities like hospitals and clinics, fire and EMS stations, police stations, and operations and dispatch centers. Schools are included in essential facilities. HPL facilities include dams, levees, nuclear power plants, military installations and hazardous material sites.

Table 5-7: Critical Facility Inventory

Essential Facilities		High Potential Loss Facilities	
Facility Type	*Number*	*Facility Type*	*Number*
Hospital	1 (685beds)	**Hazardous Materials Sites**	103
Schools	66		
Fire Stations	23		
Police Stations	21		

Transportation and Utility Lifeline Inventory

Lifeline systems are defined as transportation and utilities. Transportation systems include highways, railways, and airports. Utility systems include water treatment and potable water plants, wastewater treatment plants, natural gas suppliers, fuel oil suppliers, electrical power plants, and communications hubs. The total value of these lifeline systems exceeds $5,431M and includes more than 265.33 miles of highway, 512 bridges, and 12,433.01 miles of pipes.

Table 5-8: Transportation System Inventory

System	Components	Quantity	Replacement Value
Highways	Bridges	512	$353.88M
	Segments	119	$2,194.15M
Railways	Facilities	2	$5.33M
	Segments	279	$304.11M
Airport	Facilities	4	$42.60M
	Runways	7	$265.75M
Total			***$3,165.80M***

Table 5-9: Utility System Inventory

System	Components	Quantity	Replacement Value
Potable Water	Distribution Lines	N/A	$200.10M
	Facilities	4	$139.86M
Waste Water	Distribution Lines	N/A	$120.06M
	Facilities	23	$1,608.39M
Natural Gas	Distribution Lines	N/A	$80.04M
	Facilities	1	$1.14M
Oil Systems	Facilities	4	$0.42M
Electrical Power	Facilities	1	$115.5M
Communication	Facilities	7	$0.74M
Total			***$2,266.20M***

Building Damage

The estimated building damage according to HAZUS is extensive. The number of buildings projected to sustain moderate damage is 4,785, approximately 10% of all buildings in the county. It is estimated that 246 buildings would be destroyed. Table 5-10 summarizes the anticipated building damages.

Table 5-10: Expected Building Damage by Occupancy

Occupancy	None	Slight	Moderate	Extensive	Complete
Agriculture	223.03	63.73	69.24	34.52	8.49
Commercial	1960.66	399.41	340.25	137.58	33.09
Education	91.48	21.10	19.84	7.53	2.04
Government	69.44	18.42	19.18	7.00	1.96
Industrial	662.56	118.83	108.60	47.79	11.23
Other Residential	3867.01	985.45	859.85	317.60	66.08
Religion	194.89	41.70	32.40	13.62	3.39
Single Family Residential	29746.81	4794.72	2030.02	493.83	120.63
Total	***36,546***	***6,443***	***3,479***	***1,059***	***247***

Depending on the type of building construction, damage from an earthquake can be more or less serious. Based on common types of construction, the scenario is extrapolated into damage according to type of construction type.

Table 5-11: Expected Building Damage by Building Type

Building Type	None	Slight	Moderate	Extensive	Complete
Wood	25661.36	3831.22	1144.20	124.98	8.46
Steel	973.14	168.41	211.89	114.12	28.50
Concrete	282.69	52.57	51.13	21.53	3.89
Precast	275.49	46.28	61.18	34.54	4.73
Reinforced Masonry	108.52	15.28	20.16	10.46	0.85
Unreinforced Masonry	7057.43	1721.52	1320.47	491.52	147.37
Manufactured Housing	2187.25	608.09	670.34	262.21	53.11
Total	***36,546***	***6,443***	***3,479***	***1,059***	***247***

Essential Facility Damage

According to HAZUS estimates, only 26 of the county's 85 hospital beds (31%) would be available and functional on the day of the earthquake. These would be needed by patients already hospitalized at the time of the earthquake and by those requiring hospitalization for injuries sustained in the incident. One week post-quake, it is estimated that 46% of these beds would be available. By the 30-day mark, an estimated 76% would be fully functional. Anticipated damage to other essential facilities is detailed in Table 5-12.

Table 5-12: Expected Damage to Essential Facilities

Classification	Total	Moderate Damage >50%	Complete Damage > 50%	With Functionality >50% on Day 1
Hospitals	1	1	0	0
Schools	66	1	0	46
Police Stations	21	0	0	16
Fire Stations	23	2	0	17

Transportation and Utility Lifeline Damage

Per HAZUS estimates, most highways, bridges, railways, and rail bridges will have more than 50% functionality on the first day after an earthquake and will continue to experience greater than 50% function throughout the recovery period. Limited damage to these transportation systems is expected.

Airports are also expected to have at least 50% functionality immediately following the incident. It is anticipated, however, that 1 airport will sustain at least moderate damage. This damage is not expected to prevent them from functioning.

Tables 5-13 and 5-14 describe the anticipated damage to utility system facilities and pipelines.

Table 5-13: Expected Utility System Facility Damage

System	Total	Moderate Damage	Complete Damage	Day 1 >50% Functionality	Day 7 >50% Functionality
Potable Water	4	2	0	2	4
Waste Water	23	6	0	12	23
Natural Gas	1	0	0	1	1
Oil Systems	4	3	0	1	4
Electrical Power	1	0	0	1	1
Communication	7	1	0	7	7

Table 5-14: Expected Utility System Pipeline Damage

Utility	Total Pipeline	Anticipated Leaks	Anticipated Line Breaks
Potable Water	6,217 mi	657	164
Wastewater	3,730 mi	330	83
Natural Gas	2,487	113	28

Electrical service is more challenging and time consuming to restore. Table 5-15 outlines the number of customers anticipated to be without electric service following the incident. There are 49,043 total households in the county.

Table 5-15: Expected Electric Power System Performance

Days Post-Event	Households Without Service
Day 1	10,888
Day 3	6,229
Day 7	2,063
Day 30	293
Day 90	14

Post-Incident Fire Risk

Because there is often limited water supply following an earthquake, fires can be a significant hazard. HAZUS estimates the number of fires that would occur based upon the prospect of water not being available to fight fires and an abundance of spontaneous ignition. According to these estimates, no fire ignitions are probable and no damage or loss is anticipated.

Debris Generation
The amount of debris generated by an earthquake can be substantial. HAZUS classifies debris into two types based on the handling equipment required: brick/wood and reinforced concrete/steel. In the given scenario, a total of 207,000 million tons of debris is anticipated. Brick/wood would comprise 52% of that amount. When converting these totals to truckloads, debris removal would require 8,280 truckloads, assuming 25 tons per truck.

Shelter Needs
Temporary public shelters are often necessary post-quake to provide housing for people displaced by the event. HAZUS estimates that 468 households would be displaced and 346 people would seek housing in a temporary shelter.

Casualties
The number of people estimated to be injured or killed by the earthquake is divided into four categories based on the extent of the victim's injuries:

Level 1 – Require medical attention but not hospitalization
Level 2 – Require hospitalization for non-life threatening injuries
Level 3 – Require hospitalization for critical injuries
Level 4 – Fatalities

Casualty estimates are provided for 3 times of day that represent periods of the day that various sectors of the community operate at peak capacity loads. These figures are provided in Table 5-16.

Table 5-16: Casualty Estimates

Time	Location	Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	1.79	0.39	0.05	0.09
	Commuting	0	0	0.01	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	3.44	0.75	0.09	0.18
	Other Residential	64.77	13.60	1.65	3.20
	Single Family Residential	78.48	16.23	2.08	4.07
	TOTAL	***148***	***31***	***4***	***8***
2 PM	Commercial	100.60	21.95	2.73	5.29
	Commuting	0.03	0.03	0.06	0.01
	Educational	96.04	22.25	3.11	5.97
	Hotels	0	0	0	0
	Industrial	25.35	5.54	0.68	1.31
	Other Residential	8.40	1.75	0.21	0.39
	Single Family	14.68	3.13	0.42	1.78
	TOTAL	***245***	***55***	***7***	***14***
5 PM	Commercial	74.77	16.42	2.07	3.95
	Commuting	0.44	0.58	0.98	0.19
	Educational	35.81	8.36	1.17	2.27
	Hotels	0	1	0	0
	Industrial	15.85	3.46	0.43	0.82
	Other Residential	25.19	5.42	0.69	1.29
	Single Family Residential	31.43	6.72	0.90	1.68
	TOTAL	***183***	***41***	***6***	***10***

Building-Related Losses

Total economic loss for this earthquake scenario is estimated to be $943.27M. This estimate includes building and lifeline related losses and is based on the building inventory in Wood County. Building losses are examined in two categories: direct building loss and business interruption loss. Direct building losses include structural damage and damage to contents. Business interruption losses include the costs associated with not being able to conduct normal business, displaced workers, and lost opportunities.

Total estimated building losses are anticipated to be $723.54M. Business interruption expenses account for 18% of this total. Residential structures are expected to sustain the greatest loss by far, more than 55% of the total loss for the county.

Table 5-17 provides a summary of the anticipated building-related losses. All figures are expressed in millions of dollars.

Table 5-17: Building-Related Economic Loss Estimates

Area	Single-Family	Other Residential	Commercial	Industrial	Other	Total
Income Losses						
Wage	0	3.29	20.37	2.15	2.15	27.11
Capital Related	0	1.41	18.78	0.64	0.64	21.65
Rental	5.79	8.72	10.12	1.06	1.06	26.25
Relocation	20.18	6.10	15.96	8.97	8.97	53.85
Capital Stock Losses						
Structural	35.29	18.86	26.39	8.75	12.51	101.82
Non-Structural	123.78	89.30	66.69	25.84	27.48	339.08
Content	50.41	27.39	36.26	18.58	16.66	149.41
Inventory	0	0	0.97	2.93	0.47	4.37
TOTAL	***241.54***	***155.08***	***195.54***	***61.42***	***69.95***	***732.54***

Transportation and Utility Lifeline Losses

Earthquakes often cause extensive damage to a community's infrastructure. Tables 5-18 and 5-19 depict the potential damage Wood County could expect to its transportation and utility systems. Loss figures address only the cost to repair, not business interruption costs. Numbers are expressed in millions of dollars.

Table 5-18: Transportation System Economic Losses

System	Component	Inventory Value	Economic Loss
Highway	Segments	$2194.15M	0
	Bridges	$353.88M	$2.08M
Railways	Segments	$304.10M	0
	Facilities	$5.33M	$0.85M
Airport	Facilities	$42.60M	$8.21M
	Runways	$265.75M	0
Total		***$3,165.82M***	***$11.13M***

Table 5-19: Utility System Economic Losses

System	Component	Inventory Value	Economic Loss
Potable Water	Facilities	$139.86M	$23.09M
	Distribution Lines	$200.09M	$2.96M
Waste Water	Facilities	$1608.39M	$179.94M
	Distribution Lines	$120.06M	$1.49M
Natural Gas	Facilities	$1.45M	$0.01M
	Distribution Lines	$80.04M	$0.51M
Oil Systems	Facilities	$0.42M	$0.09M
Electrical Power	Facilities	$115.50M	$0.47M
Communication	Facilities	$0.74M	$0.03M
Total		***$2,266.24M***	***$208.60M***