

St. Louis Regional Hazard Mitigation Plan 2020 – 2025

Appendix D Jurisdiction Vulnerability Assessments



EAST-WEST GATEWAY
Council of Governments

Creating Solutions Across Jurisdictional Boundaries



St. Louis Regional Hazard Mitigation Plan

Appendix D

Jurisdiction Vulnerability Assessments

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D 1 Municipal Assessments

Percentages to Use to Calculate Assessed Valuation Affected by Earthquake			
County	Modified Mercalli Classification by County	% to use if city is without liquefaction	% to use if there are liquefaction areas
Franklin	VI	25	35
St Charles, Jefferson	VII	35	40
St. Louis City, St. Louis County	VIII	40	50

D 1.1 City of Arnold

City of Arnold Hazard Assessments and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary & impact	Arnold is at high risk for flooding due to proximity to Mississippi and Meramec Rivers and has flooded in the past	
	Previous occurrences	May 15 – July 17, 2015; December 22, 2015 – January 09, 2016; December 23, 2015 – January 7, 2016; April 28, 2017 – May 11, 2017; April 29, 2019 – July 5, 2019	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	High	Previous flood occurrences warranted FEMA natural disaster declarations and resulted in property damage.
	Location	Meramec, Mississippi, and Pomme Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$64,000,000	
	Critical facilities, buildings, infrastructure in hazard area	1 nursing home/day care, 1 government building, five bridges, 1 railroad, 2 mobile home concentrations, 1 school	See Figure 19, Appendix B

	Land use and development trends:]	Like many areas of Jefferson County near I-55, Arnold is experiencing a roughly 10-year period of growth that has tapered off slightly in recent years. Most growth is residential in nature. The city remains a mix of commercial, industrial/transportation, and residential development with little agriculture
	Repetitive losses	See Table 102

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Arnold Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Arnold
	Number	1
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 43
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	1
	Location	See Figure 38 & Table 109

	Critical facilities, buildings, infrastructure in hazard area	1 mobile home concentration, See Figure 21
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams do not have an impact
	Number	0
	Location	See figures 19 & 43
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification	VII
	Location	See Figure 43
	Liquefaction area(s) present	Yes
	Jefferson County earthquake events 2009 - 2016	4
	Critical facilities, buildings, infrastructure in hazard area	All -See Figures 43, Appendix B
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low

	Vulnerability	High
	Potential losses*	\$180,000,000

*Potential loss data taken from assessed city values based on percentage of city area impacted. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

D 1.2 City of Pacific

City of Pacific* Hazard Assessment and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes**
Flood	Summary & impact	Pacific is at high risk for flooding due to proximity to Meramec Rivers and has flooded in the past	
	Previous occurrences	December 26 - 28, 2015; January 1, 2016; April 30, 2017; May 1 - 3, 2017	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	High	Previous flood occurrences warranted FEMA natural disaster declarations and resulted in property damage
	Location	Meramec River and Brush Creek	
	Probability of future occurrences	High	
	Estimate of potential losses***	\$52,000,000	Estimated 40% of valuation
	Critical facilities, buildings, infrastructure in hazard area	2 railroads, 7 bridges, 2 government buildings, 1 mobile home concentration, 2 nursing homes/day care centers	See Figures 18 & 21, Appendix B
	Land use and development trends	Development in Pacific increased by over 18% from 2014	Home of the original Bigfoot Monster Truck, revitalized Old Town, and new fitness center
	Repetitive losses	See Tables 99 & 100	

*A portion of the City of Pacific is also in St. Louis County

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

***Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

City of Pacific Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Pacific
	Number	1
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figures 42 & 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams do not have an impact
	Number	0
	Location	See Figures 18 & 42; Figures 21 & 45
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low

	Potential losses	\$0
Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - Franklin County portion	VI
	Modified Mercalli classification - St. Louis County portion	VIII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figures 42 & 45, Appendix B
	Liquefaction area(s) present	Yes
	Franklin County earthquake events 2009 - 2016	3
	St, Louis County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	2
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$45,000,000

*Potential loss data taken from assessed city values based on percentage of city area impacted. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

D 1.3 City of Wildwood

City of Wildwood Hazard Assessment and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary & impact	Wildwood is at high risk for flooding due to its proximity to the Meramec River and Missouri River, however actual flooding impact has been low due to relatively low development in flood zones	
	Previous occurrences	December 27 - 31, 2015; January 1-3, 2016; April 30, 2017; May 1 - 4, 2017	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	Medium	Previous flood occurrences warranted FEMA natural disaster declarations and resulted in some property damage
	Location	Meramec River, Fox Creek, Carr Creek, Hamilton Creek, Missouri River, Tavern Creek, Wildhorse Creek, Bonhomme Creek, and Caulks Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$58,000,000	Estimated 5% of valuation
	Critical facilities, buildings, infrastructure in hazard area	36 bridges, 1 school, 1 government building, 4 nursing home/day care, 1 railroad	See Figure 21, Appendix B

	Land use and development trends	Development in Wildwood increased by 26% from 2014
	Repetitive losses	See Tables 105 & 106

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Wildwood Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have little to no impact to the City
	Number	6
	Critical facilities, buildings, infrastructure in hazard area	1 nursing home/ day care
	Location	See Figure 45
	Severity	Low
	Vulnerability	Medium
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	1
	Location	See Figure 38 & Table 109
	Critical facilities, buildings, infrastructure in hazard area	1 railroad
	Severity	Low
	Vulnerability	Medium
	Potential losses	\$0

High hazard potential dams	Summary & impact	High hazard potential dams do have some potential to impact within city boundaries, however, there have been no dam failures in the past
	Number	8
	Location	See Figures 21 & 45
	Critical facilities, buildings, infrastructure in hazard area	1 nursing home/ daycare
	Severity	Low
	Vulnerability	Medium
	Potential losses	\$0
Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification	VIII
	Location	See Figure 45
	Liquefaction area(s) present	Yes
	St. Louis County earthquake events 2009 - 2016	0
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 45, Appendix B
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$578,000,000

*Potential loss data taken from assessed city values based on percentage of city area impacted. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

D 1.4 City of Ballwin

City of Ballwin Hazard Assessments and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary risk statement	Ballwin is at medium risk for flooding due to proximity to Fishpot and Grand Glaize Creeks	
	Previous occurrences	None	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	High	
	Location	Fishpot Creek and Grand Glaize Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$700,000	1% of assessed value
	Critical facilities, buildings, infrastructure in hazard area	1 nursing home, 10 bridges, 1 major road	See Figure 21
	Land use and development trends	Development in Ballwin increased by 37% from 2014.	It is primarily a residential area. Commercial development continues along Manchester Road.
	Repetitive losses	See Table 105 & 106	

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Ballwin Hazard Assessment and Vulnerabilities		
Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Ballwin
	Number	1
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	With no levees present there is no impact to the City of Ballwin
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	With no high hazard potential dams present there is no impact to the City of Ballwin
	Number	0
	Location	See figures 21 & 45
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Louis County	VIII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 45, Appendix B
	Liquefaction area(s) present	No
	St. Louis County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$278,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.5 City of Brentwood

City of Brentwood Hazard Assessments and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary risk statement	Brentwood is at high risk for flooding due to proximity to Black Creek and Deer Creek	
	Previous occurrences	December 26-27, 2015	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	High	
	Location	Black Creek and Deer Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$18,000,000	5% of assessed value
	Critical facilities, buildings, infrastructure in hazard area	3 nursing homes, 2 bridges, 1 school, 1 government building, 1 major road	See figure 21
	Land use and development trends	Development in Brentwood increased by 34% from 2014.	The Brentwood Bound Project is improving Manchester Road as well as stormwater management in the city.
Repetitive losses	See Table 105 & 106		

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Brentwood Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Brentwood
	Number	30
	Critical facilities, buildings, infrastructure in hazard area	3 schools, 3 nursing homes, 1 railroad
	Location	See Figure 45
	Severity	Low
	Vulnerability	High
	Potential Losses	\$0
Levees	Summary & impact	With no levees present there is no impact to the City of Brentwood
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	With no high hazard potential dams present there is no impact to the City of Brentwood
	Number	0
	Location	See figures 21 & 45
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Louis County	VIII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 45, Appendix B
	Liquefaction area(s) present	Yes
	St. Louis County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	1
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$175,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.6 Village of Cedar Hill Lakes

Village of Cedar Hill Lakes Hazard Assessments and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary risk statement	Cedar Hill Lakes is at medium risk for flooding due to proximity to Skullbones Creek	
	Previous occurrences	None	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	Medium	
	Location	Skullbones Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$157,000	10% of assessed value
	Critical facilities, buildings, infrastructure in hazard area	None	See figure 19
	Land use and development trends	Development in Cedar Hills Lake increased by 9.4% from 2014	Residential development has occurred.
	Repetitive losses	See Table 101 & 102	

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

Village of Cedar Hill Lakes Hazard Assessment and Vulnerabilities		
Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	With no sinkholes present there is no impact to the Village of Cedar Hill Lakes
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 43
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	With no levees present there is no impact to the Village of Cedar Hill Lakes
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Medium
	Potential losses	\$0
High hazard potential dams	Summary & impact	Existing high hazard potential dams have little impact on the Village of Cedar Hill Lakes
	Number	3
	Location	See figures 19 & 43
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Medium
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - Jefferson County	VII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 43, Appendix B
	Liquefaction area(s) present	Yes
	Jefferson County earthquake events 2009 - 2016	4
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$625,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.7 City of Cottleville

City of Cottleville Hazard Assessment and Vulnerabilities				
Hazard	Vulnerability	Assessment	Notes*	
Flood	Summary & impact	Cottleville is at medium risk for flooding due to proximity to Dardenne Creek and has flooded in the past		
	Previous occurrences	June 26, 2011; May 20, 2013; December 26, 2015; December 27 - 28, 2015; December 27 - 31, 2015; January 1-2, 2016; July 10, 2019	https://www.ncdc.noaa.gov/stormevents/	
	Vulnerability	Medium	Previous flood occurrences warranted FEMA natural disaster declarations and resulted in property damage	
	Location	Dardenne Creek		
	Probability of future occurrences	High		
	Estimate of potential losses**	\$65,000,000	Estimated 40% of valuation	
	Critical facilities, buildings, infrastructure in hazard area	3 bridges, 1 government building, 2 nursing homes/day care centers	See Figure 20, Appendix B	

	Land use and development trends	Development in Cottleville has increased by over 48% from 2014	Single family subdivisions, condos and apartments are being added to the city along Mid Rivers Mall Drive, Cottleville Parkway and adjacent to St. Charles Community College campus. Additional development is expected in city at the completion of MO 364 - Gutermuth Road interchange.
	Repetitive losses	See Tables 103 & 104	

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Cottleville Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Cottleville
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 44
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams do not have an impact
	Number	0
	Location	See Figures 20 & 44
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification -St. Charles County	VII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 44, Appendix B
	Liquefaction area(s) present	Yes
	St. Charles County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	1
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$65,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.8 City of Dardenne Prairie

City of Dardenne Prairie Hazard Assessment and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary & impact	Dardenne Prairie is at medium risk for flooding due to proximity to Dardenne Creek	
	Previous occurrences	N/A	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	Medium	Previous flood occurrences warranted FEMA natural disaster declarations and resulted in property damage
	Location	Dardenne Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$63,000,000	Estimated 20% of valuation
	Critical facilities, buildings, infrastructure in hazard area	4 bridges, 2 nursing homes/day care centers	See Figure 20, Appendix B
	Land use and development trends	Development in Dardenne Prairie has increased by over 20% from 2014	Residential developments are occurring; city continues to explore development and redevelopment opportunities
	Repetitive losses	See Tables 103 & 104	

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Dardenne Prairie Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Dardenne Prairie
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 44
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams do not have an impact
	Number	0
	Location	See Figures 20 & 44
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Charles County	VII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 44, Appendix B
	Liquefaction area(s) present	Yes
	St. Charles County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$126,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.9 City of Eureka

City of Eureka Hazard Assessments and Vulnerabilities				
Hazard	Vulnerability	Assessment	Notes*	
Flood	Summary risk statement	Eureka is at high risk for flooding due to proximity to the Meramec River		
	Previous occurrences	December 26-27, 2015; December 27-31, 2015; December 28, 2015; January 1-3, 2016; April 30, 2017; May 1, 2017; July 22, 2019; August 26, 2019; August 30, 2019	https://www.ncdc.noaa.gov/stormevents/	
	Vulnerability	High		
	Location	Meramec River, Fox Creek, Flat Creek, and Forby Creek		
	Probability of future occurrences	High		
	Estimate of potential losses**	\$28,000,000	10% of assessed value	
	Critical facilities, buildings, infrastructure in hazard area	6 bridges, 3 schools, 1 railroad, 1 waste water facility, 1 interstate	See figure 21	
	Land use and development trends	Development in Eureka has increased by 30% from 2014.	A St. Louis County Library branch is under construction as well as residential developments to the West and South. Commercial development continues along I-44	
	Repetitive losses	See Table 105 & 106		

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Eureka Hazard Assessment and Vulnerabilities		
Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Eureka
	Number	1
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	With no levees present there is no impact to the City of Eureka
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	With no high hazard potential dams present there is no impact to the City of Eureka
	Number	0
	Location	See figures 21 & 45
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Louis County	VIII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 45, Appendix B
	Liquefaction area(s) present	Yes
	St. Louis County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$140,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas.. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.10 City of Kirkwood

City of Kirkwood Hazard Assessments and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary risk statement	Kirkwood is at medium risk for flooding due to proximity to the Meramec River	
	Previous occurrences	July 17, 2013	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	High	
	Location	Meramec River and Sugar Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$10,000,000	1% of assessed value
	Critical facilities, buildings, infrastructure in hazard area	7 bridges, 1 railroad	See figure 21
	Land use and development trends	Development in Kirkwood has increased by 46% from 2014.	Redevelopment along Kirkwood Road includes apartments and retail space.
	Repetitive losses	See Table 105 & 106	

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Kirkwood Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Kirkwood
	Number	6
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Medium
	Potential Losses	\$0
<hr/>		
Levees	Summary & impact	With no levees present there is no impact to the City of Kirkwood
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
<hr/>		
High hazard potential dams	Summary & impact	With no high hazard potential dams present there is no impact to the City of Kirkwood
	Number	0
	Location	See figures 21 & 45
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Louis County	VIII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 45, Appendix B
	Liquefaction area(s) present	Yes
	St. Louis County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$500,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.11 City of Ladue

City of Ladue Hazard Assessments and Vulnerabilities				
Hazard	Vulnerability	Assessment	Notes*	
Flood	Summary risk statement	Ladue is at high risk for flooding due to proximity to Deer Creek and Black Creek		
	Previous occurrences	None	https://www.ncdc.noaa.gov/stormevents/	
	Vulnerability	High		
	Location	Deer Creek and Black Creek		
	Probability of future occurrences	High		
	Estimate of potential losses**	\$40,000,000	5% of assessed value	
	Critical facilities, buildings, infrastructure in hazard area	8 bridges, 2 schools, 1 railroad, 1 government building, 1 interstate	See figure 21	
	Land use and development trends	Development in Ladue has increased by 37% from 2014.	Ladue is primarily a residential area.	
Repetitive losses	See Table 105 & 106			

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Ladue Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Ladue
	Number	53
	Critical facilities, buildings, infrastructure in hazard area	2 nursing homes, 2 bridges, 1 railroad
	Location	See Figure 45
	Severity	Low
	Vulnerability	High
	Potential Losses	\$0
Levees	Summary & impact	With no levees present there is no impact to the City of Ladue
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Medium
	Potential losses	\$0
High hazard potential dams	Summary & impact	With no high hazard potential dams present there is no impact to the City of Ladue
	Number	0
	Location	See figures 21 & 45
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low

	Vulnerability	Low
	Potential losses	\$0
Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Louis County	VIII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 45, Appendix B
	Liquefaction area(s) present	Yes
	St. Louis County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	1
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$400,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.12 City of Lake St. Louis

City of Lake St. Louis Hazard Assessment and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary & impact	Lake St. Louis is at low risk for flooding	
	Previous occurrences	NA	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	Low	Previous flood occurrences warranted FEMA natural disaster declarations and resulted in property damage
	Location	Lake St. Louis, Lake Sainte Louise, Peruque Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$128,000,000	Estimated 30% of valuation
	Critical facilities, buildings, infrastructure in hazard area	6 bridges, 1 hospital	See Figure 20, Appendix B
	Land use and development trends	Development in Lake St. Louis increased by over 30% from 2014	Residential development is occurring west of I-64 and commercial/retail activity is taking place around interchanges of I-64 with Lake St. Louis Blvd and MO 364
	Repetitive losses	See Tables 103 & 104	

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Lake St. Louis Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Lake St. Louis
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 44
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	Lake St. Louis has four high hazard potential dams within its boundaries. Critical assets at risk downstream include an interstate, one railroad and a hospital. There have been no dam failures in the past
	Number	4
	Location	See Figures 20 & 44

	Critical facilities, buildings, infrastructure in hazard area	Interstate, railroad and one hospital
	Severity	Low
	Vulnerability	Low
	Potential losses	Estimated loss of one dam failing \$1.5 - 30 million
Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Charles County	VII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 44, Appendix B
	Liquefaction area(s) present	No
	St. Charles County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$150,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.13 City of Manchester

City of Manchester Hazard Assessments and Vulnerabilities				
Hazard	Vulnerability	Assessment	Notes*	
Flood	Summary risk statement	Manchester is at high risk for flooding due to proximity to Fishpot Creek and Grand Glaize Creek		
	Previous occurrences	None	https://www.ncdc.noaa.gov/stormevents/	
	Vulnerability	High		
	Location	Fishpot Creek and Grand Glaize Creek		
	Probability of future occurrences	High		
	Estimate of potential losses**	\$22,000,000	5% of assessed value	
	Critical facilities, buildings, infrastructure in hazard area	11 bridges, 2 main roads	See figure 21	
	Land use and development trends	Development in Manchester has increased by 38% from 2014.	There is residential development in the city as well as commercial development along Manchester Road.	
	Repetitive losses	See Table 105 & 106		

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Manchester Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	With no sinkholes present there is no impact to the City of Manchester
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	With no levees present there is no impact to the City of Manchester
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	With no high hazard potential dams present there is no impact to the City of Manchester
	Number	0
	Location	See figures 21 & 45
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Louis County	VIII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 45, Appendix B
	Liquefaction area(s) present	Yes
	St. Louis County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$214,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.14 City of O'Fallon

City of O'Fallon Hazard Assessment and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary & impact	O'Fallon is at medium risk for flooding due to proximity to Peruque and Belleau Creeks and has flooded in the past	
	Previous occurrences	July 12, 2010; September 18, 2010; August 5, 2015	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	Medium	Previous flood occurrences warranted FEMA natural disaster declarations and resulted in property damage
	Location	Dardenne Creek, Peruque Creek, Belleau Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$436,000,000	Estimated 25% of valuation
	Critical facilities, buildings, infrastructure in hazard area	10 bridges, 2 schools	See Figure 20, Appendix B
	Land use and development trends	Development in O'Fallon increased by over 30% from 2014	Mastercard Global Technology headquarters based here also CitiMortgage offices, construction of 360 acre residential/commercial development underway near Highway DD and I-64
	Repetitive losses	See Tables 103 & 104	

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of O'Fallon Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of O'Fallon
	Number	1
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 44
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams do have some potential to impact within city boundaries, however, there have been no dam failures in the past.
	Number	1
	Location	See Figures 20 & 44
	Critical facilities, buildings, infrastructure in hazard area	railroad
	Severity	Low
	Vulnerability	Low
	Potential losses	NA

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Charles County	VII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 44, Appendix B
	Liquefaction area(s) present	Yes
	St. Charles County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	2 schools
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$699,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.15 City of Pasadena Hills

City of Pasadena Hills Hazard Assessments and Vulnerabilities				
Hazard	Vulnerability	Assessment	Notes*	
Flood	Summary risk statement	Pasadena Hills is at low risk for flooding		
	Previous occurrences	None	https://www.ncdc.noaa.gov/stormevents/	
	Vulnerability	High		
	Location	Flood zone(s) not present		
	Probability of future occurrences	High		
	Estimate of potential losses**	\$0	0% of assessed value	
	Critical facilities, buildings, infrastructure in hazard area	See figure 21		
	Land use and development trends	Development in Pasadena Hills is limited due to historic nature of the community.	City is on the National Register of Historic Places.	
	Repetitive losses	See Table 105 & 106		

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Pasadena Hills Hazard Assessment and Vulnerabilities		
Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	With no sinkholes present there is no impact to the City of Pasadena Hills
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	With no levees present there is no impact to the City of Pasadena Hills
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	With no high hazard potential dams present there is no impact to the City of Pasadena Hills
	Number	0
	Location	See figures 21 & 45
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Louis County	VIII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 45, Appendix B
	Liquefaction area(s) present	No
	St. Louis County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$6,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.16 City of Portage Des Sioux

City of Portage Des Sioux Hazard Assessment and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary & impact	Portage Des Sioux is at high risk for flooding due to proximity to Mississippi River and has flooded in the past	
	Previous occurrences	June 14, 2010, April 14, 2013, June 1, 2013, June 25, 2015, May 3-16, 2019, June 2-12, 2019	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	High	Previous flood occurrences warranted FEMA natural disaster declarations and resulted in property damage
	Location	Mississippi River	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$1,833,740	Estimated 50% of valuation
	Critical facilities, buildings, infrastructure in hazard area	1 government building	See Figure 20, Appendix B
	Land use and development trends	Land use in Portage Des Sioux has changed over time as the city has lost population	City is located on the Mississippi River and contains boating businesses and is home to Our Lady of the Rivers shrine
	Repetitive losses	See Tables 103 & 104	

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Portage Des Sioux Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Portage Des Sioux
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figures 44
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams do not have an impact
	Number	0
	Location	See Figures 20 & 44
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification	VII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 44, Appendix B
	Liquefaction area(s) present	Yes
	St. Charles County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	1
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$45,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. See table below for percentages. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.17 City of St. Charles

City of St. Charles Hazard Assessment and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary & impact	St. Charles is at high risk for flooding due to proximity to Missouri & Mississippi Rivers and has flooded in the past	
	Previous occurrences	May 20, 2013, August 5, 2015, December 27 - 31, 2015; January 1-2, 2016; May 6, 2019	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	High	Previous flood occurrences warranted FEMA natural disaster declarations and resulted in property damage
	Location	Missouri River, Mississippi River, Cole Creek, Boschert Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$419,000,000	Estimated 30% of valuation
	Critical facilities, buildings, infrastructure in hazard area	2 railroads, 16 bridges, 1 government building, 1 nursing home/day care center	See Figure 20, Appendix B
	Land use and development trends	Development in St. Charles increased by over 20% from 2014	Business park and residential development is occurring adjacent to MO 370 and mixed use Riverpointe project adjacent to Missouri River south is I-70 is underway

	Repetitive losses	See Tables 103 & 104
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*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of St. Charles Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of St. Charles
	Number	23
	Critical facilities, buildings, infrastructure in hazard area	1 school
	Location	See Figure 44
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Elm Point Levee System was overtopped in 2008, 2011 & 2019 and breached in 2019 impacting 1,365 acres. Other levees within St. Charles have not experienced problems.
	Number	4
	Location	See Figure 38 & Table 109
	Critical facilities, buildings, infrastructure in hazard area	Elm Point Levee System - segment of MO 370, railroad, mobile home concentration; Consolidated North County Levee System - segment of MO 370, railroad; Boschert Creek West - mobile home concentration
	Severity	Low
	Vulnerability	Medium
	Potential losses	\$0

High hazard potential dams	Summary & impact	High hazard potential dams do have some potential to impact with city boundaries, however there have been no dam failures in the past.
	Number	3
	Location	See Figures 20 & 44
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
	Earthquake	Summary & impact
Modified Mercalli classification - St. Charles County		VII
Critical facilities, buildings, infrastructure in hazard area		All - See Figure 44, Appendix B
Liquefaction area(s) present		Yes
St. Charles County earthquake events 2009 - 2016		0
Government buildings in liquefaction areas		1
Probability (chance magnitude 6.0 occurring through 2053)		25 - 45%
Severity		Low
Vulnerability		High
Potential losses*		\$559,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.18 City of St. Clair

City of St. Clair Hazard Assessments and Vulnerabilities				
Hazard	Vulnerability	Assessment	Notes*	
Flood	Summary risk statement	St. Clair is at medium risk for flooding due to proximity to Happy Sock Creek and Birch Creek		
	Previous occurrences	None	https://www.ncdc.noaa.gov/stormevents/	
	Vulnerability	High		
	Location	Happy Sock Creek and Birch Creek		
	Probability of future occurrences	High		
	Estimate of potential losses**	\$609,000	1% of assessed value	
	Critical facilities, buildings, infrastructure in hazard area	1 wastewater facility, 2 bridges, 1 interstate	See figure 18	
	Land use and development trends	Development in St. Clair increased by 10% from 2014	Residential and commercial development has occurred. St. Clair is primarily a residential area. Land at the former St. Clair Airport is now available for development. There are 15 different industries in the city.	
	Repetitive losses	See Table 99 & 100		

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of St. Clair Hazard Assessment and Vulnerabilities		
Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	With no sinkholes present there is no impact to the City of St. Clair
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 42
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	With no levees present there is no impact to the City of St. Clair
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Medium
	Potential losses	\$0
High hazard potential dams	Summary & impact	Known high hazard potential dams have little impact on the City of St. Clair
	Number	1
	Location	See figures 18 & 42
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Medium
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - Franklin County	VI
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 42, Appendix B
	Liquefaction area(s) present	No
	Franklin County earthquake events 2009 - 2016	3
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$15,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.19 City of St. Peters

City of St. Peters Hazard Assessment and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary & impact	St. Peters is at high risk for flooding due to proximity to Dardenne Creek and Mississippi River and has flooded in the past	
	Previous occurrences	March 4, 2011; December 27 - 28, 2015; December 27 - 32, 2015; January 1 - 2, 2016; July 10, 2019	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	High	Previous flood occurrences warranted FEMA natural disaster declarations and resulted in property damage
	Location	Mississippi River, Dardenne Creek, Spencer Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$410,000,000	Estimated 35% of valuation
	Critical facilities, buildings, infrastructure in hazard area	1 railroad, 19 bridges, 3 government buildings, 2 nursing homes/day care centers, 1 school	See Figure 20, Appendix B

Land use and development trends	Development in St. Peters increased by over 20% from 2014	Premier 370 Business Park is home to Amazon fulfillment center, FedEx Ground and other manufacturing/distribution centers. Residential development is occurring south of I-70 and commercial activity is taking place along the I-70 corridor
Repetitive losses	See Tables 103 & 104	

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of St. Peters Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of St. Peters
	Number	16
	Critical facilities, buildings, infrastructure in hazard area	I-70 - MO 370 interchange adjacent to area with sinkholes
	Location	See Figure 44
	Severity	Low
	Vulnerability	medium
	Potential Losses	NA
	<hr/>	
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	3
	Location	See Figure 38 & Table 109
	Critical facilities, buildings, infrastructure in hazard area	Old Town St. Peters Levee System - 2 government buildings, railroad; Elm Point Levee System - segment MO 370, railroad
	Severity	Low
	Vulnerability	Medium
	Potential losses	\$0
<hr/>		
High hazard potential dams	Summary & impact	High hazard potential dams do not have an impact
	Number	0
	Location	See Figures 20 & 44
	Critical facilities, buildings, infrastructure in hazard area	0

	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Charles County	VII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 44, Appendix B
	Liquefaction area(s) present	Yes
	St. Charles County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	2
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$469,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.20 City of Town and Country

City of Town & Country Hazard Assessments and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary risk statement	Town & Country is at medium risk for flooding due to proximity to Creve Coeur Creek	
	Previous occurrences	None	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	High	
	Location	Creve Coeur Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$27,000,000	3% of assessed value
	Critical facilities, buildings, infrastructure in hazard area	6 bridges, 2 schools, 1 major road	See figure 21
	Land use and development trends	Development in Town & Country has increased by 30% from 2014.	Development and redevelopment continues along I-64. Town & Country is primarily a residential and outdoor recreational area.
Repetitive losses	See Table 105 & 106		

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Town & Country Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Town & Country
	Number	7
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Medium
	Potential Losses	\$0
Levees	Summary & impact	With no levees present there is no impact to the City of Town & Country
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Medium
	Potential losses	\$0
High hazard potential dams	Summary & impact	Known high hazard potential dams have little impact on the City of Town & Country
	Number	1
	Location	See figures 21 & 45
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Medium

	Potential losses	\$0
Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Louis County	VIII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 45, Appendix B
	Liquefaction area(s) present	Yes
	St. Louis County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$451,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1 21 City of Union

City of Union Hazard Assessments and Vulnerabilities				
Hazard	Vulnerability	Assessment	Notes*	
Flood	Summary risk statement	Union is at medium risk for flooding due to its proximity to the Bourbeuse River		
	Previous occurrences	December 27 - 31, 2015; January 1, 2016; May 1 - 3, 2017 https://www.ncdc.noaa.gov/stormevents/		
	Vulnerability	Medium		
	Location	Bourbeuse River, Fenton Creek, Flat Creek, Birch Creek		
	Probability of future occurrences	High		
	Estimate of potential losses**	\$20,000,000	10% of assessed value	
	Critical facilities, buildings, infrastructure in hazard area	9 bridges, 4 nursing homes, 1 waste water facility	See figure 18	
	Land use and development trends	Development in Union increased by 21% from 2014	Residential development has occurred. Volpi Foods has expanded their facility. The Union Corporate Center has opened 46 acres for future commercial development	
	Repetitive losses	See Table 99 & 100		

*Absence of entry under Notes does not indicate missing data

****Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.**

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Union Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	With no sinkholes present there is no impact to the City of Union
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 42
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
	Levees	Summary & impact
Number		0
Location		See Figure 38
Critical facilities, buildings, infrastructure in hazard area		0
Severity		Low
Vulnerability		Low
Potential losses		\$0
High hazard potential dams		Summary & impact
	Number	0
	Location	See figures 18 & 42
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - Franklin County	VI
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 42, Appendix B
	Liquefaction area(s) present	Yes
	Franklin County earthquake events 2009 - 2016	3
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$71,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.22 City of Warson Woods

City of Warson Woods Hazard Assessments and Vulnerabilities				
Hazard	Vulnerability	Assessment	Notes*	
Flood	Summary risk statement	Warson Woods is at low risk for flooding		
	Previous occurrences	None	https://www.ncdc.noaa.gov/stormevents/	
	Vulnerability	High		
	Location	Flood zone(s) not present		
	Probability of future occurrences	High		
	Estimate of potential losses**	\$0	0% of assessed value	
	Critical facilities, buildings, infrastructure in hazard area	6 bridges, 2 schools, 1 major road	See figure 21	
	Land use and development trends	Development in Warson Woods has increased by 42% from 2014.	The City is primarily a residential area. Commercial development and redevelopment continues along Manchester Road.	
Repetitive losses	See Table 105 & 106			

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Warson Woods Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	With no sinkholes present there is no impact to the City of Warson Woods
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	With no levees present there is no impact to the City of Warson Woods
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	With no high hazard potential dams present there is no impact to the City of Warson Woods
	Number	0
	Location	See figures 21 & 45
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Louis County	VIII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 45, Appendix B
	Liquefaction area(s) present	No
	St. Louis County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$32,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.23 City of Wentzville

City of Wentzville Hazard Assessment and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary & impact	Wentzville is at low risk for flooding	
	Previous occurrences	2020	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	Low	Previous flood occurrences warranted FEMA natural disaster declarations and resulted in property damage
	Location	Peruque Creek, McCoy Creek, Dry Branch Creek, Enon Branch, Crossroads Creek, Spring Creek, Woodland Creek, Progress Creek, Rio Run	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$51,000,000	Estimated 5% of valuation
	Critical facilities, buildings, infrastructure in hazard area	10 bridges, water treatment plant	See Figure 20, Appendix B
	Land use and development trends	Development in Wentzville has increased by over 50% from 2014	Commercial and retail development continues to occur adjacent to Wentzville Parkway and I-70. Residential developments are also taking place. GM is investing over \$1 billion to expand their Wentzville Assembly Center.
	Repetitive losses	See Tables 103 & 104	

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Wentzville Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the City of Wentzville
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 44
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams do not have an impact
	Number	0
	Location	See Figures 20 & 44
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification -St. Charles County	VII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 44, Appendix B
	Liquefaction area(s) present	Yes
	St. Charles County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$412,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.24 City of Winchester

City of Winchester Hazard Assessments and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary risk statement	Winchester is at low risk for flooding	
	Previous occurrences	None	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	High	
	Location	Flood zone(s) not present	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$0	0% of assessed value
	Critical facilities, buildings, infrastructure in hazard area		See figure 21
	Land use and development trends	Development in Winchester has increased by 37% from 2014.	the City is primarily a residential area.
	Repetitive losses	See Table 105 & 106	

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of Winchester Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	With no sinkholes present there is no impact to the City of Winchester
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	With no levees present there is no impact to the City of Winchester
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	Known high hazard potential dams have little impact on the City of Winchester
	Number	1
	Location	See figures 21 & 45
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - St. Louis County	VIII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 45, Appendix B
	Liquefaction area(s) present	No
	St. Louis County earthquake events 2009 - 2016	0
	Government buildings in liquefaction areas	0
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$9,000,000

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 1.25 City of De Soto

City of DeSoto Hazard Assessments and Vulnerabilities			
Hazard	Vulnerability	Assessment	Notes*
Flood	Summary risk statement	DeSoto is at high risk for flooding due to proximity to Joachim Creek	
	Previous occurrences	April 18, 2013	https://www.ncdc.noaa.gov/stormevents/
	Vulnerability	High	
	Location	Joachim Creek	
	Probability of future occurrences	High	
	Estimate of potential losses**	\$1,733,832	3% of assessed value
	Critical facilities, buildings, infrastructure in hazard area	1 wastewater facility, 9 bridges, 1 railroad	See figure 19
	Land use and development trends	Development in DeSoto has increased by 34% from 2014	Residential and commercial development has occurred. DeSoto is primarily a residential area.
	Repetitive losses	See Table 101 & 102	

*Absence of entry under Notes does not indicate missing data

**Potential loss data taken from assessed city values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

City of De Soto Hazard Assessment and Vulnerabilities		
Hazard	Vulnerability	Assessment
Sinkholes	Summary & impact	With no sinkholes present there is no impact to the City
	Number	0
	Critical facilities, buildings, infrastructure in hazard area	0
	Location	See Figure 43
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	With no levees present there is no impact to the City
	Number	0
	Location	See Figure 38
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Medium
	Potential losses	\$0
High hazard potential dams	Summary & impact	With no high hazard potential dams present there is no impact on the City of DeSoto
	Number	0
	Location	See figures 19 & 43
	Critical facilities, buildings, infrastructure in hazard area	0
	Severity	Low
	Vulnerability	Medium
	Potential losses	\$0

Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - Jefferson County	VII
	Critical facilities, buildings, infrastructure in hazard area	All - See Figure 43, Appendix B
	Liquefaction area(s) present	Yes
	Jefferson County earthquake events 2009 - 2016	4
	Government buildings in liquefaction areas	1
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses*	\$1,733,832

*Potential loss data taken from assessed city values based on percentage of city area affected. For each county, the percent of land affected was estimated to be 25 - 50 %. See tables 57 - 67. To identify a city's percent of land affected, the Modified Mercalli classification for each county was taken into account as were any liquefaction areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

Percentages to Use to Calculate Assessed Valuation Affected by Earthquake			
County	Modified Mercalli Classification by County	% to use if city is without liquefaction	% to use if there are liquefaction areas
Franklin	VI	25	35
St Charles, Jefferson	VII	35	40
St. Louis City, St. Louis County	VIII	40	50

D 2.1 Rockwood R-VI School District

Rockwood R-VI School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
	County	St. Louis
	Location	See Figure 13
	Schools	30
	Change in number of schools 2014 - 2019	0
	Students	21,722
	Percent change in number of students 2014 - 2019	-2%
	Assessed property valuation	\$4,094,443,920
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	12
	Number near school buildings	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	1
	Location	See Figure 38 and Table 109
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
	High hazard potential dams	Summary & impact
Number		19
Number near school buildings		0
Location		See Figures 21 & 45

	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent, one building may be at risk
	Major waterways	Missouri , Meramec Rivers, and tributaries
	Location	See Figure 21
	School buildings in flood zones	1
	Percent of district impacted	20%
	Probability of occurrence	See Table 67
	Severity	High
	Vulnerability	High
	Potential losses	\$1,200,000,000
	Flood events in 2009 - 2019	4
Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification	VIII
	Location	See Figure 45
	Earthquake preparedness and drills	Yes*
	Distributes earthquake safety information**	Yes**
	St. Louis County earthquake events 2009 - 2016	0
	Schools in liquefaction areas	1
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Potential losses	\$2,000,000,000

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 2.2 St Clair R-XIII School District

St. Clair R-XIII School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
School district details	County	Franklin
	Location	See Figure 13
	Schools	5
	Change in number of schools 2014 - 2019	0
	Students	2,259
	Percent change in number of students 2014 - 2019	-7%
	Assessed property valuation	\$153,403,339
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	2
	Number near school buildings	0
	Location	See Figure 42
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams are present in the school district boundaries but do not have an impact
	Number	18
	Number near school buildings	0
	Location	See Figures 18 & 42
	Severity	Low

	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent, buildings are not at risk
	Major waterways	Meramec, Bourbeuse Rivers, and tributaries
	Location	See Figure 18
	School buildings in flood zones	0
	Percent of district impacted	15
	Probability of occurrence	See Table 59
	Severity	Low
	Vulnerability	Low
	Potential losses	\$15,000,000
	Flood events in 2009 - 2019	4
	Earthquake	Summary & impact
Modified Mercalli classification		VI
Location		See Figure 42
Earthquake preparedness and drills		*N/A
Distributes earthquake safety information**		Yes**
Franklin County earthquake events 2009 - 2016		3
Schools in liquefaction areas		0
Probability (chance magnitude 6.0 occurring through 2053)		25 - 45%
Severity		Low
Potential losses		\$38,000,000

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 2.3 Dunklin R – V School District

Hancock Place School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
School district details	County	St. Louis
	Location	See Figure 13
	Schools	3
	Change in number of schools 2014 - 2019	0
	Students	1,520
	Percent change in number of students 2014 - 2019	-3%
	Assessed property valuation	\$195,729,570
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	10
	Number near school buildings	2
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
Potential Losses	\$0	
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams are not present within the school district boundaries
	Number	0
	Number near school buildings	0
	Location	See Figures 21 & 45
	Severity	Low

	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent, buildings are not at risk
	Major waterways	Mississippi River, River Des Peres , Gravois Creek
	Location	See Figure 21
	School buildings in flood zones	0
	Percent of district impacted	10
	Probability of occurrence	See Table 65
	Severity	Low
	Vulnerability	Low
	Potential losses	\$19,000,000
	Flood events in 2009 - 2019	3
	Earthquake	Summary & impact
Modified Mercalli classification		VIII
Location		See Figure 45
Earthquake preparedness and drills		Yes*
Distributes earthquake safety information**		Yes**
St. Louis County earthquake events 2009 - 2016		0
Schools in liquefaction areas		0
Probability (chance magnitude 6.0 occurring through 2053)		25 - 45%
Severity		Low
Vulnerability		High
Potential losses	\$98,000,000	

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 2.4 Fort Zumwalt R – II School District

Fort Zumwalt R-II School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
School district details	County	St. Charles
	Location	See Figure 13
	Schools	25
	Change in number of schools 2014 - 2019	+2
	Students	18,125
	Percent change in number of students 2014 - 2019	-3.9%
	Assessed property valuation	\$2,721,552,032
	<hr/>	
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	12
	Number near school buildings	0
	Location	See Figure 44
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
<hr/>		
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	7
	Location	See Figure 38 & Table 109
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
<hr/>		
High hazard potential dams	Summary & impact	High hazard potential dams are present in the school district boundaries but do not have an impact
	Number	3
	Number near school buildings	0
	Location	See Figures 20 & 44

	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent, 2 buildings are at risk
	Major waterways	Mississippi River, Cuivre River, Peruque Creek, Dardenne Creek
	Location	See Figure 20
	School buildings in flood zones	2
	Percent of district impacted	35
	Probability of occurrence	See Table 63
	Severity	Low
	Vulnerability	Low
	Potential losses	\$544,000,000
	Flood events in 2009 - 2019	9
	Earthquake	Summary & impact
Modified Mercalli classification		VII
Location		See Figure 44
Earthquake preparedness and drills		Yes*
Distributes earthquake safety information**		Yes**
St. Charles County earthquake events 2009 - 2016		0
Schools in liquefaction areas		1
Probability (chance magnitude 6.0 occurring through 2053)		25 - 45%
Severity		Low
Vulnerability		High
Potential losses	\$1,088,000,000	

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 2.5 Francis Howell R – III School District

Francis Howell R-III School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
School district details	County	St. Charles
	Location	See Figure 13
	Schools	21
	Change in number of schools 2014 - 2019	0
	Students	17,855
	Percent change in number of students 2014 - 2019	-10%
	Assessed property valuation	\$2,846,631,685
	<hr/>	
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	20
	Number near school buildings	1
	Location	See Figure 44
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
<hr/>		
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	5
	Location	See Figure 38 & Table 109
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
<hr/>		
High hazard potential dams	Summary & impact	High hazard potential dams are present in the school district boundaries but do not have an impact
	Number	20
	Number near school buildings	0

	Location	See Figures 20 & 44
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent, buildings are not at risk
	Major waterways	Missouri River, Femme Osage Creek, Dardenne Creek
	Location	See Figure 20
	School buildings in flood zones	0
	Percent of district impacted	15
	Probability of occurrence	See Table 63
	Severity	Low
	Vulnerability	Low
	Potential losses	\$285,000,000
	Flood events in 2009 - 2019	8
	Earthquake	Summary & impact
Modified Mercalli classification		VII
Location		See Figure 44
Earthquake preparedness and drills		Yes*
Distributes earthquake safety information**		Yes**
St. Charles County earthquake events 2009 - 2016		0
Schools in liquefaction areas		0
Probability (chance magnitude 6.0 occurring through 2053)		25 - 45%
Severity		Low
Vulnerability		High
Potential losses	\$1,138,000,000	

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 2.6 Hancock Place School District

Hancock Place School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
School district details	County	St. Louis
	Location	See Figure 13
	Schools	3
	Change in number of schools 2014 - 2019	0
	Students	1,520
	Percent change in number of students 2014 - 2019	-3%
	Assessed property valuation	\$195,729,570
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	10
	Number near school buildings	2
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
Levees	Potential Losses	\$0
	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Severity	Low
	Vulnerability	Low
High hazard potential dams	Potential losses	\$0
	Summary & impact	High hazard potential dams are not present within the school district boundaries
	Number	0
	Number near school buildings	0
	Location	See Figures 21 & 45
	Severity	Low

	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent, buildings are not at risk
	Major waterways	Mississippi River, River Des Peres , Gravois Creek
	Location	See Figure 21
	School buildings in flood zones	0
	Percent of district impacted	10
	Probability of occurrence	See Table 65
	Severity	Low
	Vulnerability	Low
	Potential losses	\$19,000,000
	Flood events in 2009 - 2019	3
	Earthquake	Summary & impact
Modified Mercalli classification		VIII
Location		See Figure 45
Earthquake preparedness and drills		Yes*
Distributes earthquake safety information**		Yes**
St. Louis County earthquake events 2009 - 2016		0
Schools in liquefaction areas		0
Probability (chance magnitude 6.0 occurring through 2053)		25 - 45%
Severity		Low
Vulnerability		High
Potential losses	\$98,000,000	

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 2.7 Hazelwood School District

Hazelwood School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
School district details	County	St. Louis
	Location	See Figure 13
	Schools	32
	Change in number of schools 2014 - 2019	0
	Students	17,864
	Percent change in number of students 2014 - 2019	-2%
	Assessed property valuation	\$1,801,517,170
	<hr/>	
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	150
	Number near school buildings	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
<hr/>		
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	7
	Location	See Figure 38 & Table 109
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
<hr/>		
High hazard potential dams	Summary & impact	High hazard potential dams are not present within the school district boundaries
	Number	0
	Number near school buildings	0
	Location	See Figures 21 & 45

	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent, buildings are not at risk
	Major waterways	Missouri & Mississippi Rivers, Coldwater Creek, Watkins Creek
	Location	See Figure 21
	School buildings in flood zones	0
	Percent of district impacted	20
	Probability of occurrence	See Table 65
	Severity	Low
	Vulnerability	Low
	Potential losses	\$270,000,000
	Flood events in 2009 - 2019	3
	Earthquake	Summary & impact
Modified Mercalli classification		VIII
Location		See Figure 45
Earthquake preparedness and drills		Yes*
Distributes earthquake safety information**		Yes**
St. Louis County earthquake events 2009 - 2016		0
Schools in liquefaction areas		0
Probability (chance magnitude 6.0 occurring through 2053)		25 - 45%
Severity		Low
Vulnerability		High
Potential losses	\$900,000,000	

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 2.8 Lindbergh School District

Lindbergh School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
School district details	County	St. Louis
	Location	See Figure 13
	Schools	10
	Change in number of schools 2014 - 2019	+2
	Students	6,941
	Percent change in number of students 2014 - 2019	18%
	Assessed property valuation	\$1,556,487,200
	<hr/>	
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	41
	Number near school buildings	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
<hr/>		
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
<hr/>		
High hazard potential dams	Summary & impact	High hazard potential dams are present in the school district boundaries but do not have an impact
	Number	2
	Number near school buildings	0
	Location	See Figures 21 & 45
	Severity	Low

	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent, buildings are not at risk
	Major waterways	Meramec River, Gravois Creek, Mattesse Creek
	Location	See Figure 21
	School buildings in flood zones	0
	Percent of district impacted	15
	Probability of occurrence	See Table 65
	Severity	Low
	Vulnerability	Low
	Potential losses	\$233,000,000
	Flood events in 2009 - 2019	7
	Earthquake	Summary & impact
Modified Mercalli classification		VIII
Location		See Figure 45
Earthquake preparedness and drills		Yes*
Distributes earthquake safety information**		Yes**
St. Louis County earthquake events 2009 - 2016		0
Schools in liquefaction areas		0
Probability (chance magnitude 6.0 occurring through 2053)		25 - 45%
Severity		Low
Vulnerability		High
Potential losses	\$778,000,000	

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 2.9 Northwest R – I School District

Northwest R-I School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
School district details	County	Jefferson
	Location	See Figure 13
	Schools	10
	Change in number of schools 2014 - 2019	0
	Students	6,289
	Percent change in number of students 2014 - 2019	-6.3%
	Assessed property valuation	\$489,374,503
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	6
	Number near school buildings	0
	Location	See Figure 43
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams are present in the school district boundaries but do not have an impact
	Number	19
	Number near school buildings	0
	Location	See Figures 19 & 43
	Severity	Low

	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent, buildings are not at risk
	Major waterways	Big River, and Heads Creek
	Location	See Figure 19
	School buildings in flood zones	0
	Percent of district impacted	15
	Probability of occurrence	See Table 61
	Severity	Low
	Vulnerability	Low
	Potential losses	\$48,900,000
	Flood events in 2009 - 2019	4
	Earthquake	Summary & impact
Modified Mercalli classification		VII
Location		See Figure 43
Earthquake preparedness and drills		Yes*
Distributes earthquake safety information**		Yes**
Jefferson County earthquake events 2009 - 2016		4
Schools in liquefaction areas		0
Probability (chance magnitude 6.0 occurring through 2053)		25 - 45%
Severity		Low
Vulnerability		High
Potential losses		\$171,000,000

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 2.10 Ritenour School District

Ritenour School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
School district details	County	St. Louis
	Location	See Figure 13
	Schools	10
	Change in number of schools 2014 - 2019	+1
	Students	6,483
	Percent change in number of students 2014 - 2019	5%
	Assessed property valuation	\$576,910,550
	<hr/>	
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	0
	Number near school buildings	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
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Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
<hr/>		
High hazard potential dams	Summary & impact	High hazard potential dams are present in the school district boundaries but do not have an impact
	Number	1
	Number near school buildings	0

		See Figures 21 & 45
	Location	45
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent, buildings are not at risk
	Major waterways	Coldwater Creek, River des Peres tributary
	Location	See Figure 21
	School buildings in flood zones	0
	Percent of district impacted	3
	Probability of occurrence	See Table 65
	Severity	Low
	Vulnerability	Low
	Potential losses	\$17,000,000
	Flood events in 2009 - 2019	1
Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification	VIII
	Location	See Figure 45
	Earthquake preparedness and drills	Yes*
	Distributes earthquake safety information**	Yes**
	St. Louis County earthquake events 2009 - 2016	0
	Schools in liquefaction areas	1
Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%	

Severity	Low
Vulnerability	High
Potential losses	\$288,000,000

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 2.11 Valley Park School District

Valley Park School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
School district details	County	St. Louis
	Location	See Figure 13
	Schools	3
	Change in number of schools 2014 - 2019	0
	Students	902
	Percent change in number of students 2014 - 2019	-14%
	Assessed property valuation	\$193,180,250
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	2
	Number near school buildings	0
	Location	See Figure 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches would have an impact
	Number	1
	Location	See Figure 38 & Table 109
	Severity	Low
	Vulnerability	Low
	Potential losses	\$16,000,000
High hazard potential dams	Summary & impact	High hazard potential dams are not present in the school district boundaries so do not have an impact
	Number	0
	Number near school buildings	0
	Location	See Figures 21 & 45

	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent, buildings are not at risk as behind levee
	Major waterways	Meramec River, Fishpot Creek, Grand Glaize Creek
	Location	See Figure 21
	School buildings in flood zones	0
	Percent of district impacted	30
	Probability of occurrence	See Table 65
	Severity	Low
	Vulnerability	Low
	Potential losses	\$19,300,000
	Flood events in 2009 - 2019	11
Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification	VIII
	Location	See Figure 45
	Earthquake preparedness and drills	Yes*
	Distributes earthquake safety information**	Yes**
	St. Louis County earthquake events 2009 - 2016	0
	Schools in liquefaction areas	3
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
Potential losses	\$96,000,000	

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 2.12 Washington School District

Washington School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
School district details	County	Franklin & St. Charles Counties
	Location	See Figure 13
	Schools	10
	Change in number of schools 2014 - 2019	-1
	Students	4,121
	Percent change in number of students 2014 - 2019	-3%
	Assessed property valuation	\$695,981,292
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	6
	Number near school buildings	0
	Location	See Figures 42 & 44
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	2
	Location	See Figure 38 & Table 109
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams are present in the school district boundaries but do not have an impact
	Number	23
	Number near school buildings	0

	Location	See Figures 18, 20, 42 & 44
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent, 1 building is at risk
	Major waterways	Missouri River, Boeuf Creek, St. John's Creek, Dubois Creek, Labadie Creek & Fiddle Creek
	Location	See Figures & 20 18
	School buildings in flood zones	1
	Percent of district impacted	20
	Probability of occurrence	See Tables 59 & 63
	Severity	Low
	Vulnerability	Low
	Potential losses	\$104,000,000
	Flood events in 2009 - 2019	4
	Earthquake	Summary & impact
Modified Mercalli classification - Franklin County		VI
Modified Mercalli classification - St. Charles County		VII
Location		See Figures 42 & 44
Earthquake preparedness and drills		Yes*
Distributes earthquake safety information**		Yes**
Franklin County earthquake events 2009 - 2016		3
St. Charles County earthquake events 2009 - 2016		0
Schools in liquefaction areas	1	

Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
Severity	Low
Vulnerability	High
Potential losses	\$243,000,000

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

D 2.13 Meramec Valley R-III School District

Meramec Valley R III School District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
School district details	County	Franklin, Jefferson & St. Louis Counties (all school buildings are located in Franklin Co.)
	Location	See Figure 13
	Schools	9
	Change in number of schools 2014 - 2019	0
	Students	3,213
	Percent change in number of students 2014 - 2019	0%
	Assessed property valuation	\$414,519,763
Sinkholes	Summary & impact	Known sinkholes have virtually no impact to the school district
	Number	3
	Number near school buildings	0
	Location	See Figures 42, 43 & 45
	Severity	Low
	Vulnerability	Low
	Potential Losses	\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams are present in the school district boundaries but do not have an impact

	Number	14
	Number near school buildings	0
	Location	See Figures 18, 19, 21, 42, 43 & 45
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
Floods	Summary & impact	Flooding within school district boundaries has the potential to disrupt operations to some extent
	Major waterways	Meramec River, Brush Creek, Calvey Creek & Bourbeuse River
	Location	See Figures 18, 19 & 21
	School buildings in flood zones	0
	Percent of district impacted	15%
	Probability of occurrence	See Tables 59, 61 & 65
	Severity	Low
	Vulnerability	Low
	Potential losses	\$62,177, 964
	Flood events in 2009 - 2019	2
Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification - Franklin County	VI
	Modified Mercalli classification - Jefferson County	VII
	Modified Mercalli classification - St. Louis County	VIII
	Location	See Figures 42, 43 & 45
	Earthquake preparedness and drills	NA*
	Distributes earthquake safety information**	Yes**
	Franklin County earthquake events 2009 - 2016	3
	Jefferson County earthquake events 2009 - 2016	4
St. Louis County earthquake events 2009 - 2016	0	

Schools in liquefaction areas	0
Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
Severity	Low
Vulnerability	High
Potential losses	\$103,629,940

*Missouri law requires school districts in a Modified Mercalli Zone VII or above at a magnitude 7.6 earthquake to prepare earthquake preparedness and safety information, such as earthquake procedures and a disaster plan; conduct earthquake drills twice each year; and provide training.

**Missouri law also requires that at the beginning of the school year, all school districts in Missouri distribute to their students earthquake safety information which has been prepared by FEMA, SEMA (Earthquake Safety for Missouri Schools), or by agencies which are authorities in the area of earthquake safety. In many school districts earthquake safety information is also available on their websites.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau

Percentages to Use to Calculate Assessed Valuation Affected by Earthquake			
County	Modified Mercalli Classification by County	% to use if city is without liquefaction	% to use if there are liquefaction areas
Franklin	VI	25	35
St Charles, Jefferson	VII	35	40
St. Louis City, St. Louis County	VIII	40	50

D 3.1 Meramec Ambulance District

Meramec Ambulance District Hazard Assessment and Vulnerabilities

Hazard	Vulnerability	Assessment
Ambulance district details	County	Franklin, small portion St. Louis and Jefferson Counties to SE
	Service area	240 square miles - Pacific & unincorporated NE Franklin County
	Location	http://www.meramecems.org/pdfiles/MeramecBODSDmap.pdf
	Ambulance stations	4
	Ambulances	7
	Assessed property valuation	\$572,947,140
	Sinkholes	Summary & impact
Number		3
Number near ambulance stations		0
Location		See Figure 42
Severity		Low
Vulnerability		Low
Potential Losses		\$0
Levees	Summary & impact	Levee breaches have had little to no impact
	Number	0
	Location	See Figure 38
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0
High hazard potential dams	Summary & impact	High hazard potential dams are present in the ambulance district boundaries but do not have an impact
	Number	19
	Number near ambulance stations	0
	Location	See Figures 18 & 42
	Severity	Low
	Vulnerability	Low
	Potential losses	\$0

Floods	Summary & impact	Flooding within ambulance district boundaries has the potential to disrupt operations to some extent, buildings are not at risk
	Major waterways	Missouri, Meramec & Bourbeuse Rivers, and tributaries
	Location	See Figure 18
	Ambulance stations in flood zones	0
	Percent of district impacted	15
	Probability of occurrence	See Table 59
	Severity	Low
	Vulnerability	Low
	Potential losses	\$572,000,000
	Flood events in 2009 - 2019	7
Earthquake	Summary & impact	Should there be a significant New Madrid earthquake or one from another fault, the damage and impact to the entire region will be severe
	Modified Mercalli classification	VI
	Location	See Figure 42
	Franklin County earthquake events 2009 - 2016	3
	Probability (chance magnitude 6.0 occurring through 2053)	25 - 45%
	Severity	Low
	Vulnerability	High
	Potential losses	\$172,000,000

*Potential loss data taken from assessed city/county values as a percentage of potential losses in flood-prone areas. Property assessment numbers were used in lieu of appraisal values due to the fact that while a disaster impacts actual school or city buildings to some extent, the impact to tax revenues and with them, the ability to rebuild/repair, is much more significant and not covered by insurance as would damage to a jurisdiction's own buildings.

Sources: East-West Gateway Council of Governments; Federal Emergency Management Agency; Missouri Department of Natural Resources; Missouri Spatial Data Information Service; U.S. Census Bureau