

Annex H Town of Knightdale

H.1 PLANNING PROCESS

The table below lists the HMPC members who represented the Town of Knightdale.

Table H.1 – HMPC Members

Agency	Representative	Position or Title
Development Services Department	Jason Brown	Senior Planner – Long Range
Development Services Department	Chris Hills	Development Services Director
N/A	Ben McDonald	Citizen Stakeholder

H.2 COMMUNITY PROFILE

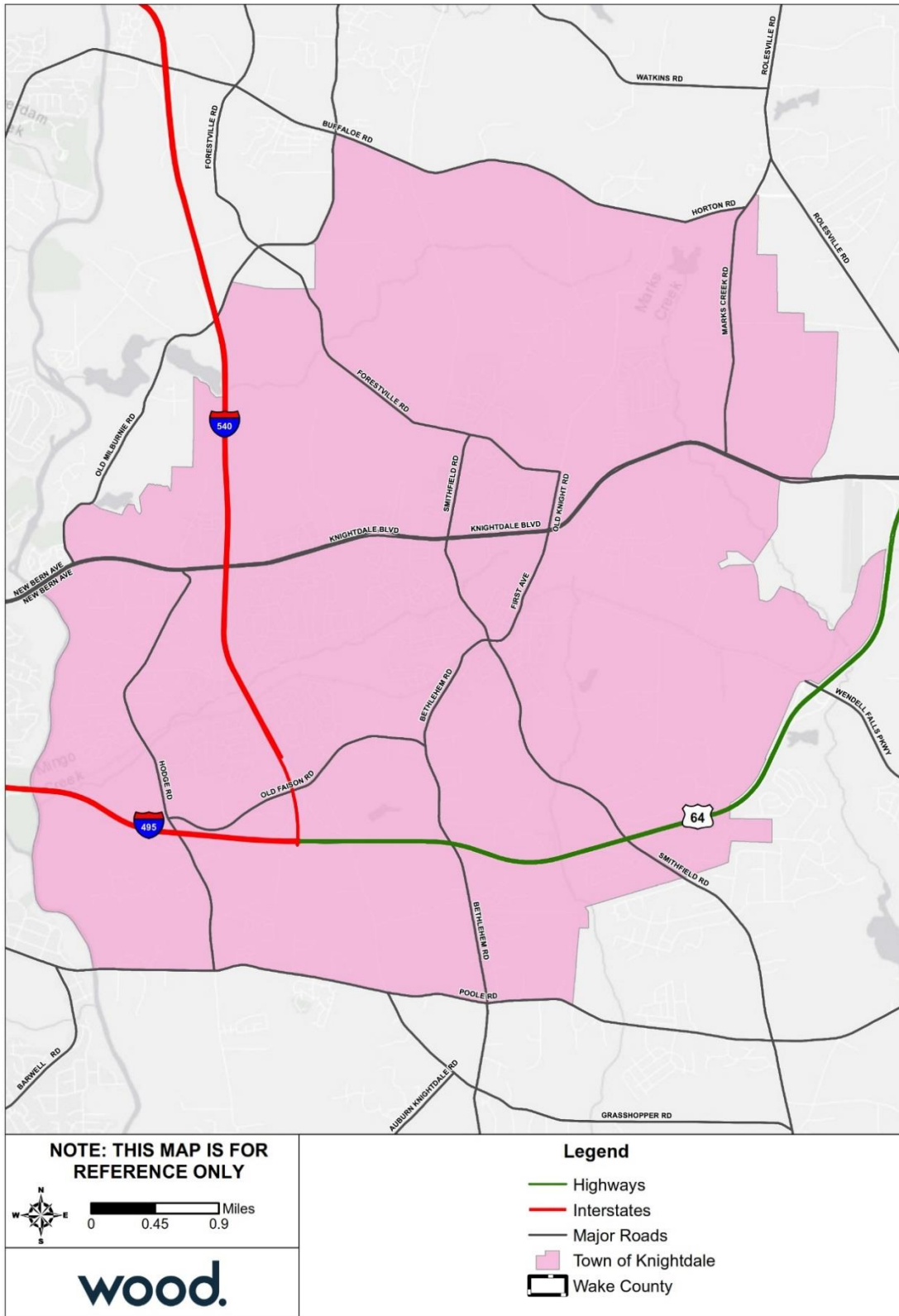
Geography

The Town of Knightdale is located in eastern Wake County. It is neighbored by Raleigh to the west and Wendell to the east. The Town is part of the Raleigh, NC Metropolitan Statistical Area, which falls within the larger Raleigh-Durham-Chapel Hill, NC Combined Statistical Area. Knightdale comprises a total land area of 6.2 square miles.

According to data from the U.S. Fish and Wildlife Service’s National Wetlands Inventory, there are approximately 2,626 acres of wetlands in Knightdale.

Figure H.1 shows a base map of major transportation routes in the Town of Knightdale.

Figure H.1 – Major Transportation Routes – Town of Knightdale



Source: Wake County GIS Open Data

Population and Demographics

Table H.2 provides population counts and growth estimates for the Town of Knightdale as compared to the County overall. Table H.3 provides demographic information for Knightdale as compared to the whole County.

Table H.2 – Population Counts, Knightdale, 2010-2017

Jurisdiction	2000 Census Population	2010 Census Population	2017 ACS Population Estimate	Total Change 2010-2017	% Change 2010-2017
Wake County total	627,846	900,993	1,023,811	122,818	13.6%
Town of Knightdale	5,958	11,401	14,363	2,962	26.0%

Source: US Census Bureau Decennial Census 2000, Decennial Census 2010; American Community Survey 2013-2017 5-Year Estimates

Table H.3 – Racial Demographics, Knightdale, 2017

Jurisdiction	White, %	Black, %	Asian, %	Other Race, %	Two or More Races, %	Persons of Hispanic or Latino Origin*, %
Wake County total	66.5%	20.4%	6.5%	3.6%	2.7%	10.0%
Town of Knightdale	49.8%	35.9%	4.1%	6.0%	4.1%	15.4%

Source: US Census Bureau, American Community Survey 2013-2017 5-Year Estimates

*Persons of Hispanic origin may be of any race, so also are included in applicable race categories

Asset Inventory

The following tables summarize the asset inventory for Knightdale in order to estimate the total physical exposure to hazards in this area. The locations of critical facilities are shown in Figure H.2 on the following page. Critical facilities are a subset of identified assets from the Critical Infrastructure & Key Resources dataset. Note that the counts are by building; where a critical facility comprises a cluster of buildings, each building is counted and displayed.

Table H.4 – Critical Infrastructure & Key Resources by Type

Jurisdiction	Food & Agriculture	Banking & Finance	Chemical	Commercial Facilities	Communications	Manufacturing	Defense	Government	Healthcare	IT	National Monuments	Nuclear	Postal & Shipping	Transportation	Energy	Emergency Services	Water	Other	Total
Town of Knightdale	68	10	0	120	0	64	0	46	8	0	0	0	0	12	1	5	0	0	334

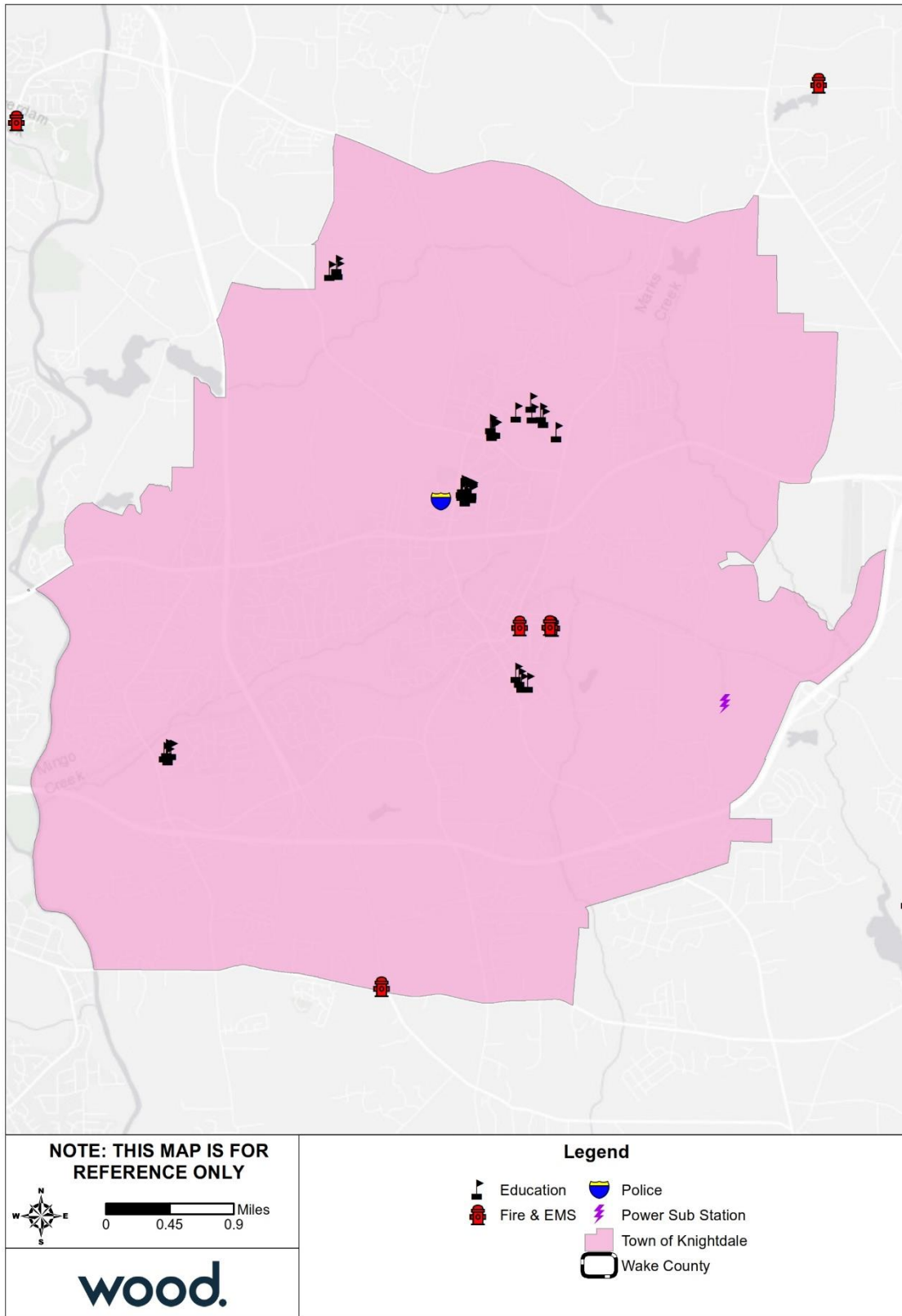
Source: NCEM Risk Management Tool

Table H.5 – High Potential Loss Facilities by Use

Jurisdiction	Residential	Commercial	Industrial	Government	Agricultural	Religious	Utilities	Other	Total
Town of Knightdale	40	37	4	19	0	8	1	0	109

Source: NCEM Risk Management Tool

Figure H.2 – Critical Facilities, Town of Knightdale



ANNEX H: TOWN OF KNIGHTDALE

Source: NCEM IRISK Database, GIS Analysis

To supplement the asset inventory and provide a clearer picture of the current asset exposure in the Town of Knightdale, current parcel data was evaluated to identify development since 2010. This information is not incorporated into the risk assessment, which was prepared using NCEM’s IRISK database. However, this summary of development since 2010 provides some context to understand the degree to which the IRISK exposure and vulnerability numbers differ from current conditions.

Table H.6 provides a summary by land class of parcel development from January 2011 to April 2019.

Table H.6 – Parcels Developed 2011 or Later, Town of Knightdale

Land Class	Number of Parcels	Sum of Building Value
Apartment	4	\$30,753,734
Commercial	7	\$14,434,438
EXEMPT	2	\$21,156,065
HOA	3	-
Industrial	4	\$19,237,886
Part Exempt	5	\$359,864
Residential Less Than 10 Acres	1,473	\$292,901,920
Vacant	1	-
Grand Total	1,499	\$378,843,907

Source: Wake County Open Data; retrieved April 8, 2019

There are five listings on the National Register of Historic Places for the Town of Knightdale, including two historic districts. These sites are listed in the table below.

Table H.7 – Historic Properties

Ref#	Property Name	Status Date	Category	City
86001631	Walnut Hill Cotton Gin	8/14/1986	Building	Knightdale
86003529	Beaver Dam	1/6/1987	Building	Knightdale
87002234	Knight, Henry H. and Bettie S., Farm	1/12/1988	District	Knightdale
00001183	Walnut Hill Historic District	10/6/2000	District	Knightdale
07000543	Midway Plantation House and Outbuildings	6/15/2007	Building	Knightdale

Source: National Parks Service, National Register of Historic Places, October 2018

Housing

The table below details key housing statistics for Knightdale as compared to the County overall.

Table H.8 – Housing Statistics, Knightdale, 2010-2017

Jurisdiction	Housing Units (2010)	Housing Units (2017)	Housing Units Percent Change (2010-2017)	Owner-Occupied, % (2017)	Vacant Units, % (2017)	Median Home Value (2017)
Wake County total	371,836	411,632	10.7%	59.5%	7.2%	\$250,700
Town of Knightdale	4,723	5,559	17.7%	64.6%	4.4%	\$176,600

Source: U.S. Census Bureau 2010 Decennial Census, American Community Survey 2013-2017 5-Year Estimates

Note: Owner-Occupied and vacant-unit measures are reported as a percent of the total number of housing units.

Economy

The following tables present key economic statistics for Knightdale as compared to the County overall.

Table H.9 – Employment Statistics, Knightdale, 2017

Jurisdiction	Population in Labor Force	Percent Employed* (%)	Percent Unemployed* (%)	Percent Not in Labor Force* (%)	Unemployment Rate (%)
Wake County	564,096	67.2	3.5	29.2	4.9
Town of Knightdale	8,274	70.8	3.4	25.7	4.5

Source: U.S. Census Bureau, American Community Survey 2013-2017 5-Year Estimates

Note: This table reports only the civilian labor force. The labor force in armed services accounted for 0.3% or less of the population 16 and over in all jurisdictions. *Population employed, population unemployed, and Population not in labor force are reported as a percent of the total population aged 16 years and older.

Table H.10 – Percent of Employed Population by Occupation, Knightdale, 2017

Occupation	Management, business, science and arts (%)	Service (%)	Sales and Office (%)	Natural Resources, Construction, and Maintenance (%)	Production, transportation, and material moving (%)
Wake County	50.1	13.8	23.4	6.0	6.7
Town of Knightdale	49.6	15.6	22.4	6.7	5.8

Source: U.S. Census Bureau, American Community Survey 2013-2017 5-Year Estimates

H.3 RISK ASSESSMENT

This section contains a hazard profile and vulnerability assessment for those hazards that were rated with a higher priority for the Town of Knightdale than for Wake County as a whole. Risk and vulnerability findings are also presented here for those hazards that are spatially defined and have variations in risk that could be evaluated quantitatively on a jurisdictional level. The hazards included in this section are: Flood and Wildfire.

H.3.1 Flood

Table H.11 details the acreage of the Town of Knightdale by flood zone on the effective DFIRM. Per this assessment, over 5 percent of the Town of Knightdale falls within the mapped 1%-annual-chance floodplains.

Table H.11 – FEMA Flood Hazard Areas, Town of Knightdale

Flood Zone	Acreage	Percent of Total (%)
Zone A	12.96	0.08
Zone AE	840.1	5.21
Zone X (500-year)	108.12	0.67
Zone X Unshaded	15,160.18	94.04
Total	16,121.36	--

Source: FEMA Effective DFIRM; Wake County GIS

Figure H.3 reflects the effective mapped flood hazard zones for the Town of Knightdale, and Figure H.4 displays the depth of flooding estimated to occur in these areas during the 1%-annual-chance flood.

To supplement the IRISK assessment of property at risk from the 1% annual chance flood event in Section 4 and provide a clearer picture of the current property at risk in PLACE, current parcel data was evaluated to identify parcels developed since 2010. Using GIS analysis, parcels developed after 2010 were compared to the boundaries of the 1% annual chance floodplain to identify the exposure of newly developed

property to the base flood. In most cases, a parcel was considered exposed to the floodplain if any portion of the parcel was located in the floodplain.

This assessment does not evaluate flood impacts or provide damage estimates. However, this summary of development in or near the floodplain since 2010 provides some context to understand the degree to which the IRISK exposure and vulnerability numbers differ from current conditions.

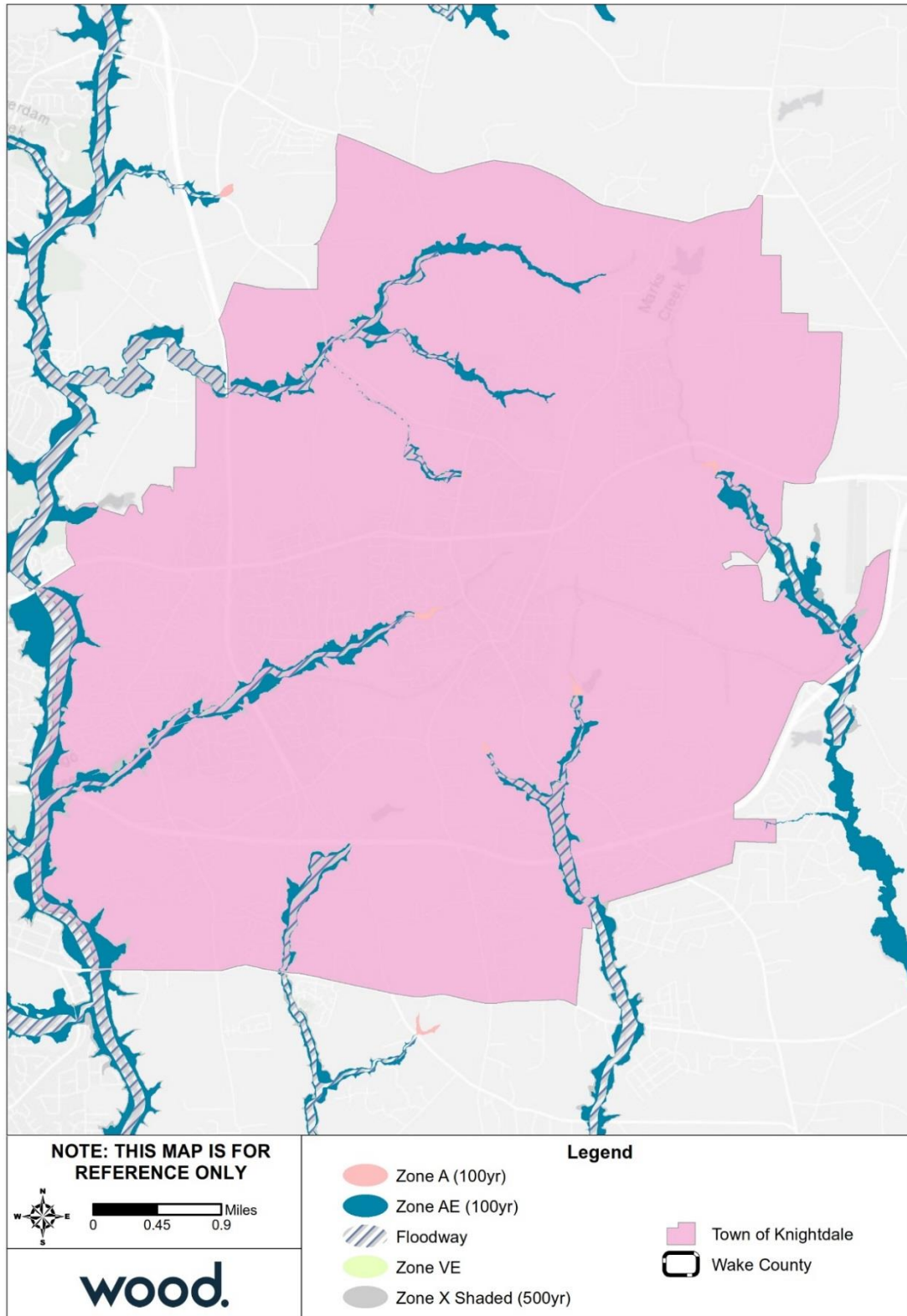
Table H.12 provides a summary by land class of parcel development located in the 1% annual chance floodplain from January 2011 to April 2019.

Table H.12 – Parcels Developed 2011 or Later and Located in 100-Year Floodplain, Town of Knightdale

Land Class	Number of Parcels	Sum of Building Value
Residential Less Than 10 Acres	18	\$3,551,754
Grand Total	18	\$3,551,754

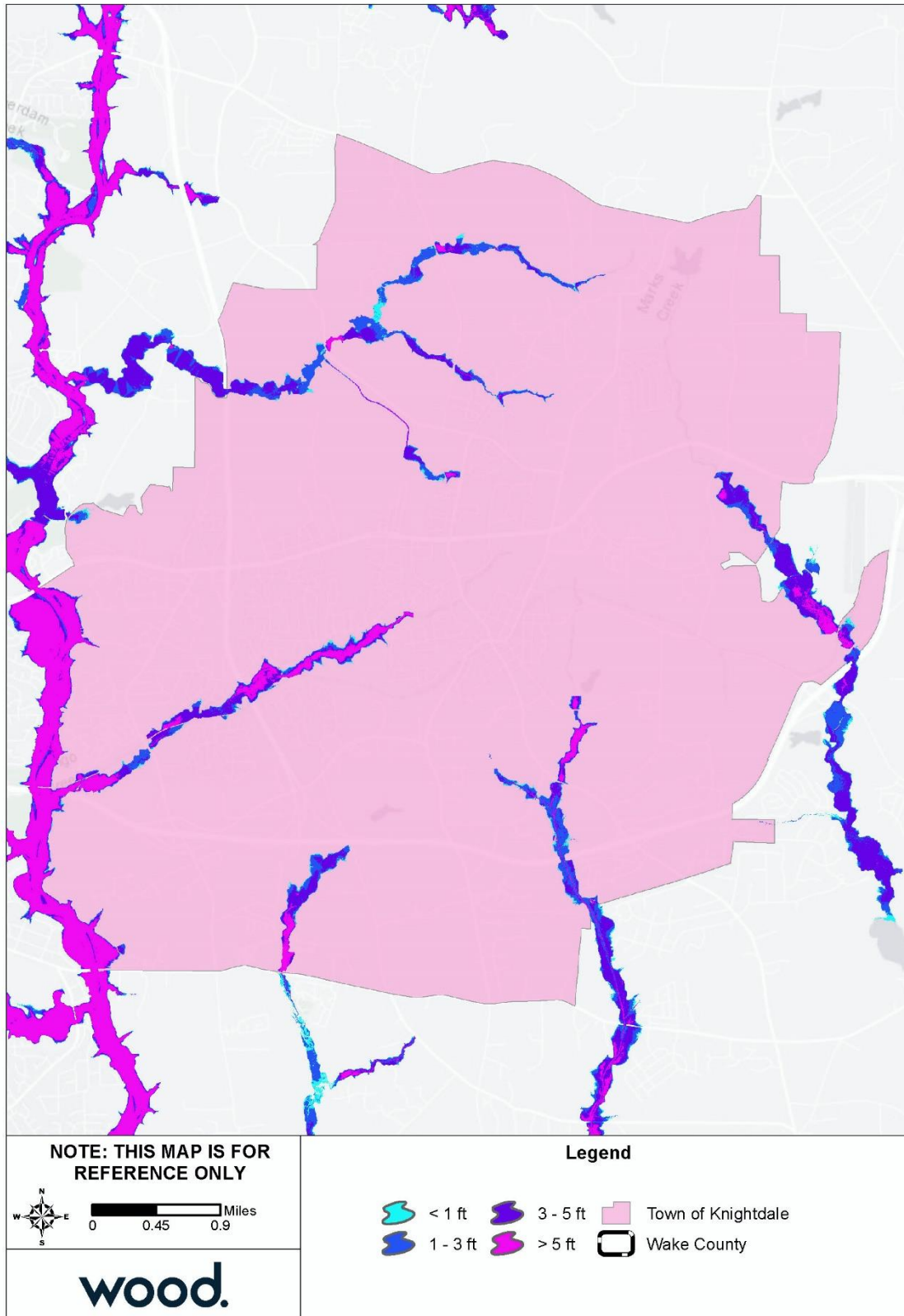
Source: Wake County Open Data; retrieved April 8, 2019; FEMA Effective DFIRM

Figure H.3 – FEMA Flood Hazard Areas, Town of Knightdale



Source: FEMA Effective DFIRM

Figure H.4 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Knightdale



Source: FEMA Effective DFIRM

H.3.2 Wildfire

Table H.13 summarizes the acreage in the Town of Knightdale that falls within the Wildland Urban Interface (WUI), categorized by housing density. Areas in the WUI are those where development may intermix with flammable vegetation. Over 15 percent of the Town of Knightdale is not included in the WUI.

Table H.13 – Wildland Urban Interface Acreage, Town of Knightdale

	Housing Density	Total Acreage	Percent of Total Acreage
	<i>Not in WUI</i>	2,530.8	15.7%
	LT 1hs/40ac	1,571.2	9.7%
	1hs/40ac to 1hs/20ac	1,192.3	7.4%
	1hs/20ac to 1hs/10ac	1,632.5	10.1%
	1hs/10ac to 1hs/5ac	2,040.3	12.7%
	1hs/5ac to 1hs/2ac	2,872.7	17.8%
	1hs/2ac to 3hs/1ac	3,919.5	24.3%
	GT 3hs/1ac	362.1	2.2%
	Total	16,121.4	

Source: Southern Wildfire Risk Assessment

Figure H.5 depicts the WUI for the Town of Knightdale. The WUI is the area where housing development is built near or among areas of vegetation that may be prone to wildfire. Figure H.6 depicts the Fire Intensity Scale, which indicates the potential severity of fire based on fuel loads, topography, and other factors. Figure H.7 depicts Burn Probability based on landscape conditions, percentile weather, historical ignition patterns, and historical prevention and suppression efforts.

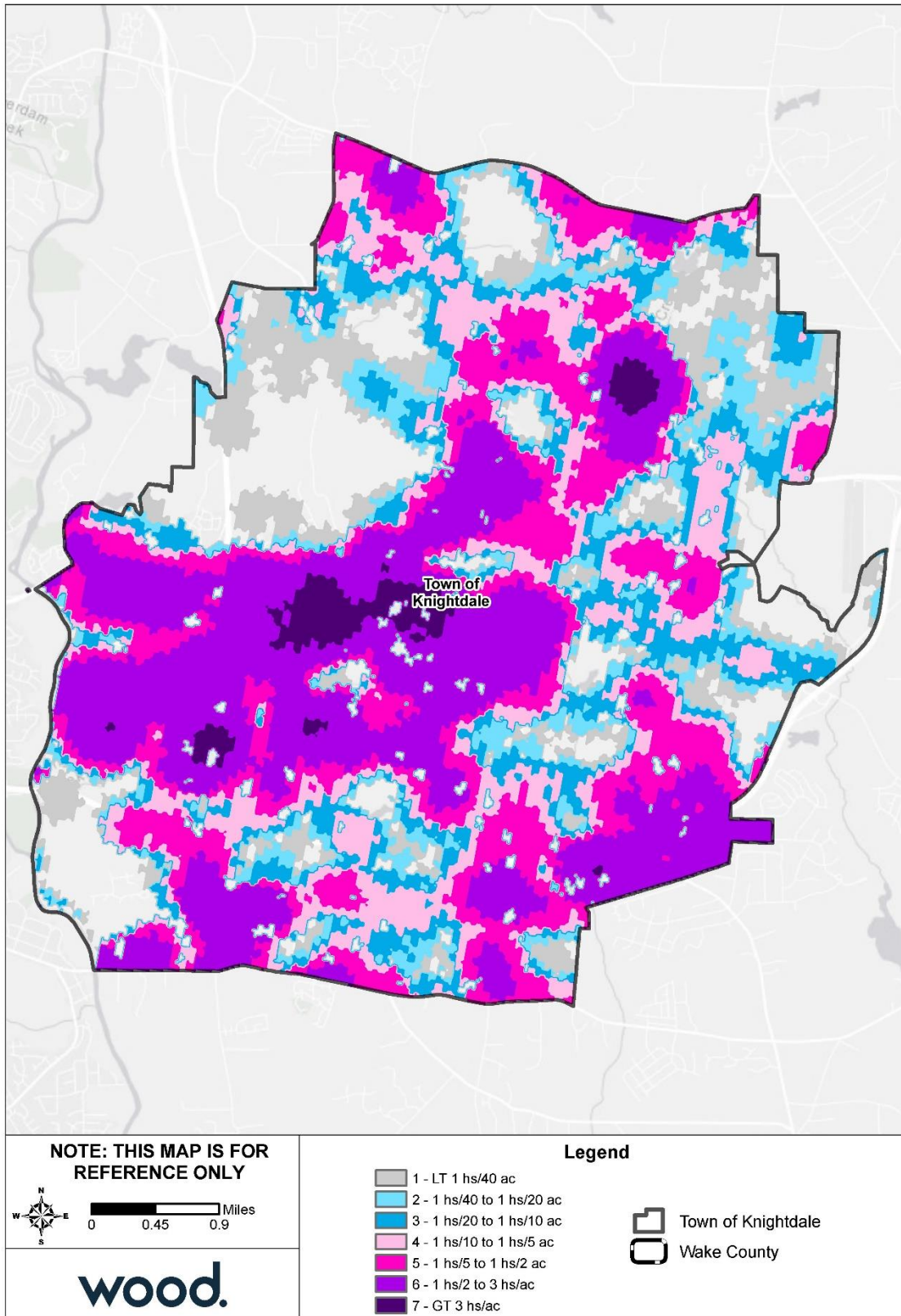
Areas of high potential fire intensity are scattered throughout Knightdale and overlap with areas of the WUI in the southern and northeaster portions of the town. However, burn probability is low throughout the town, meaning development in these areas is at low to no risk.

Table H.14 provides building counts and estimated damages for Critical Infrastructure and Key Resources (CIKR) buildings by sector at risk to wildfire hazard.

Table H.14 – Critical Facilities Exposed to Wildfire, Town of Knightdale

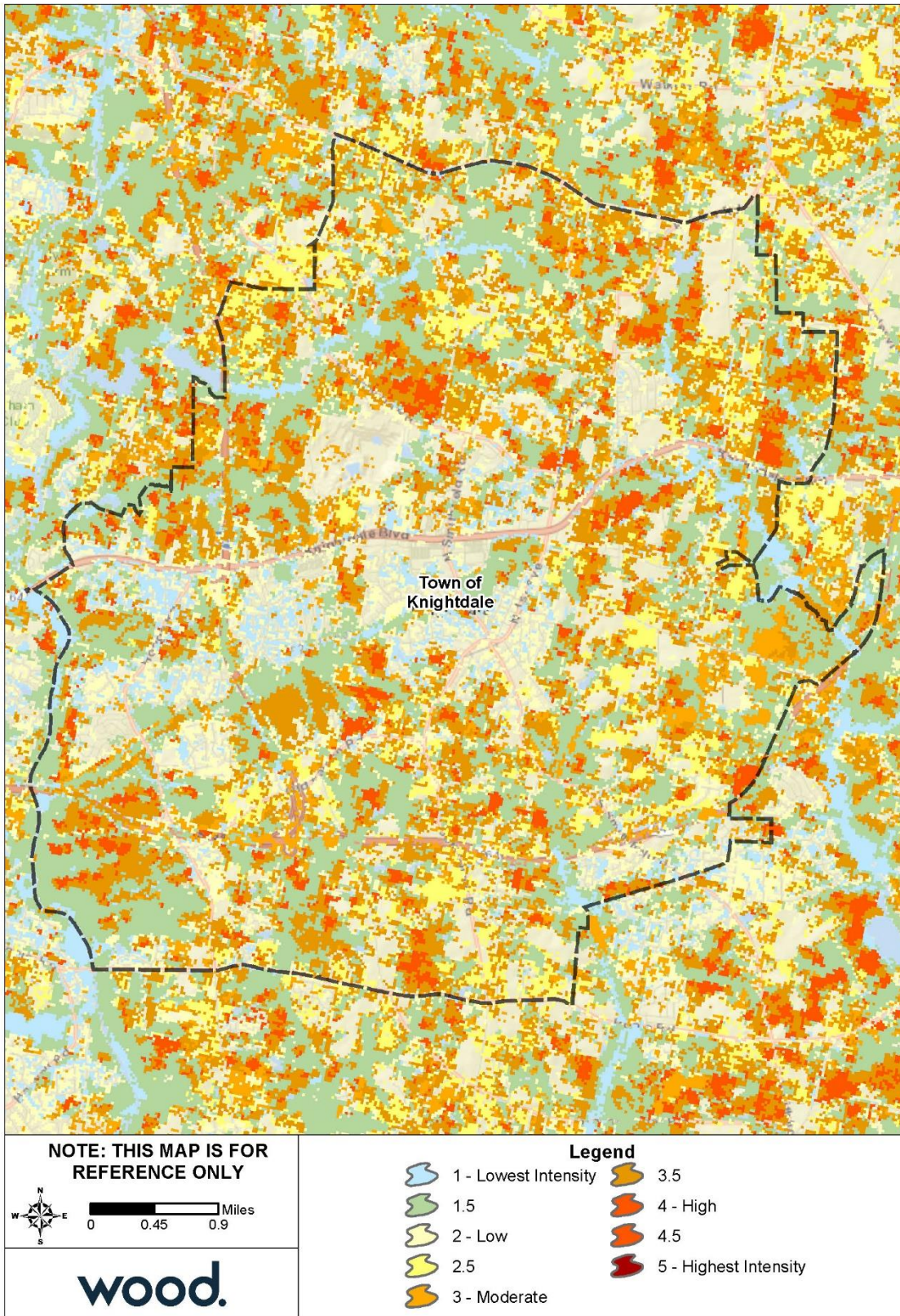
Sector	Event	Number of Buildings at Risk	Estimated Damages
Food and Agriculture	Wildfire Hazard	3	\$157,144
All Categories	Wildfire Hazard	3	\$157,144

Figure H.5 – Wildland Urban Interface, Town of Knightdale



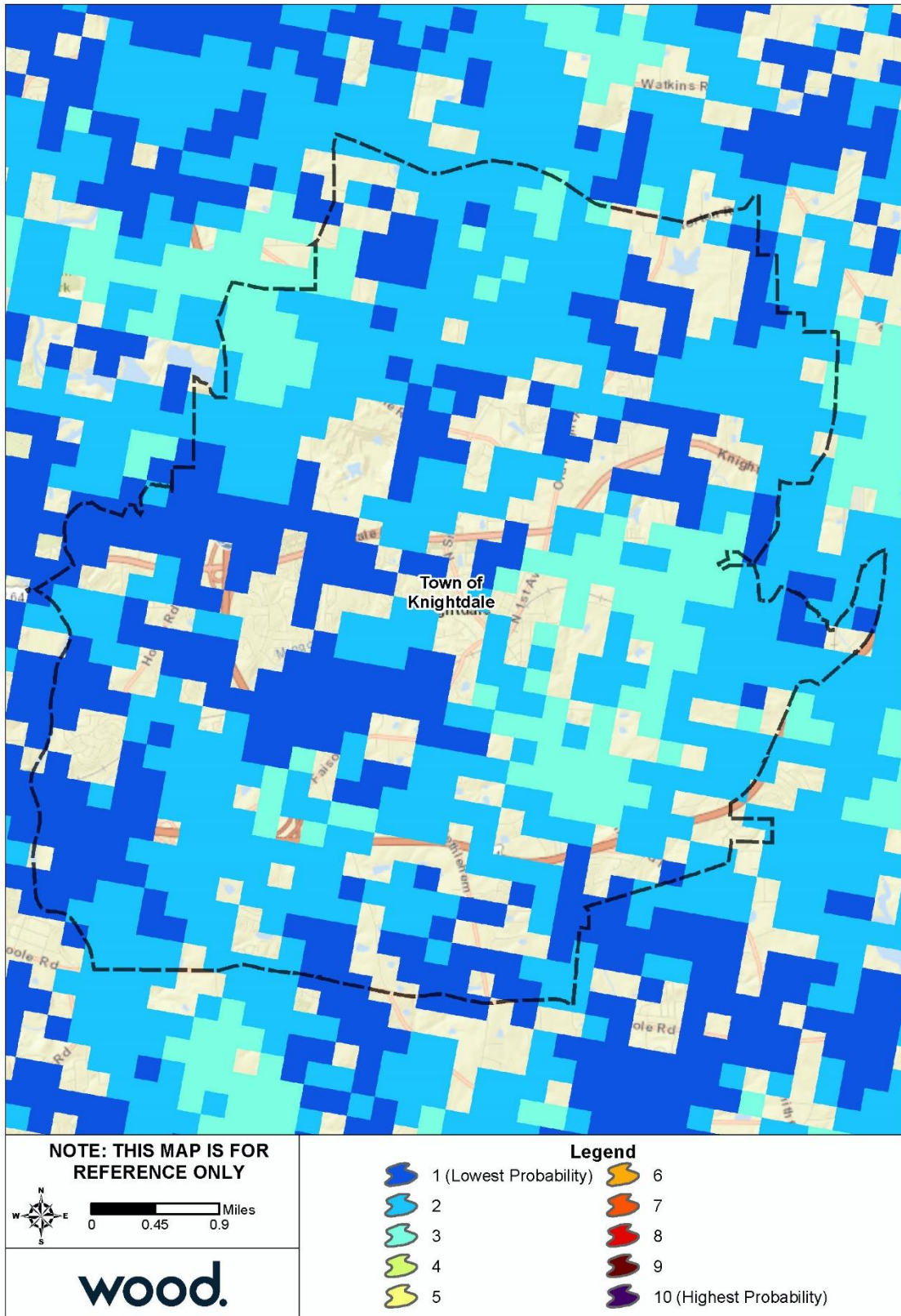
Source: Southern Wildfire Risk Assessment

Figure H.6 – Fire Intensity Scale, Town of Knightdale



Source: Southern Wildfire Risk Assessment

Figure H.7 – Burn Probability, Town of Knightdale



Source: Southern Wildfire Risk Assessment

H.4 CAPABILITY ASSESSMENT

H.4.1 Overall Capability

Details on the tools and resources in place and available to the Town of Knightdale were provided by the Town’s HMPC representatives and are summarized in Section 5 Capability Assessment. Based on that information and using the scoring methodology detailed in that section, Knightdale has an overall capability rating of Moderate. The Town’s Self-Assessment of key capability areas is summarized in Table H.15 below.

Table H.15 – Capability Self-Assessment, Knightdale

Capability Area	Rating
Plans, Ordinances, Codes and Programs	High
Administrative and Technical Capability	Moderate
Fiscal Capability	Limited
Education and Outreach Capability	Limited
Mitigation Capability	Limited
Political Capability	Moderate
Overall Capability	Moderate

H.4.2 Floodplain Management

The Town of Knightdale joined the NFIP through emergency entry in July 1975 and has been a regular participant since August 1978. The following tables reflect NFIP policy and claims data for the Town categorized by structure type, flood zone, Pre-FIRM and Post-FIRM.

Table H.16 – NFIP Policy and Claims Data by Structure Type

Structure Type	Number of Policies in Force	Total Premium	Insurance in Force	Number of Closed Paid Losses	Total of Closed Paid Losses
Single Family	43	\$17,551	\$11,787,800	3	\$31,363.63
2-4 Family	0	\$0	\$0	0	\$0.00
All Other Residential	0	\$0	\$0	0	\$0.00
Non-Residential	2	\$3,700	\$1,100,000	0	\$0.00
Total	45	\$21,251	\$12,887,800	3	\$31,363.63

Source: FEMA Community Information System, accessed November 2018

Table H.17 – NFIP Policy and Claims Data by Flood Zone

Flood Zone	Number of Policies in Force	Total Premium	Insurance in Force	Number of Closed Paid Losses	Total of Closed Paid Losses
A01-30 & AE Zones	12	\$6,874	\$3,142,800	1	\$14,002.27
A Zones	0	\$0	\$0	0	\$0.00
AO Zones	0	\$0	\$0	0	\$0.00
AH Zones	0	\$0	\$0	0	\$0.00
AR Zones	0	\$0	\$0	0	\$0.00
A99 Zones	0	\$0	\$0	0	\$0.00
V01-30 & VE Zones	0	\$0	\$0	0	\$0.00
V Zones	0	\$0	\$0	0	\$0.00
D Zones	0	\$0	\$0	0	\$0.00

ANNEX H: TOWN OF KNIGHTDALE

Flood Zone	Number of Policies in Force	Total Premium	Insurance in Force	Number of Closed Paid Losses	Total of Closed Paid Losses
B, C & X Zone					
Standard	0	\$0	\$0	0	\$0.00
Preferred	33	\$14,377	\$9,745,000	2	\$17,361.36
Total	45	\$21,251	\$12,887,800	3	\$31,363.63

Source: FEMA Community Information System, accessed November 2018

Table H.18 – NFIP Policy and Claims Data Pre-FIRM

Flood Zone	Number of Policies in Force	Total Premium	Insurance in Force	Number of Closed Paid Losses	Total of Closed Paid Losses
A01-30 & AE Zones	0	\$0	\$0	0	\$0.00
A Zones	0	\$0	\$0	0	\$0.00
AO Zones	0	\$0	\$0	0	\$0.00
AH Zones	0	\$0	\$0	0	\$0.00
AR Zones	0	\$0	\$0	0	\$0.00
A99 Zones	0	\$0	\$0	0	\$0.00
V01-30 & VE Zones	0	\$0	\$0	0	\$0.00
V Zones	0	\$0	\$0	0	\$0.00
D Zones	0	\$0	\$0	0	\$0.00
B, C & X Zone	1	\$351	\$280,000	0	\$0.00
Standard	0	\$0	\$0	0	\$0.00
Preferred	1	\$351	\$280,000	0	\$0.00
Total	1	\$351	\$280,000	0	\$0.00

Source: FEMA Community Information System, accessed November 2018

Table H.19 – NFIP Policy and Claims Data Post-FIRM

Flood Zone	Number of Policies in Force	Total Premium	Insurance in Force	Number of Closed Paid Losses	Total of Closed Paid Losses
A01-30 & AE Zones	12	\$6,874	\$3,142,800	1	\$14,002.27
A Zones	0	\$0	\$0	0	\$0.00
AO Zones	0	\$0	\$0	0	\$0.00
AH Zones	0	\$0	\$0	0	\$0.00
AR Zones	0	\$0	\$0	0	\$0.00
A99 Zones	0	\$0	\$0	0	\$0.00
V01-30 & VE Zones	0	\$0	\$0	0	\$0.00
V Zones	0	\$0	\$0	0	\$0.00
D Zones	0	\$0	\$0	0	\$0.00
B, C & X Zone	32	\$14,026	\$9,465,000	2	\$17,361.36
Standard	0	\$0	\$0	0	\$0.00
Preferred	32	\$14,026	\$9,465,000	2	\$17,361.36
Total	44	\$20,900	\$12,607,800	3	\$31,363.63

Source: FEMA Community Information System, accessed November 2018

H.5 MITIGATION STRATEGY

Town of Knightdale											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Pursue Grants to Acquire, Elevate and or Relocate Flood Prone Structures and Property.	3	1	Flood, Dam Failure, Hurricane & Tropical Storm	High	Knightdale Planning	Over \$1m	Internal	Ongoing - Next 5 Years	Not Started – Carry Forward	This has not been necessary since there have been no affected structures and/or property. The Town will evaluate opportunities to purchase property for future events.
P-2	Establish post-disaster clean-up procedures.	2	1	All	High	Knightdale Public Works	\$250,000	Internal	Ongoing - Next 5 Years	In-Progress – Carry Forward	The Town will continuously evaluate post-disaster clean-up procedures.
P-3	Prepare debris removal and disposal plan.	2	1	Dam Failure, Earthquake, Hurricane & Tropical Storm, Landslide, Severe Weather, Severe Winter Storm, Tornado	Moderate	Knightdale Public Works	Over \$1m	Internal, FEMA, NCEM	Ongoing - Next 5 Years	In-Progress – Carry Forward	The Town will continuously evaluate debris removal and disposal plan
P-4	Protect and Obtain Land for the Little River Reservoir.	3	1	Drought	Moderate	City of Raleigh Public Utilities	Over \$1m	Internal, City of Raleigh	Ongoing - Next 5 Years	In-Progress – Carry Forward	City of Raleigh is responsible for implementation
Structural Projects											
SP-1	Dredging, new riser and plunge pool for pond restoration at Environmental Park	3	2	Flood, Hurricane	Moderate	Knightdale Administration, Knightdale Public Works	\$500,000	Grants, bonds, Knightdale Administration, Knightdale Fire	3-5 years	New	N/A
Public Education and Awareness											
PEA-1	Develop a policy for the installation of warning signs concerning lightning, hail and thunderstorms at outdoor public facilities and begin retro-fitting existing spaces.	1	2	Severe Weather, Tornado	Moderate	Knightdale Parks & Recreation	Over \$1m	Internal	2-3 years	Not Started – Carry Forward	Due to staff turnover and lack of funding this project has not been completed. This project is still a valuable tool that will be studied for future implementation
PEA-2	Expand the Town’s existing fire/smoke alarm program for retro-fitting older structures to include CO alarms.	1	2	Earthquake, Severe Weather, Tornado, Hazardous Materials Incident	Low	Knightdale Fire	about \$200,000	Internal, Grants	2-3 years	In-Progress – Carry Forward	The Knightdale Fire Department routinely visits residents to ensure smoke detectors are working properly.
PEA-3	Have a Town staff member that is a Certified Floodplain Manager.	2	1	Flood, Dam Failure, Hurricane & Tropical Storm	Moderate	Knightdale Engineering/Public Works	\$40,000	Internal	2-3 years	In-Progress – Carry Forward	Due to recent turnover the Town lost its only Certified Floodplain Manager
PEA-4	Issue an annual local proclamation for Severe Weather Awareness Week and conduct associated promotional activities.	1	1	All	Moderate	Knightdale Fire	\$200,000	Internal	Ongoing - Next 5 years	Not Started – Carry Forward	Due to staff turnover this item has not been started.
PEA-5	Incentivize the use of cool roofing products through the Town’s Water Allocation Policy point system.	4	1	Extreme Heat	Low	Knightdale Planning	less than \$100,000	Internal	3-5 years	Not Started – Carry Forward	Due to changes in development patterns other updates to the Town's Water Allocation Policy were deemed more timely. This will be evaluated for future inclusion.