CHAPTER SEVEN: VULNERABILITY ASSESSMENT

Contents

Introduction

Depending on the characteristics of the hazard and its impact, substantial components of the general population, business community, public services, community institutions and utilities are vulnerable to damage. In considering the vulnerability of Marion County to disasters, it is important to emphasize that some facilities and the populations they serve are often more sensitive to the impacts of disasters than others. For the purposes of the Vulnerability Analysis and Risk Assessment requirements of the LMS, only the weather related and natural hazards were analyzed. Ecological, technological, societal, and health related hazards remain applicable to Marion County; however, currently there are no set criteria for evaluating hazards not required by 44 CFR 201. At such time these review criteria are developed, they will be further analyzed in the LMS.

Table VII-1 Hazards Affecting Marion County

Weather	Natural	Ecological	Technological/Societal	Health
Hurricane and Tropical Storm	Wildfire	Pest Infestation	Power Failure	Epidemic
Severe Winter Storm	Flood	Animal Disease	HazMat Incidents	Aging Population
Tornado	Drought		Urban Fire	
Extreme Heat	Sinkholes		Radiological	
	Riverine		Societal/Civic	
	Erosion		Evacuation	
			Mass Casualty	
			Traffic Related	
			Civil Disturbance	
			Terrorist Acts	

Building Exposure

There are an estimated 153,000 buildings in the county with an estimated total building replacement value (excluding contents) of 32,871 million dollars. Approximately 98% of the buildings (and 81% of the building value) are associated with residential housing. Refer to table VII-2, Building Exposure by Occupancy Type.

Table VII-2
Building Exposure by Occupancy Type

Occupancy	Exposure ($1000)	Percent of Total
Residential	24,387,244	79.22%
Commercial	4,229,912	13.74%
Industrial	1,020,480	3.31%
Agricultural	277,513	0.90%
Religious	506,984	1.65%
Government	107,379	0.35%
Education	254,420	0.83%
Total	30,783,932	100.00%

Source: Hazus-MH Hurricane Event Report, probabilistic hurricane event model report, March 23, 2021.

Critical Facilities Overview

Critical facilities are important for both evacuation and sheltering. The County's Critical Facilities Inventory is maintained by emergency management staff and updated annually to insure that preparedness and response actions can provide efficient evacuation, sheltering and recovery. The facilities that are important in the event of a hazard evacuation will vary based on the situation but typically include transportation facilities, medical facilities, communications facilities, potable water facilities, wastewater treatment plants, hospitals and schools. Additional facilities identified in the LMS include, emergency operations centers, mobile home parks, childcare centers, and hazardous waste generators.

Sensitive facilities can be critical from the evacuation standpoint because residents of prisons, nursing homes and hospitals will need extra evacuation support. Emergency managers have established agreements and procedures to address these issues. In Marion County, there are no critical facilities that demonstrate an overwhelming structural vulnerability to any particular hazard.

These infrastructure facilities are critical in a timely evacuation and need to be functioning at a level of service that supports evacuation and sheltering efforts. The Critical Facilities list was developed by the Marion County Growth Services Department and includes facilities identified in Table VII-3 thru Table VII-14 and shown on Map VII-2 thru Map VII-11.

Municipal and public buildings located in high risk areas are also an important consideration. Municipal buildings include police and fire stations that are critical during times of emergency. A listing of fire stations and sheriff stations are included in Table VII-12 and Table VII-13, respectively and shown in Map VII-12 and Map VII-13. Location information was obtained from the Marion County Fire

Department and the Marion County Sheriff's Office, respectively. Other municipal buildings that maintain County and City records would be best located outside of the vulnerability zones. In cases where municipal buildings exist in vulnerable locations, retrofitting the buildings to increase protection is a needed precaution.

EOC/Communication Facilities

Table VII-3 Marion County Emergency Operations Centers			
Name	**Address**	**City**	**Zip**
Marion County Division Of Emergency Mgt	692 Nw 30th Avenue	Ocala	34475
State Fire College	11655 Nw Gainesville Road	Ocala	34482

Table VII-4 Marion County Communications Facilities			
WHIJ	88.1 FM	Ocala	Christian Contemporary
WYFZ	91.3 FM	Belleview	Religious
WEFA (LPFM)	92.5 FM	Ocala	Adult Contemporary
WMFQ	92.9 FM	Ocala	Top-40
WOGK	93.7 FM	Ocala	Country
WSKY	97.3 FM	Micanopy	Talk
WRGE (LPFM)	97.9 FM	Ocala	Religious
WGMA	99.7 FM	Silver Springs Shores	Adult Contemporary
W261BA (WXUS-HD2)	100.1 FM	Ocala	Oldies
WCKP (LPFM)	100.7 FM	Ocala	Dance
WXUS	102.3 FM	Dunnellon	Country
WIEB (LPFM)	102.9 FM	Ocala	Spanish Christian
WRUF	103.7 FM	Gainesville, FL	Country
WITG (LPFM)	104.7 FM	Ocala	Classic Hits
W296CW (WTYG)	107.1 FM	Ocala	Religious
WYND	95.5 FM	Silver Springs Shores	Classic Rock
W242CA (WOCA-AM)	96.3 FM	Ocala	News/Talk
WMOP	900 AM	Ocala	Sports
WOCA	1370 AM	Ocala	News/Talk

Water/Wastewater Treatment Plants

Water and wastewater treatment plants are important due to the nature of their role in providing critical infrastructure for sheltering and recovery. If these facilities are damaged, extra warnings and precautions need to be provided to the population serviced by the damaged plant. Contamination of the water supply can come from one unplanned release of waste product due to storm damage. Cleanup of a water supply can take a significant amount of time during which all water would need to be sterilized before use. Providing information to the public is an important protocol in case of contamination. If wastewater

facilities do not have access to the public through television or radio, there must be coordination between the EOC and the wastewater facilities to provide initial reports and updates. Marion County does not include these facilities as part of their critical facilities inventory.

Reviewing the Comprehensive Emergency Management Plan provides a listing of protocols that will provide the appropriate level of preparedness for critical facilities. Each water/wastewater facility should have a list of protocols in case of an emergency including but not limited to: a) adequate potable water; b) restoration of water supply; c) provision of water for firefighting; and d) demolition or stabilization of damaged structures. Refer to Appendix D for Potable Water Facilities. Appendix E is a list of wastewater facilities.

Transportation Facilities

Navigable Waterway Facilities/Dam Facilities

Table VII-5. Marion County Dam Facilities			
Name	**County Name**	**Owner**	**River**
Moss Bluff Lock And Spillway	Marion	SJRWMD	Ocklawaha River
Lake Joy	Marion	Silver Spring Shores Inc	TR-Marshall Swamp

Marion County Military Facilities

Table VII-6. Marion County Military Facilities			
Name	**Address**	**City**	**Zip**
Troop E 153rd Cav	900 Sw 20th Street	Ocala	34474
Troop E 153rd Cav	900 Sw 20th Street	Ocala	34474
Co A, 3rd Sf Bn, 20th Sf Gp	900 Sw 20th Street	Ocala	34474
Co A, 3rd Sf Bn, 20th Sf Gp	900 Sw 20th Street	Ocala	34474

Private/Public Airfields

Table VII-7. Marion County Airport Facilities			
LOCATION	**AIRPORT NAME**	**USE**	**ID#**
BELLEVIEW	BACK ACHERS	Private	8FL3
BELLEVIEW	JOHARY	Private	FL58
BELLEVIEW	JORDAN	Private	7FL0
BELLEVIEW	JORDAN	Private	FD79
BELLEVIEW	KIEVER	Private	8FL2
BELLEVIEW	MONROE AIRPARK	Private	2FA2
BELLEVIEW	THE VILLAGES	Private	19FL
CITRA	PANIOLA AIR RANCH	Private	FD14
CITRA	THOMPSON'S GOINBROKE AERO RANCH	Private	9FD5
DUNNELLON	MARION COUNTY	Public	X35
FAIRFIELD	RELUCTANT GREMLIN	Private	FA09
HERNANDO	DRAKE RANCH	Private	7FD2
LOWELL	LEE FARMS	Private	FL80
OCALA	ADVENT HEALTH OCALA	Private	57FD
OCALA	BERNIE LITTLE	Private	FL49
OCALA	CROSSWIND FARM	Private	FL19
OCALA	EARLY BIRD	Private	FA86
OCALA	FLYING DUTCHMAN RANCH	Private	FD29
OCALA	JUMBOLAIR	Private	17FL
OCALA	MC GINLEY	Private	FL61
OCALA	OCALA INTL-JIM TAYLOR FLD	Public	OCF
OCALA	ORMC TRAUMA CENTER	Private	3FD1
OCALA	SHADY INTL	Private	FA49
OCALA	SHERIFF'S NORTH MULTI DISTRICT OFFICE	Public	1FL6
OCALA	SHERIFF'S OPERATION CENTER	Public	3FL3
OCALA	SHERIFF'S SOUTH MULTI DISTRICT OFFICE	Public	FL68
OCALA/BELLEVIEW	LEEWARD AIR RANCH	Private	FD04
OKLAWAHA	WOODS AND LAKES AIRPARK	Private	FA38
ORANGE SPRINGS	PATCH O BLUE	Private	FD02
REDDICK	WINGS-N-WHEELS	Private	FA50
WEIRSDALE	HOBBY HILL	Private	2FD1
WEIRSDALE	LOVE FLD	Private	97FL

Highway Facilities

Table VII-8. Marion County Highway Facilities			
Name	**Owner**	**Length**	**Type**
Sw 60th Ave		1.969196	Unknown
Sw 60th Ave		0.8257987	Rural Minor Arterial
C326		3.316925	Rural Minor Arterial
C326		3.233844	Unknown
U441		10.30713	Rural Principal Arterial
U441		8.581203	Rural Principal Arterial
U301	State Highway Agency	8.660818	Rural Principal Arterial
U27		4.223543	Urban Principal Arterial
I75	State Highway Agency	0.3702762	Urban Interstate
S40	State Highway Agency	0.1556781	Rural Principal Arterial
S19		24.89587	Rural Minor Arterial
S40	State Highway Agency	34.26529	Rural Principal Arterial
S19		0.4227517	Rural Minor Arterial
U301		1.611026	Rural Principal Arterial
S326	County Highway Agency	0.8307849	Rural Principal Arterial
C326	State Highway Agency	1.818772	Urban Minor Arterial
C326	State Highway Agency	0.9934766	Urban Minor Arterial
C326	State Highway Agency	7.477028	Rural Minor Arterial
C326	State Highway Agency	1.446088	Urban Minor Arterial
Nw 70th St		1.472152	Unknown
I75	State Highway Agency	1.181602	Urban Interstate
S40		0.3606153	Urban Principal Arterial
C42		11.57793	Unknown
C35		0.506098	Rural Principal Arterial
U27		7.846969	Rural Principal Arterial
U27		0.4167731	Rural Principal Arterial
C40		1.584806	Unknown
S200		9.485158	Rural Principal Arterial
U27		1.218197	Rural Principal Arterial
Se Maricamp Rd		2.477338	Unknown
C25		1.194177	Rural Principal Arterial
I75	State Highway Agency	0.4546244	Rural Interstate
C484		0.372114	Rural Minor Arterial
U301		2.306276	Urban Principal Arterial
C315		35.38927	Unknown
S40	State Highway Agency	1.711427	Rural Principal Arterial
U301		3.131317	Urban Principal Arterial
Gainesville Rd		0.7774845	Urban Principal Arterial
C314		6.390356	Rural Minor Arterial
S40	State Highway Agency	3.990294	Rural Principal Arterial
S329		11.76745	Rural Minor Arterial
C336		2.480435	Unknown
C35		6.751422	Rural Minor Arterial
S329		3.213621	Rural Minor Arterial
S19		2.846574	Rural Minor Arterial
U301	State Highway Agency	7.429595	Rural Principal Arterial
S329		0.8270703	Rural Minor Arterial
U27	State Highway Agency	10.9538	Rural Principal Arterial
U27		1.128757	Urban Principal Arterial
U41		11.4024	Rural Minor Arterial

U41		7.306502	Rural Minor Arterial
C40		6.802087	Unknown
C484		17.47515	Rural Minor Arterial
U41		0.5119864	Rural Minor Arterial
U27		0.8560318	Urban Principal Arterial
U27	State Highway Agency	0.2832178	Urban Principal Arterial
U27		0.3144089	Urban Principal Arterial
I75	State Highway Agency	0.4749639	Urban Interstate
C450		3.592716	Unknown
C25		2.48866	Unknown
U301		10.90252	Rural Principal Arterial
U27		12.35187	Rural Principal Arterial
I75	State Highway Agency	0.5124583	Rural Interstate
I75	State Highway Agency	0.5809954	Urban Interstate
Se 110th St		1.036138	Rural Principal Arterial
Se Maricamp Rd		2.047772	Rural Minor Arterial
Se Maricamp Rd		0.984016	Rural Minor Arterial
S464		1.877766	Rural Minor Arterial
Se Maricamp Rd		2.414919	Rural Minor Arterial
Se 17th St		3.335691	Unknown
U301	State Highway Agency	3.832807	Rural Principal Arterial
C314		22.66171	Unknown
S40		2.985886	Urban Minor Arterial
U27		0.08625149	Urban Principal Arterial
U27		0.7892577	Urban Principal Arterial
S200		3.691643	Rural Principal Arterial
Sw 60th Ave		4.853933	Rural Minor Arterial
U27		7.919358	Urban Principal Arterial
S40		21.69802	Rural Minor Arterial
S200		9.677535	Rural Principal Arterial
C42		16.53655	Unknown
Nw 60th Ave		1.948164	Rural Minor Arterial
Nw 60th Ave		1.992345	Rural Minor Arterial
Se Maricamp Rd		9.101056	Rural Minor Arterial
I75	State Highway Agency	0.5273901	Urban Interstate
S40		3.953923	Urban Principal Arterial
S40		2.966739	Urban Principal Arterial
S40		11.66976	Urban Principal Arterial
S326	State Highway Agency	2.812465	Rural Minor Arterial
S40		0.3613723	Urban Principal Arterial
I75	State Highway Agency	0.5788867	Urban Interstate
S200		5.278409	Urban Principal Arterial
I75	State Highway Agency	1.026185	Urban Interstate
S200		0.7866506	Urban Principal Arterial
I75	State Highway Agency	2.876539	Urban Interstate
U27	State Highway Agency	14.21763	Rural Principal Arterial
U27	State Highway Agency	3.409841	Rural Principal Arterial
C25		9.693903	Unknown
C25		1.452847	Unknown
C25		8.633677	Unknown
Baseline Rd		2.037417	Rural Minor Arterial
Se Maricamp Rd		3.826906	Unknown
I75	State Highway Agency	5.479926	Rural Interstate
C326		14.11063	Rural Minor Arterial

I75	State Highway Agency	25.65214	Rural Interstate
S326	State Highway Agency	0.3754583	Rural Minor Arterial
I75	State Highway Agency	0.4802522	Rural Interstate
C326		0.3760335	Rural Minor Arterial
I75	State Highway Agency	0.4558333	Rural Interstate
S200		0.3787254	Urban Principal Arterial
I75	State Highway Agency	0.5073485	Urban Interstate
S200		0.3879254	Urban Principal Arterial
I75	State Highway Agency	0.532934	Urban Interstate
C484		12.45956	Rural Minor Arterial
I75	State Highway Agency	7.529012	Rural Interstate
C484		14.45626	Rural Minor Arterial
I75	State Highway Agency	12.45406	Rural Interstate
C484		0.3594722	Rural Minor Arterial
C326	State Highway Agency	1.899198	Rural Minor Arterial
C326	State Highway Agency	1.899198	Rural Minor Arterial
U301	State Highway Agency	0.8076597	Rural Principal Arterial
U301	State Highway Agency	0.8076597	Rural Principal Arterial

Bridge Facilities

Table VII-9. Marion County Bridge Facilities	
Name	**Owner**
CR 42	Marion County
I-75	FDOT
I-75	FDOT
US 41 (SR 45)	FDOT
CR 484	Marion County
Blue Cove Drive	City of Dunnellon
Blue Cove Drive	City of Dunnellon
US 441	FDOT
CR 464	Marion County
SW 66th Street	FDOT
SE 137th Ave Road	Marion County
I-75 (SR 93)	FDOT
I-75 (SR 93)	FDOT
SR 200	FDOT
SR 200	FDOT
I-75 (SR 93)	FDOT
I-75 (SR 93)	FDOT
C.R. 314	Marion County
US 441	FDOT
SR 492	FDOT
SR 492	FDOT
US 441	FDOT
I-75 (SR 93)	FDOT
I-75 (SR 93)	FDOT

SR 19	FDOT
SR 40	FDOT
NE 145th Ave Road	Marion County
NW 63 Street	FDOT
I-75 (SR 93)	FDOT
I-75 (SR 93)	FDOT
NW 100th Street	FDOT
SR 40	FDOT
NE 105th Street	Marion County
CR 25A	Marion County
NW 120th Street	FDOT
US 441	FDOT
I-75 (SR 93)	FDOT
I-75 (SR 93)	FDOT
CR 316	FDOT
CR 316	Marion County
CR 315	Marion County
US 441	FDOT
US 441	FDOT
NE 148th Terrace Rd	Marion County
I-75 (SR 93)	FDOT
I-75 (SR 93)	FDOT
CR 315	Marion County
I-75 (SR 93)	FDOT
I-75 (SR 93)	FDOT
CR 320	FDOT

Rail Facilities

Table VII-10. Marion County Railway Facilities

Railway Segment Id	Owner	Length
FI000827	FNOR	0.2299484
FI001502	FNOR	7.508278
FI001503	FNOR	0.5829006
FI001504	FNOR	0.2621745
FI001505	FNOR	1.623427
FI001506	FNOR	0.8868526
FI001507	FNOR	0.2192504
FI001508	FNOR	0.2337454
FI001509	FNOR	0.2925448
FI001510	FNOR	7.687151
FI001511	FNOR	12.76381
FI001512	FNOR	0.6339239
FI001513	FNOR	0.1296391
FI001514	FNOR	2.026971
FI001515	CSXT	0.5001339

Fl001516	CSXT	12.04849
Fl001517	CSXT	16.64683
Fl001518	FNOR	0.7636141
Fl001519	FNOR	0.847017
Fl001520	FNOR	0.09713368
Fl001521	FNOR	0.1447862
Fl001522	CSXT	0.10776
Fl001523	FNOR	0.4623752
Fl001524	FNOR	0.300481
Fl001525	CSXT	0.4133642
Fl001526	CSXT	14.33104
Fl001527	FNOR	6.456421
Fl001528	CSXT	9.303665
Fl001529	FNOR	0.4349523
Fl001530	FNOR	4.39315
Fl001531	FNOR	0.3063336
Fl001532	FNOR	5.270461
Fl001606	FNOR	0.274722
Fl001607	CSXT	0.3291693
Fl001608	CSXT	0.1803837
Fl001609	FNOR	1.080441
Fl001610	FNOR	8.409599
Fl001611	CSXT	9.489729

Rail Bridges

Table VII-11 Marion County Railway Bridges

Railway Bridge Id	Name	Latitude	Longitude
Fl000006	SCLRR	29.16167	-82.13333

Law Enforcement and Fire

Table VII-12. Marion County Fire Stations			
Station	**Name**	**City**	**Type**
1	Anthony	Ocala	Combination
2	Citra	Citra	Combination
3	City Of Dunnellon	Dunnellon	Combination
4	East Marion	Silver Springs	Career
5	Florida Highlands	Dunnellon	Volunteer
6	South Forest	Umatilla	Volunteer
7	Fort Mccoy	Fort Mccoy	Career
8	Hog Valley	Fort Mccoy	Volunteer
9	Orange Lake	Reddick	Career
10	The Villages Of Marion	Villages Of Marion	Career
11	North Marion	Reddick	Career
12	Meadowood Farms	Ocala	Combination

13	Orange Springs	Fort Mccoy	Career
14	Rainbow Lakes Estates	Dunnellon	Volunteer
15	Salt Springs	Salt Springs	Combination
16	Shady	Ocala	Career
17	Silver Springs Shores	Ocala	Career
18	Belleview	Bellview	Career
19	Sparr	Citra	Career
20	Golden Ocala	Ocala	Combination
21	Friendship	Ocala	Combination
22	Rainbow Springs	Dunnellon	Career
23	Pedro	Summerfield	Volunteer
24	Marion Oaks	Ocala	Combination
25	Lake Tropicana	Dunnellon	Volunteer
26	Electra	Ocklawaha	Volunteer
27	Weirsdale	Weirsdale	Career
28	Rolling Greens	Ocala	Career
29	Rolling Woods	Umatilla	Volunteer
30	Spruce Creek	Summerfield	Career
32	Liberty	Ocala	Career

Table VII-13. Marion County Police Stations	
Name	**City**
Belleview Police Dept Headquarters	Belleview
Citrus County Sheriff	Dunnellon
Marion County Sheriff Dunnellon District	Dunnellon
Dunnellon Police Dept Headquarters	Dunnellon
Marion County Sheriff Office	Ocala
Marion Co Sherriff Deputy-S Central District	Ocala
Marion County Sheriff North Multi District	Ocala
Marion County Sheriff Marion Oaks Dist.	Ocala
Marion County Sheriff's Department-South	Ocala
Marion County Sheriff Silver Springs Sherriff	Ocala
Ocala Police Department	Ocala
Ocala Police Department	Ocala
Ocala Police Department	Ocala
Marion County Sheriff Headquarters	Ocala
Central Florida Community College Police	Ocala
Ocala Police Department - District 1	Ocala
F.B.I. Ocala Resident Office	Ocala
Marion County Sheriff Silver Springs Di*	Ocala
Marion County Sheriff South Multi Dist.*	Ocala
Ocala Police Department	Ocala
Marion County Sheriff Southwest Dist.	Ocala
Ocala Police Dept Headquarters	Ocala
Ocala Police Department	Ocala
Ocala Police Department	Ocala
Ocala Police Department - Emergency Service	Ocala
Ocala Police Department - Downtown Service	Ocala
Ocala Police Department	Ocala
Ocala Police Department	Ocala
Ocala Police Department - District 2	Ocala
Florida Highway Patrol Troop G	Ocala
Florida Highway Patrol Ocala - Troop B	Ocala
U.S. Customs And Border Protection Port*	Ocala
Ocklawaha Sheriff's Department - Ocklawaha	Ocklawaha
Marion County Sheriff	Reddick

Medical

Medical facilities will be one of the most problematic of all the facilities to evacuate. Presumably persons who are residing in the hospital are not capable of evacuating without assistance. The assistance needed may range from wheelchairs all the way up to cooperative movements with transit agencies for mass evacuations. Therefore, any medical facility needs to have its own protocols for small and mass evacuations in the event it is called upon to evacuate. There are three medical facilities in Marion County: AdvenHealth, Ocala Regional Medical Center, and West Marion Community Hospital. Because they are inland, they would experience a different type of situation than coastal counties. Inland facilities would be under duress from the overload of patients arriving from the facilities closer to the coast. Any of the medical facilities in the County may be called upon in a host capacity if a hurricane threatens another region, so having a plan is imperative. The medical facilities in Marion County are shown on Map VII-14 and listed in Appendix F.

Reviewing the Comprehensive Emergency Management Plan provides a list of protocols that will provide the appropriate level of preparedness for critical facilities. Each medical facility should have a list of protocols in case of an emergency including but not limited to staffing, needed equipment, public information, victim identification, etc.

One special area of concern is nursing homes. Some nursing homes may be able to double as medical facilities during a storm, but the quantity of equipment in a nursing home will be much lower than in a hospital. Many of the same protocols as the above medical facilities should be included in a nursing home plan. The major difference is the lack of responsibility to the general public. The nursing homes will be most concerned with their current residents and any additional medical supplies they can provide to the hospitals.

Evacuation of child care facilities also represents a significant challenge in the event of a major disaster. Identifying the location of each provider and the number of children each facility accommodates provides emergency managers with a means to assess the potential risk posed to facilities impacted by a major event. The locations of child care providers in Marion County are depicted on Map VII-15.

Schools

Most of the time there will be sufficient notice of an oncoming storm, and schools will be closed. Therefore, the location of the schools becomes important primarily for sheltering persons who choose to not go to hotels or to the homes of family and friends. Schools are used because of their size and and built-in amenities including kitchens, plentiful space and multiple rooms for separation of groups or individuals if necessary. The schools that are set up as shelters will have sufficient supplies for a person or persons to endure a short stay. Those schools that are not opened as shelters may be required to open if the storm or number of individuals seeking shelter is greater than first expected. In such situations they are strictly emergency shelters. Due to the strength and timing of the storm there may not be enough time to supply these additional schools with more than basic necessities. These additional shelters can include private schools and church schools. Map VII-16 and Table VII-18 provides a listing of schools including their specific location. This information was obtained from the MarionCounty School Board.

Table VII-14

Marion County Public Schools

Number	Name	Type	Location
71	Anthony	Elementary School	Anthony
91	Belleview	Elementary School	Belleview
661	Belleview High	High School	Belleview
631	Belleview Middle	Middle School	Belleview
101	Belleview-Santos	Elementary School	Belleview
651	College Park	Elementary School	Ocala
311	Dr. N.H. Jones	Elementary School	Ocala
641	Dunnellon	Elementary School	Dunnellon
521	Dunnellon High	High School	Dunnellon
172	Dunnellon Middle	Middle School	Dunnellon
181	East Marion	Elementary School	Silver Springs
191	Eighth Street	Elementary School	Ocala
561	Emerald Shores	Elementary School	Ocala
581	Evergreen	Elementary School	Ocala
211	Fessenden	Elementary School	Ocala
351	Forest High	High School	Ocala
531	Fort McCoy (6-8)	Middle School	Fort McCoy
531	Fort McCoy (K-5)	Elementary School	Fort McCoy
9690	Ft. King Middle	Middle School	Ocala
221	Greenway	Elementary School	Ocala
671	Hammett Bowen	Elementary School	Ocala
711	Harbour View	Elementary School	Summerfield
591	Horizon (gr. 5)	Elementary School	Ocala
721	Horizon (gr. 6-8)	Middle School	Ocala
721	Howard Middle	Middle School	Ocala
51	Lake Weir High	High School	Ocala
501	Lake Weir Middle	Middle School	Summerfield
281	Legacy	Elementary School	Ocala
741	Liberty Middle	Middle School	Ocala
691	Madison Street	Elementary School	Ocala
291	Maplewood	Elementary School	Ocala
611	Marion Charter School	Elementary School	Ocala
9670	Marion Oaks	Elementary School	Ocala
731	Marion Tech Inst	High School	Ocala
9401	McIntosh Area School	Elementary School	Ocala
9680	North Marion High	High School	Citra
331	North Marion Middle	Middle School	Citra

491	Oakcrest	Elementary School	Ocala
341	Ocala Springs	Elementary School	Ocala
541	Osceola Middle	Middle School	Ocala
361	Reddick-Collier	Elementary School	Reddick
162	Romeo	Elementary School	Dunnellon
621	Saddlewood	Elementary School	Ocala
681	Shady Hill	Elementary School	Ocala
551	South Ocala	Elementary School	Ocala
391	Sparr	Elementary School	Sparr
381	Stanton-Weirsdale	Elementary School	Weirsdale
401	Sunrise	Elementary School	Ocala
571	Vanguard High	High School	Ocala
461	Ward-Highlands	Elementary School	Ocala
251	West Port	High School	Ocala
701	Wyomina Park	Elementary School	Ocala

Sensitive Facilities

Other sensitive facilities and sites may pose a potential danger to the public. Items of the biggest concern in Marion County range from the evacuation of schools and day care centers to the limitations of allowing re-entry of persons into neighborhoods with unknown contaminants. The descriptions below are provided to allow emergency management a clear picture of the locations of such facilities and potential dangers.

Hazardous Sites

Hazardous sites include, but are not limited to, propane storage facilities, natural gas pipeline terminals, fuel storage facilities and tank farms. Each of these items can become extremely dangerous in a hurricane. Often propane tanks or fuel oil tanks are not secured in a hurricane proof fashion because they are not permanent structures. In the case that the structure is a facility versus a tank there is a higher level of risk as well as protection. Identifying locations of these sites will assist the safe re-entry into the area after a storm has passed. Additionally, it can help before a storm by indicating where a mitigation Strategy should be implemented.

Sabal Trail Pipeline - A new natural gas pipeline is proposed for construction beginning in 2016. The Sabal Trail underground natural gas pipeline project originates in Alabama, stretches through Georgia and terminates in Florida and, at completion, will be approximately 515 miles in length. Proposed construction in Marion County involves construction of approximately 33 miles of natural gas pipeline and one compressor station to be located near Dunnellon. Additional information and a map of the proposed alignment can be viewed at the following website: http://www.sabaltrailtransmission.com/florida.

Storage Tanks

Information on locations of facilities that have storage tanks either above ground or below ground is required by several government agencies. From this standpoint, finding the most up-to-date and accurate source of this data is important. The Florida Department of Environmental Protection maintains a database that allows the user to download spreadsheets listing the storage tanks by county. These storage tanks are important to emergency management in regards to the substances contained. If any of these tanks with hazardous wastes are damaged in a hurricane, the effects to the population can last longer than general cleanup of debris. These contaminants must be contained as soon as possible for emergency managers to re-enter an area. If the contaminants are allowed to leak for long periods of time the groundwater can be affected which can further damage the water supply, environment and wildlife.

Hazardous Waste Generating Facilities

Each county has a Hazards Analysis program, which includes a database of facilities that are responsible for hazardous materials. These facilities are classified as small quantity and large quantity generators. The number of generating facilities varies from county to county based on the land uses allowed by the counties. Counties with higher levels of industrial, agricultural and commercial land uses will normally have a greater number of hazardous generating facilities. The Marion County Hazardous Materials Facilities are shown on Map VII-1 and listed in Appendix C.

Institutional Populations

The other institutions that require special care may include prisons or detention centers. Marion County has three sensitive institutions that have restrictions to the residents on entering and leaving the facility. These include the Lowell Women's Prison, Marion Correctional Institution and the Marion County Jail.

Electrical Generating Facilities

Electrical generating facilities are critical due to the many functions that rely on an electrical power supply and the widespread use of electrical appliances by the populous. These facilities, if damaged, can cause power outages. Loss of power to a public service is more detrimental than a simple lack of electricity to a home. If a hospital, police, emergency management or any other public service loses electricity the ability to provide emergency services is extremely limited. Any medical or emergency service should have a listing of backup sources of power.

The Comprehensive Emergency Management Plan provides a listing of protocols that will provide the appropriate level of preparedness for critical facilities. Each energy facility should have a list of protocols in case of an emergency including but not limited to:

- Support agencies providing information, equipment, labor, fuel and repair
- Transportation of fuel or other emergency supplies
- Assess energy supply and demands in restoring systems – on a prioritized allocation method
- Setting up a system to process requests for fuel or power assistance

Mobile Home Parks

Another vulnerable population at any category of storm are residents of mobile home parks. Mobile home structures have a high risk for destruction in a hurricane if erected in wind or flood vulnerability areas. Mobile home residents, due to a lack of structural support, are usually encouraged to evacuate before residents of site-built homes and businesses. Because of their early evacuation, the transportation analysis will take into account the effect these residents have on the general process. The mobile home parks definition used for this document is the areas that have permanent residents, not including RV seasonal residents. The assumption is made that those residents who are mobile will, in fact, leave the area before the storm approaches. Map VII-17 and Appendix H provide a listing of the mobile home parks in Marion County, obtained from the Marion County Environmental Health Department.

Vulnerability by Jurisdiction

Due to the unpredictable nature of natural disasters, several areas in the County may experience impacts from a hazard event while other areas may experience minimal or no impacts. Therefore, understanding the vulnerability of any location in Marion County is extremely important. Vulnerability was assessed for each hazard and jurisdicition.

Assessment Methodology

The vulnerability assessment was conducted utilizing a Geographic Information System (GIS)- based analysis methodology. The results of the vulnerability assessment are provided for each hazard listed below. A GIS-based analysis was conducted for nine hazards: Hurricane and Tropical Storm; Drought; Extreme Heat; Flood; Tornado; Severe Winter Storm; Riverine Erosion; Sinkhole; And Wildfire.

For the GIS-based assessment, digital data was collected from local, state and national sources. ESRI® ArcGIS™ 9.3.1 was used to assess risk utilizing digital data including local tax records for individual parcels and georeferenced point locations for hazard events. Using these data layers, risk was assessed by estimating the assessed building value associated with parcels determined to be located in identified hazard areas. HAZUS-MH was also used to model hurricane force winds and estimate potential losses.

The objective of the GIS-based analysis was to determine the estimated vulnerability of people and buildings to the identified hazards for Marion County using best available geospatial data. In so doing, local databases made available through Marion County such as local tax assessor records and parcel boundaries, were used in combination with digital hazard data. The results of the analysis provided an estimated number of people, as well as the numbers and values of buildings determined to be potentially at risk to those hazards with delineable geographic hazard boundaries. A brief description of the GIS-based analysis for each particular hazard is provided under the vulnerability assessment section of each respective hazard.

Vulnerability Assessment Matrix

Table VII-15. Multi-Jurisdictional Vulnerability Assesment Matrix						
Marion County Identified Natural Hazards	**Unincorporated Area**	**Ocala**	**Belleview**	**Dunnellon**	**Reddick**	**McIntosh**
Drought	Low	Low	Low	Low	Low	Low
Flood	Medium	Low	Low	Medium	Low	Low
Riverine Erosion	Min	Low	Low	Min	Low	Low
Tornado	High	High	High	High	High	High
Hurricane	High	High	High	High	High	High
Wildfire	High	High	High	High	High	High
Extreme Heat	Low	Low	Low	Low	Low	Low
Sinkholes	Medium	High	High	High	Low	Low
Severe Winter Storm	Low	Low	Low	Low	Low	Low

High – 1 event recorded per 1-4 years
Medium – 1 event recorded per 5-9 years. Low – 1 event recorded per 10+ years.

Riverine erosion

The majority of riverine erosion is directly linked to hurricanes and other severe coastal storms. No communities lie on the banks of the Ocklawaha River. There is always the potential for the river to become inundated with water causing flooding and would affect only small communities not related to the denser populations of the municipalities. Properties within 25' of the river bank were included in the assessment.

Table VII-16. Vulnerability Assessment: Riverine Erosion		
Improved Parcels within 25' of River Bank	**Exposure (Total Improved Value Of Parcels)**	**Potential Number of Individuals at Risk (2.32PPH)**
555	564,856,995	805

Sinkholes

Marion County has a variety of geologic rock and sediment types located within 10 feet of the land surface, limestone, clayey sand, sand and peat. Since proximity to existing sinkholes is the best predictor of future sinkhole activity, properties within 200' of an existing sinkhole were selected for inclusion in the vulnerability assessment.

Table VII-17 Vulnerability Assessment: Sinkholes		
Improved Parcels within 200' of an existing Sinkhole	**Exposure (Total Improved Value Of Parcels)**	**Potential Number of Individuals at Risk (2.32PPH)**
1,453	679,031,217	2,784

The most potentially dangerous geologic formation for the creation of sinkholes is the location of limestone

near the surface. Every type of structure is vulnerable to sinkhole formation in the County. Structures located in the Area III portion of Map VII-18 and structures located approximate to an existing sinkhole are at greater risk regardless of the type of structure. In Map VII-18 and Map VII-19 a visual reference can be seen of both the geologic formation and the existing known sinkholes, respectively. The sinkholes that are known are mainly discovered and recorded by visual references. The known sinkholes for Marion County are presented in Appendix B.

Hurricanes and Tropical Storms

Between 1851 and 2020 approximately one hundred hurricanes of Category 1 to 5 have passed within one hundred miles of the Withlacoochee Region. With a minimal history of storms directly hitting the area and a coastline with a small population, the mathematical probabilities of hurricane damage and evacuation are limited. The Withlacoochee Region has been relatively safe from direct hits but storms hitting close to the region are similar to direct hits with regards to shelter strategies and other infrastructure related responsibilities. Map VII-20 depicts the frequency of hurricane events by County across the State.

Building-Related Losses

The building related losses are broken into two categories: direct property damage losses and business interruption losses. The direct property damage losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the hurricane. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the hurricane.

Table VII-18 below provides a summary of the losses associated with the building damage.

Table VII-18
Building Related Economic Losses
(thousands of dollars)

	Event Type				
	10 Year	20 year	50 Year	100 Year	500 Year
Property Damage	11,154	71,347	256,822	587,856	3,180,825
Building Interruption Loss	87	3,038	20,145	62,037	528,308
Total	11,241	74,385	276,967	649,893	3,709,133

Source: Hazus-MH Hurricane Event Report, probabilistic hurricane event model report, March 23, 2021.

Map VI-1 shows the hurricane tracks from the hurricanes that have directly affected Marion County in the past 150 years. Being prepared is always important regardless of the lack of recent hurricane history because of the vulnerable characteristics of the County.

Tornadoes

From NOAA's storm prediction center http://www.spc.noaa.gov/wcm/#data , historical tornado path data was collected. Tornado path width can vary dramatically making it difficult to precisely identify areas at risk for tornado damange. The average width of tornado path's in the Florida is approximately 58'. For the purposes of the vulnerability assessment, improved parcels within 1,000' of a historical path were included in the analysis.

Table VII-19 Vulnerability Assessment: Tornadoes

Improved Parcels within 1,000' of an Historical Tornado Path	Exposure (Total Improved Value Of Parcels)	Potential Number of Individuals at Risk (2.32PPH)
12,795	2,640,720,810	24,341

Floods

Minor flooding occurs every year in Marion County. As seen in the updated FIRM FEMA Flood Maps and Repetitive Loss List data some areas of the County are more susceptible to future flooding. Any structure type that is located within a floodzone and is not elevated or is not protected by levees, beams, or floodwalls is vulnerable to flood damage.

Table VII-20. Vulnerability Assessment: Flooding

Jurisdiction	Improved Parcels within a FIRM Type "A" or "AE" Flood Zone	Exposure (Total Improved Value Of Parcels)	Potential Number of Individuals at Risk (2.32PPH)
Ocala	2,449	1,003,268,432	4,640
McIntosh	16	2,430,510	16
Belleview	533	88,953,112	698
Dunnellon	397	105,203,518	354
Reddick	0	0	0
Unicorporated	15,654	3,381,333,954	16,291

Flooding can produce widespread impacts in both rural and urban areas. Any type of agricultural, commercial, or residential development located in a floodplain is vulnerable to flooding. Increasing urbanization in some areas enhances the threat of flooding where drainage systems cannot cope with the increased input of stormwater runoff. In rural areas, property damage caused by flooding can be devastating to farmers. When flooding occurs during the growing season, farmers can suffer widespread crop loss. In some cases, there may be an opportunity for a second planting of a less profitable crop. Livestock farmers may lose livestock if they are unable to find safety from rising floodwaters. This threat is primarily associated with flash flooding.

Wildfires

The entire county is at risk for wildfire. With Reddick, McIntosh, and Dunnellon at the highest risk for potentially damaged jurisdictions.

Table VII-21. Vulnerability Assessment: Wildfires		
Total Estimated Number Of Improved Parcels	**Total Improved Value Of Parcels**	**Potential Number of Individuals at Risk (2.32PPH)**
145,559	**$19,500,306,941**	**330,440**

Drought

The primary agriculture product is crops and livestock, which is somewhat more resistant to drought then a vegetable crop. Any drought or heat wave will have a detrimental effect on the County. There are no recorded extended droughts, though there have been many seasonal droughts. Drought primarily affects farming and agricultural production. For purposes of the drought vulnerability assessment, parcels with bona fide farming operations were included in the analysis.

Table VII-22. Vulnerability Assessment: Drought	
Total Estimated Number Farms	**Total Improved Value Of Parcels**
3,496	**725,733**

Extreme Heat

Extreme heat can have a number of deleterious effects on the human body. These include in order of increasing severity, sunburn, heat cramps, heat exhaustion, and heat stroke. In addition to the effects on indiduals, various sectors of the agriculture community are affected by extreme heat. Livestock, such as rabbits and poultry, are severely impacted by heat waves. Millions of birds have been lost during heat waves. Milk production and cattle reproduction also decreases during heat waves. Also, the electric transmission system is impacted when power lines sag in high temperatures. The combination of extreme heat and the added demand for electricity to run air conditioning causes transmission line temperatures to rise.

Table VII-23 Vulnerability Assessment: Extreme Heat		
Total Estimated Number Of Improved Parcels	**Total Improved Value Of Parcels**	**Potential Number of Individuals at Risk (2.32PPH)**
145,559	**$19,500,306,941**	**330,440**

Severe Winter Storms

Freezes are the relatively the same as drought/heat wave in the affect they could have on seasonal vegetable crops but not on the more resistant timber crops or livestock. There have been seasonal hard freezes that have dipped well below the freezing point, but the majority of the freezing weather hovers around 32 degrees Fahrenheit. The entire County is vulnerable to severe winter storms.

Table VII-24. Vulnerability Assessment: Severe Winter Storm		
Total Estimated Number Of Improved Parcels	**Total Improved Value Of Parcels**	**Potential Number of Individuals at Risk (2.32PPH)**
145,559	**$19,500,306,941**	**330,440**

Man Made Hazards

Hazardous sites can include, but are not limited to, propane storage facilities, natural gas pipeline terminals, fuel storage facilities and tank farms. All of these items can become extremely dangerous in a hurricane. Often propane tanks or fuel oil tanks are not secured in a hurricane proof fashion because they are not permanent structures. In the case that the structure is a facility versus a tank there is a higher level of risk as well as protection. Identifying the location of these sites will assist the safe reentry into the area after a storm has passed. In addition it can help before a storm by indicating where a mitigation strategy should be implemented.

Repetitive Loss Properties

Flood losses for Marion County are shown in Table VII-25. Additionally, Table VII-26 includes properties that have experienced repetitive losses due to flooding. Marion County has experienced relatively few flooding events and as Table VII-32 indicates, there are few properties at risk of ongoing flood damage. However, the history of various flooding events in the state shows a much greater potential for losses. Dense populations of Marion County are not particularly vulnerable to flooding therefore flood damage costs are expected to be significantly lower than a statewide average would assume.

VII-25. Flood Loss Statistics by Jurisdiction 01/01/1978 - 07/31/2009					
Community Name	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments
City Of Ocala	23	18	0	5	223,813.80
City Of Dunnellon	6	3	0	3	11,310.19

Source: National Flood Insurance Program Statistics

Table VII-26. Repetitive Loss Properties									
Mitigated	**Insured**	**City**	**Occupancy**	**Zone**	**Firm**	**Total Building Payment**	**Total Contents Payment**	**Number of Losses**	**Total Paid**
No	Yes	Citra	Single Fmly	A	Y	17,388.65	0.00	2	17,388.65
No	No	Marion County	Single Fmly	C	N	44,025.67	0.00	2	44,025.67
No	Yes	Ocala	Single Fmly	X	Y	8,973.95	0.00	2	8,973.95
No	No	Marion County	Single Fmly	C	Y	94,000.00	21,713.22	2	115,713.22

Source: Marion County Growth Services Department, 2018.

Future Development

The vulnerability of future development is hard to determine. Marion County has maintained its agriculture nature for some time. With the onset of development in the counties south of Marion there will be plenty of growth occurring in the coming years. Looking at the population projections below the explosion of the population is very evident. If the numbers remain accurate there will be an ever increase need for mitigation of potential hazards. Refer to Table VII-27, Projected Population, 2015-2040.

Table VII-27

Projected Population 2015 – 2040

Marion County

		PROJECTED POPULATION					
	Census 2010	2015	2020	2025	2030	2035	2040
Incorporated Cities							
Belleview	4,492	4,704	5,156	5,578	5,970	6,338	6,647
Dunnellon	1,733	1,815	1,989	2,152	2,303	2,445	2,564
McIntosh	452	473	519	561	601	638	669
Ocala	56,315	58,978	64,645	69,934	74,849	79,460	83,333
Reddick	506	530	581	628	673	714	749
Unincorporated Area	267,800	280,464	307,412	332,564	355,934	377,864	396,279
Marion County Total	331,298	346,964	380,302	411,417	440,330	467,459	490,241

Source:

Census 2010 STF 1 and University of Florida, BEBR Report 169, P. 48, June, 2014.

Note:

Projection is based on BEBR medium projection.

Looking at the trends in population growth determination of the effect these growth trends and population expansions are creating needs to be quantified. Below is a table showing the municipalities and the unincorporated area of the county's growth and its effect on disasters. The information is directly linked to growth. The parts of the community that are experiencing very little growth do not have the same concerns over "future development".

The rating is High (H), Medium (M) and Low (L). The value of H indicates a disaster requiring an extensive

amount of mitigation. The value of M indicates where there may be some extra incidents due to the growth trend, but not an excessive need for mitigation. Finally, L means that an increase in population and development trends will have little to no effect on the detrimental aspects of that hazard. The predictions imply that there will be growth primarily in Ocala and the unincorporated areas of the County. It is difficult to measure precisely where people will be living in the unincorporated areas. With that in mind the information is primarily limited to the jurisdictions.

Table VII-28. Marion County Hazard Effect on Potential Growth

Jurisdiction	Hazard Type								
	Riverine Erosion	Sinkhole	Hurricane/ Tropical Storm	Tornado	Flood	Wildfire	Extre me Heat	Droug ht	Winter Stor m
Belleview	L	M	L	M	L	L	L	L	L
Dunnellon	H	L	H	M	H	L	L	L	L
McIntosh	L	M	L	L	L	L	L	L	L
Ocala	L	H	M	M	L	L	L	L	L
Reddick	L	M	L	L	L	L	L	L	L
Uninc. County	M	H	H	M	M	M	L	L	L

Looking now at what already exists in the County, a clearer picture of the potential damage to buildings, human populations and the areas most in need of mitigation projects becomes apparent.

The Future Land Use Map for the County is displayed in Map VII-21. This map is the most up to date data and includes land use information for Marion County and the incorporated jurisdictions. It is clear from this map that the majority of the land remains in rural, agriculture and conservation land uses. The populations are relatively compact in regards to land use ratios. As discussed in a previous question, a chart was developed to indicate which jurisdiction has the highest potential for damage from any one hazard. Therefore if future development is to occur in or near the existing jurisdiction an effort to address the specific hazard needs to be made.