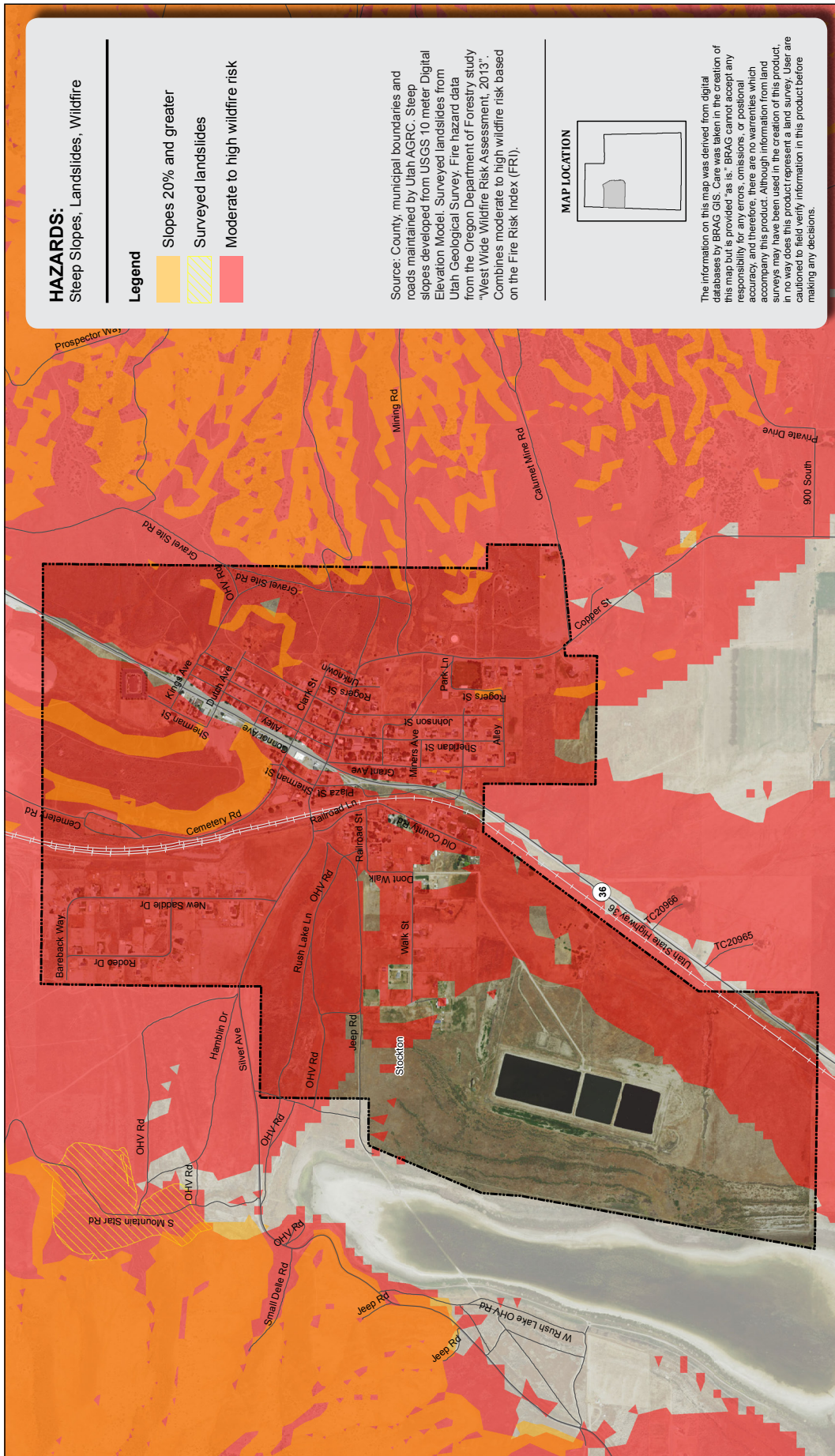
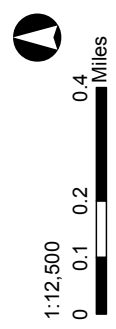
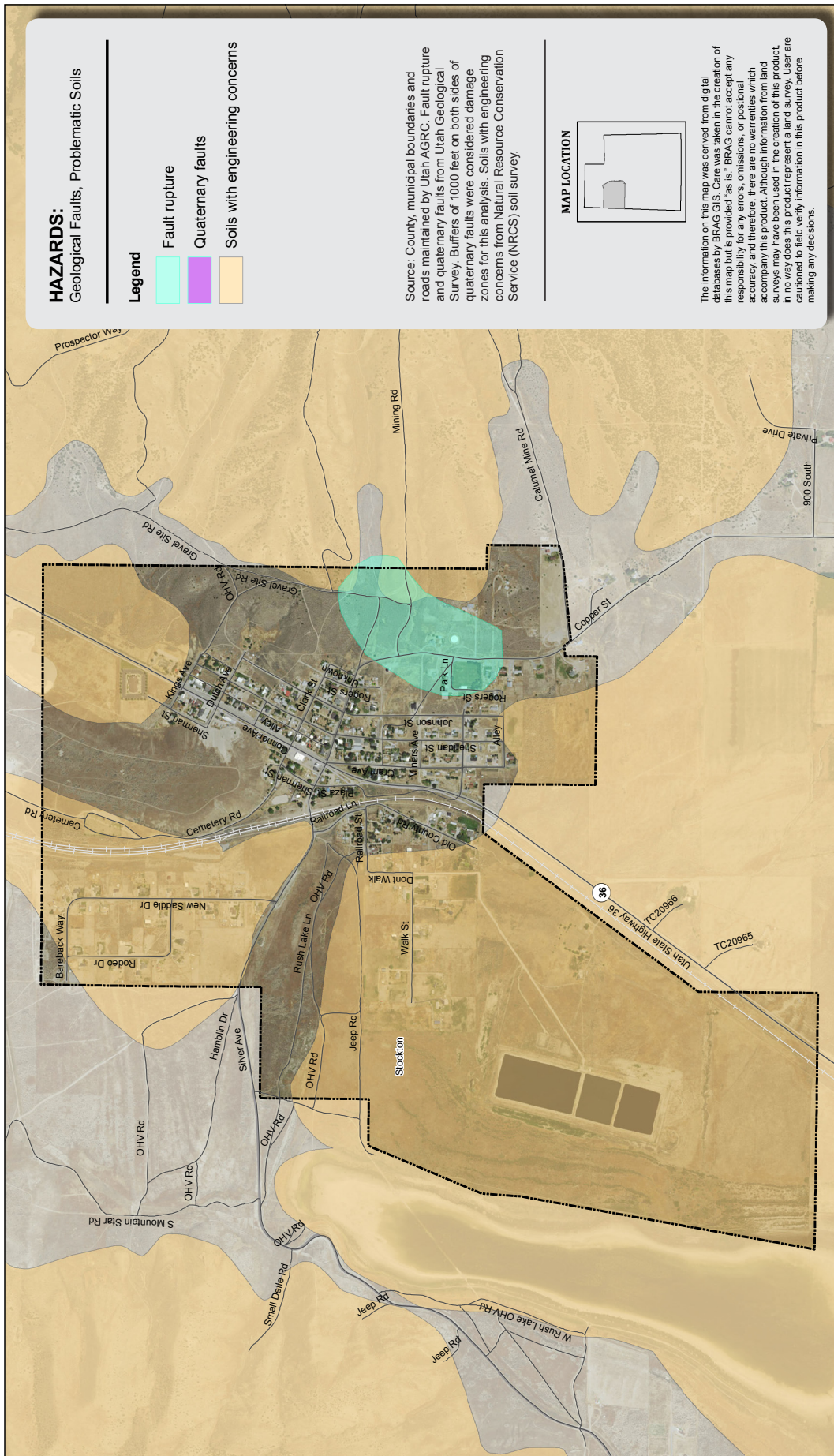


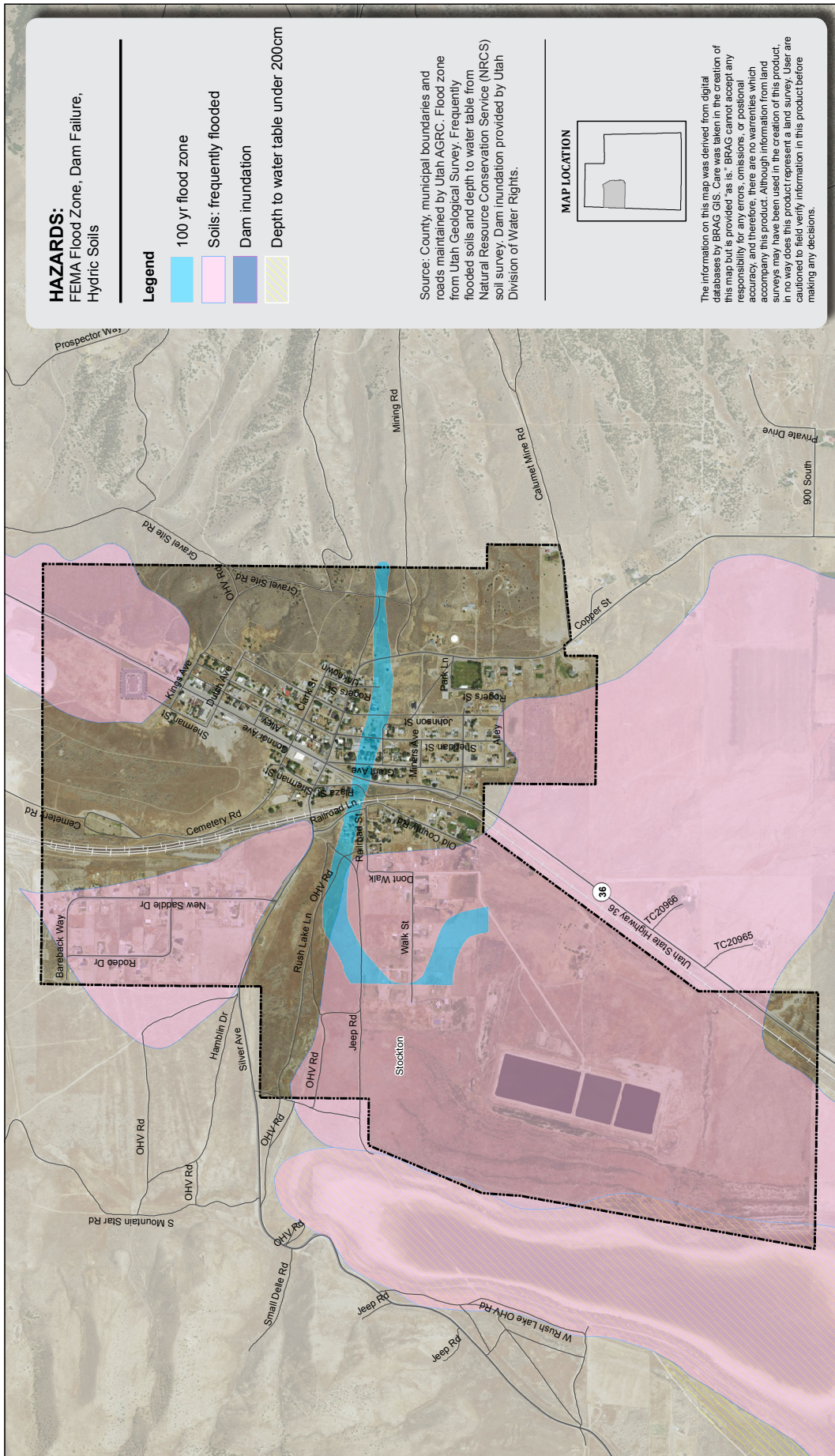
SECTION 15: STOCKTON COMMUNITY RISK ASSESSMENT



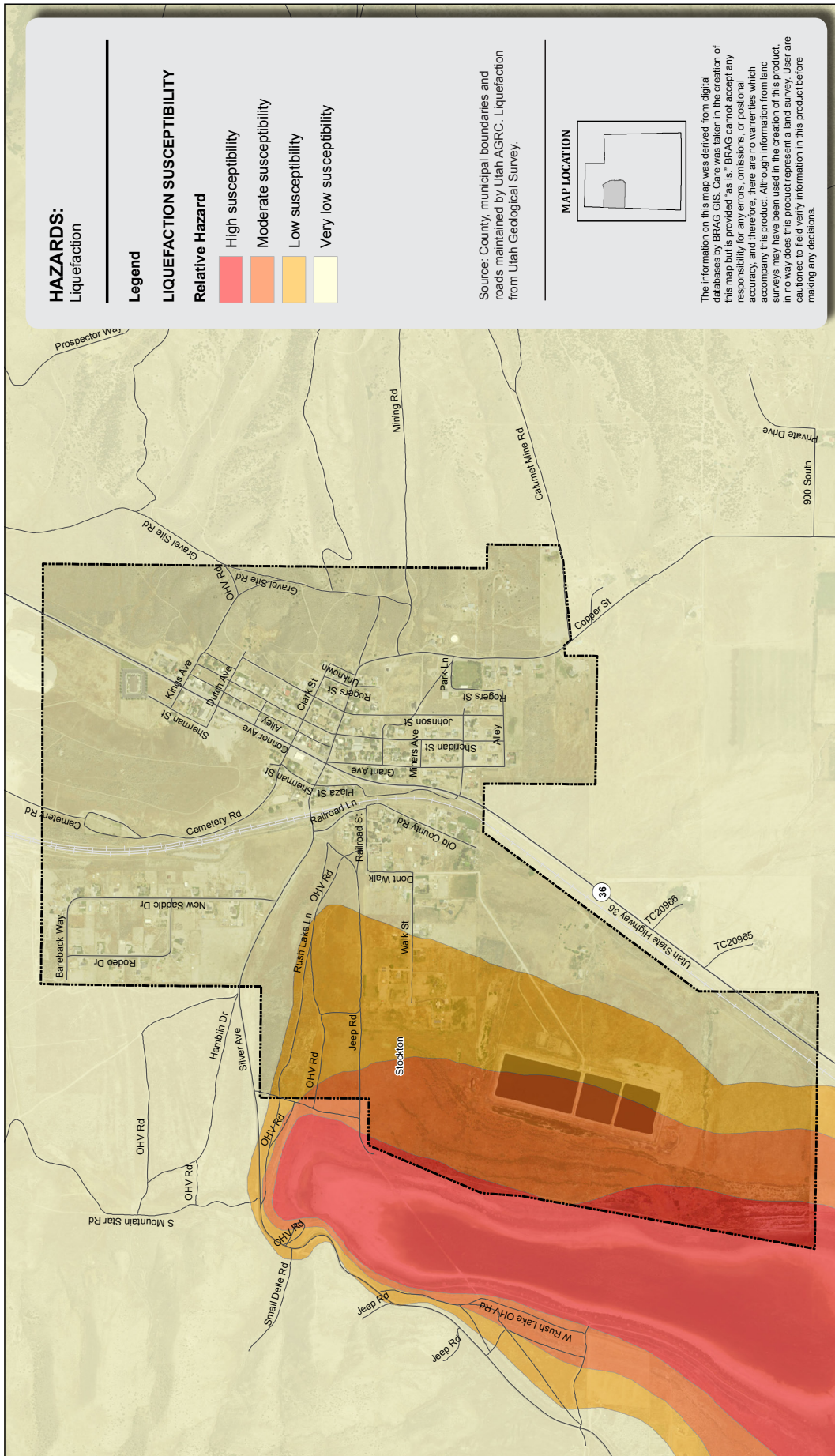
STOCKTON, UTAH



STOCKTON, UTAH



STOCKTON, UTAH



STOCKTON, UTAH

STOCKTON NATURAL HAZARDS, POTENTIAL LOSSES, AND MITIGATION STRATEGIES

See the following tables for more detailed descriptions of potential losses associated with each natural hazard.

Natural Hazards

STOCKTON

Analysis of hazard risk involving the town of Stockton revealed that there is potential risk resulting mostly from **faults, wildfire, flood, and steep slopes**. These hazards have varying potential to impact human life, property, critical facilities, infrastructure, agriculture, environmental, and recreational features within municipal boundaries. Currently, wildfires and floods have the greatest potential to impact human life, property, critical facilities, infrastructure, agriculture, environmental, and recreational features based on potential loss values. Potential impacts from faults and steep slopes appear to have less potential for impacts, yet still pose risks. Other natural hazard types not mentioned were found to have no potential impacts to Stockton.

Faults. Stockton has risk of fault damage being located close to localized faults. There are two fault surface rupture areas along the foothills of the Bald Mountain. Human life, structures, infrastructure, environmental, recreational, and agricultural amenities in the fault zone could suffer damage in the event of a large earthquake. Damage in the fault zone could threaten human life with over 10 people at risk. Additionally, 3 structures are at risk and one mile of road infrastructure.

Wildfire. Stockton is susceptible to a very high risk of wildfire in the majority of the town. Wildfires tend to occur in areas near development and amenities with grassy and shrubby vegetation types. Benches and hilly areas adjacent to the mountainous areas, and areas with steeper slopes or grassy and shrubby vegetation also pose high risks. Wildfires have the potential to impact an estimated 525 people in the town, as well

Table 30: Stockton Town Potential Loss Figures

Stockton, UT, Residential & Commercial Development at Risk						
Hazard Type	~Residents at Risk*	Residential Units at Risk		Commercial Units at Risk		
		# Units	\$ Value**	# Units	\$ Value**	\$ Potential Revenue Loss***
Dam Failure	0	0	0	0	0	0
Faults	9.6	3	558,713	0	0	0
Wildfire	524.8	164	18,596,905	7	696,706	4495827
Flood (FEMA)	57.6	18	1,779,097	0	0	0
Flood (Soils)	57.6	18	3,750,666	0	0	0
Liquefaction	0	0	0	0	0	0
Landslide	0	0	0	0	0	0
Slope	35.2	11	1,324,166	0	0	0
High Water Table	0	0	0	0	0	0
Unsuitable Soils for Buildings	61	19	\$2,904,296	0	0	0

* Based on average persons per owner household for Tooele County from 2013 American Community Survey, which is 3.2.

** Current Market Value per parcel, including building and land values. Data provided by Tooele County.

*** Based on average sales, receipts, or value of shipments of firms with or without paid employees, per firm (\$642,261 per firm). Derived from 2007 Survey of Business Owners for Tooele County, US Census Bureau.

Stockton, UT, Critical Facilities at Risk						
Hazard Type	Critical Facilities Types					
	Emergency Services/Law Enforcement	Schools/Public Facilities	Health Care Facilities	Places of Worship	Infrastructure	Other
Dam Failure						
Faults						
Wildfire	Stockton Police Department			1 Church	1 Dam	
Flood (FEMA)						
Flood (Soils)				1 Church	1 Dam	Stockton Industrial Landfill
Liquefaction						
Landslide						
Slope						
High Water Table						
Unsuitable Soils for Buildings						1 solid hazardous waste

Note: Critical facilities were identified using multiple data sources including: Utah AGRC, UDOT, Utah Division of Water Resources, and public and community leader input.

Stockton, UT, Infrastructure at Risk										
Hazard Type	Infrastructure at Risk									
	Railroad Lines		Natural Gas Lines		Electrical Power lines		Roads		Canals	
	# of Miles	\$ Value ¹	# of Miles	\$ Value ²	# of Miles	\$ Value ³	# of Miles	\$ Value ⁴	# of Miles	\$ Value ⁵
Dam Failure	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
Faults	0	\$0	0	\$0	0	\$0	1.01	\$530,250	0	\$0
Wildfire	2.38	\$3,570,000	1	\$1,400,000	0	\$0	11.46	\$6,016,500	1.8	\$2,700,000
Flood (FIRM)	0	\$0	0	\$0	0	\$0	0.69	\$362,250	0.02	\$30,000
Flood (Soils)	0.13	\$195,000	0	\$0	0	\$0	2.86	\$1,501,500	1.96	\$2,940,000
Liquefaction	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
Landslide	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
Slope	0	\$0	0	\$0	0	\$0	0.13	\$68,250	0.48	\$720,000
High Water Table	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0
Unsuitable Soils for Buildings	1.41	\$2,115,000	0.5	\$700,000	0	\$0	3.69	\$1,937,250	2.28	\$3,420,000

¹ Based on figures from 2009 Pre-Disaster Mitigation Plan for Bear River Region, Utah (\$1,500,000/mi).
² Based on average replacement cost estimates for gas lines ranging from 2-inches-20 inches in diameter. These cost are based solely on labor and material costs, and may vary based on time, scope, and site specific variations (Questar, 2015).
³ Based on estimates from Logan Light and Power, 2015 (\$127,000/mi).
⁴ Based on estimates derived from an average 28' wide, 4" thick asphalt county road with gravel subgrade replacement. Cache County, 2015 (\$525,000/mi).
⁵ Based recent Cache County and regional project cost estimates, 2015 (\$1,500,000/mi).

Stockton, UT, Environmental & Recreational Features at Risk							
Hazard Type	Environmental Features at Risk			Recreational Features at Risk			
	Wetland/ riparian	Lakes	Streams	Parks	Trails	Trails (Master)	Amenities
	# of Acres		# of Miles	# of Acres	# of Miles	# of Miles	# of Amenities
Dam Failure	0	0	0	0	0	0	0
Faults	0	0	0.41	0	0	0.58	0
Wildfire	10.27	0	0	0	0	2.70	0
Flood (FIRM)	0	0	0.36	0	0	0.08	0
Flood (Soils)	0	141.50	2.40	0	0	0.80	0
Liquefaction	0	0	0	0	0	0	0
Landslide	0	0	0	0	0	0	0
Slope	0	0	0.48	0	0	0	0
High Water Table	14.51	5.34	0	0	0	0	0
Unsuitable Soils for Buildings	136.22	5.34	2.86	0	0	0	0

Note: Total acres of land and miles of streams and trails were identified using multiple data sources including: Utah AGRC, U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. Geological Survey, Utah Division of Water Resources, and public and community leader input.

Stockton, UT, Agricultural Features at Risk		
Hazard Type	Lands at Risk	
	Agriculture Production*	Grazing**
	# of Acres	
Dam Failure	0	0
Faults	0	4.24
Wildfire	207.81	205.63
Flood (FIRM)	17.64	380.90
Flood (Soils)	356.40	0
Liquefaction	0	0
Landslide	0	0
Slope	0.82	2.34
High Water Table	0	14.5
Unsuitable Soils for Buildings	0	394.21

* Lands that are currently associated with agricultural activities involving water related land use, as described in the 2007 Utah Division of Water Resources, *Water Related Land Use* dataset.
 ** Lands currently associated with grazing allotments identified as part of the Grazing Improvement Program (Utah AGRC, 2012)

as nearly 164 residential units and 7 commercial structures.

Flood. Portions of Stockton are at risk to flooding. Stockton does participate in NFIP. Areas most susceptible to flooding are found in the lower elevated wetland areas near and around Rush Lake. Flood risk areas have the potential to threaten 58 people, and 18 residential structures. Floods resulting in these areas pose a threat to human life, property, critical facilities, infrastructure, agriculture, environmental, and recreational features within the town boundary.

Slopes. Stockton has risk associated with steep slopes within its boundaries. Areas of greatest concern have slopes of over 25%, which are commonly found in hilly and mountainous areas and areas bordering drainages, streams and rivers. Steep slopes have the potential to impact life, property, and agricultural features. Around 35 residents and 11 structures are at risk within the jurisdiction for steep slopes.

Future Development

No concerns involving potential future development within Stockton were reported by community representatives.

Hazard Mitigation Strategies

Table 31: Stockton Mitigation Strategies

STOCKTON - COMMUNITY MITIGATION STRATEGIES										
Protecting Current Residents and Property										
Jurisdiction	Hazard	Goal	Action	Action (For NFIP Compliance, if Applicable)	Priority (High, Medium, Low)	Time-frame (Year)	Potential Funding Sources	Responsible Entity	Estimated Cost	Resources
Stockton	Wildfire	Protect current residents and property	Raise fire hydrants that have sunk into the ground below usable levels.	N/A	High	2016	Utah FFSL	Town, County	\$4,000 materials; \$2,000 labor	Utah FFSL, County
Stockton	Flood	Protect current residents and property	Remove post debris from 1983-84 flood.	N/A	High	2016-2017	FEMA, Utah DEM	Town	TBD	FEMA, Utah DEM
Stockton	Earthquake	Protect current residents and property	Education for local residents on earthquake safety.	N/A	High	2017	Local	Town, County	Minimal	UGS, USGS
Stockton	Steep Slope	Protect current residents and property	Evaluate specific sites with steep slope issues and work with residents to come up with a plan to resolve	N/A	High	2017	Local	Town	Minimal	UGS, NRCS
Stockton	High Water Table	Protect current residents and property	Evaluate specific sites with high water table issues and work with residents to come up with a plan to resolve	N/A	High	2017	Local	Town	Minimal	UGS, NRCS
Stockton	Unsuitable Soils	Protect current residents and property	Evaluate specific sites with unsuitable soil issues and work with residents to come up with a plan to resolve	N/A	High	2017	Local	Town	Minimal	UGS, NRCS
STOCKTON - COMMUNITY MITIGATION STRATEGIES										
Protecting Future Residents and Property										
Jurisdiction	Hazard	Goal	Action	Action (For NFIP Compliance, if Applicable)	Priority (High, Medium, Low)	Time-frame (Year)	Potential Funding Sources	Responsible Entity	Estimated Cost	Resources
Stockton	Wildfire	Protect future residents and property	Increase firebreaks around town property called "sod farm" (300+ acres southwest) - currently 1.25' for a 3/4 mile section; want to clean up intake at water source; put down concrete barrier. Begin with engineering study.	N/A	High	2016	Utah FFSL	Town, County	\$4,000 materials; \$2,000 labor	Utah FFSL, County
Stockton	Flood	Protect future residents and property	Update ordinances to include fault damage zones, and require geotechnical studies to address	N/A	High	2016-2017	FEMA, Utah DEM	Town	TBD	FEMA, Utah DEM
Stockton	Earthquake	Protect future residents and property	Update ordinances to include fault damage zones, and require geotechnical studies to address	N/A	High	2017	Local	Town, County	Minimal	UGS, USGS
Stockton	Steep Slope	Protect future residents and property	Update ordinances to include fault damage zones, and require geotechnical studies to address	N/A	High	2017	Local	Town	Minimal	UGS, NRCS
Stockton	High Water Table	Protect future residents and property	Update ordinances to require either not basements in high water table areas, or sump pumps.	N/A	High	2017	Local	Town	Minimal	UGS, NRCS
Stockton	Unsuitable Soils	Protect future residents and property	Require geotechnical studies on properties with unsuitable soils.	N/A	High	2017	Local	Town	Minimal	UGS, NRCS