CITY OF DALLAS ADDENDUM

Purpose

This document serves as the City of Dallas' Addendum to the Polk County Multi-Jurisdictional Natural Hazards Mitigation Plan (MNHMP, NHMP). This addendum supplements information contained in Volume I (Basic Plan) of this NHMP, which serves as the foundation for this jurisdiction's addendum, and Volume III (Appendices), which provides additional information (particularly regarding participation and mitigation strategy). This addendum meets the following requirements:

- Multi-jurisdictional **Plan Adoption** §201.6(c)(5),
- Multi-jurisdictional **Participation** §201.6(a)(3),
- Multi-jurisdictional **Mitigation Strategy** §201.6(c)(3)(iv), and
- Multi-Jurisdictional **Risk Assessment** §201.6(c)(2)(iii).

Plan Process, Participation, and Adoption

This section of the NHMP addendum addresses 44 CFR 201.6(c)(5), *Plan Adoption*, and 44 CFR 201.6(a)(3), *Participation.*

In the Fall of 2016, the Oregon Partnership for Disaster Resilience (OPDR) at the University of Oregon's Community Service Center (CSC) partnered with the Oregon Military Department's Office of Emergency Management (OEM), and Polk County and cities, including Dallas, to update their NHMP, which expired October 14, 2014. This project is funded through the Federal Emergency Management Agency's (FEMA) FY14 Pre-Disaster Mitigation Competitive Grant Program (PDMC-PL-10-OR-2014-002).

By developing this addendum to the Polk County NHMP, locally adopting it, and having it approved by FEMA, Dallas will regain eligibility for FEMA Hazard Mitigation, Pre-Disaster Mitigation, and Flood Mitigation Assistance grant program funds.

The Polk County NHMP, and Dallas addendum, are the result of a collaborative effort between citizens, public agencies, non-profit organizations, the private sector, and regional organizations. A project steering committee guided the process of developing the plan. For more information on the composition of the steering committee see the *Acknowledgements*, *Plan Summary*, and *Plan Process* (Volume III, Appendix A).

The Community Development/Operations Director of Dallas is the designated local convener and will take the lead in implementing, maintaining, and updating the addendum to the NHMP in collaboration with the designated convener of the Polk County NHMP (County Planning Department).

Representatives from the City of Dallas steering committee convened on the following occasions (see Appendix A for more information):

- July 27, 2016 - Polk County NHMP Kick-Off Meeting
- October 18, 2016 – Polk County NHMP Second Meeting
- December 6, 2016 – Dallas Steering Committee Meeting #1
- December 13, 2016 – Dallas Steering Committee Meeting #2

The city's addendum reflects decisions decided upon at the plan update meeting and during subsequent work and communication with OPDR.

The Dallas Steering Committee was comprised of the following representatives:

- Convener, Jason Locke, Community Development/Operations Director
- Ron Foggin, City Manager
- Tom Simpson, Police Chief
- Fred Hertel, Fire Chief
- Fred Braun, City Engineer

Public participation was achieved with the establishment of the steering committee, which was comprised of city officials and special districts representing different organizations and sectors. The Steering Committee was closely involved throughout the development of the plan and served as the local oversight body for the plan's development. In addition, community members outside of the steering committee were provided an opportunity for comment via the plan review process (see Appendix A for more information).

The Polk County NHMP was approved by FEMA on February 6, 2018 and the Dallas addendum was adopted via resolution on January 16, 2018. This NHMP is effective through February 5, 2023.

Mitigation Strategy

This section of the NHMP addendum addresses 44 CFR 201.6(c)(3(iv), *Mitigation Strategy*.

During the 2016/2017 Polk County update process OPDR re-evaluated the Action Items with the county and local steering committees. Following the review actions were updated, noting what accomplishments had been made, and whether the actions were still relevant; any new action items were identified at this time (see Appendix A for more information). Each jurisdiction developed a list of priority actions any actions that were not prioritized were placed in an Action Item Pool and will be considered during the annual Implementation and Maintenance meetings.

Priority Actions

The city is listing a set of high priority actions in an effort to focus attention on an achievable set of high leverage activities over the next five-years. The city's priority actions are listed below in Table DA-1.

Action Item Pool

Table DA-2 presents a pool of mitigation actions. This expanded list of actions is available for local consideration as resources, capacity, technical expertise and/or political will become available.

The majority of these actions carry forward from prior versions of this plan.

Table DA-1 Dallas Priority Action Items

Action Item #	Description	Managing Department / Agency	Timeline	Potential Funding Source(s)	Benefit- Costs / Technical Feasibility
Priority Actions					
Multi-Hazard Actions (MH)					
MH #1	Perform hydrologic and hydraulic engineering, and drainage studies and analyses. Use information obtained for feasibility determination and project design. This information should be a key component, directly related to a proposed project.	Community Development	Ongoing	General Fund	BC: TBD TF: Yes
MH #2	Harden utility headers located along river embankments to mitigate potential flood, debris, and erosion damages.	Public Works	Ongoing	General Fund	BC: TBD TF: Yes
Earthquake Action (EQ)					
EQ #1	Evaluate critical public facility seismic performance for fire stations, public works buildings, potable water systems, wastewater systems, electric power systems, and bridges within the jurisdiction.	Community Development, Police, Fire, Public Work	Short Term (0-2 Years)	General Fund, HMGP, HMA	BC: TBD TF: Yes
Flood Actions (FL) - *including erosion*					
FL #1	Install bank protection such as rock, concrete, asphalt, vegetation, or other armoring or protective materials to provide river bank protection.	Public Works	Ongoing	General Fund, HMGP, HMA, NRCS	BC: TBD TF: Yes
FL #2	Establish flood mitigation priorities for critical facilities and residential and commercial buildings located within the 100-year floodplain using survey elevation data.	Community Development, Public Works	Short Term (0-2 Years)	General Fund, HMA	BC: TBD TF: Yes
Wildfire Action (WF)					
WF #1	Participate in the maintenance, implementation, and update of the Polk County Community Wildfire Protection Plan (2009).	PC SW Rural Fire District Polk County & City Manager	Ongoing	General Fund	BC: TBD TF: Yes

Source: City of Dallas NHMP Steering Committee, 2017.
MH=Multi-Hazard, EQ=Earthquake, FL=Flood, WF=Wildfire

Table DA-2 Dallas Action Item Pool

Action Item #	Description	Managing Department / Agency	Timeline	Potential Funding Source(s)	Benefit- Costs / Technical Feasibility
Action Item Pool					
Multi-Hazard Actions (MH)					
MH #3	Cross reference and incorporate mitigation planning provisions into all community planning processes such as comprehensive, capital improvement, land use, transportation plans, etc to demonstrate multi- benefit considerations and facilitate using multiple funding source consideration.	Community Development	Ongoing	General Fund	BC: TBD TF: Yes
MH #4	Develop, produce, and distribute information materials concerning mitigation, preparedness, and safety procedures for all natural hazards.	Community Development, Police, Fire	Ongoing	General Fund, HMGP, HMA	BC: TBD TF: Yes
Drought Actions (DR) - *including expansive soils*					
DR #1	Require building design, engineering, and construction processes that address expansive soil conditions at potentially affected building sites.	Community Development	Ongoing	General Fund	BC: TBD TF: Yes
DR #2	Require road design, engineering, and construction processes that address expansive soil conditions. Water absorption prevention, impermeable membrane, soil compaction, and drainage methods need to be considered once geologic studies determine soil composition.	Public Works	Ongoing	General Fund	BC: TBD TF: Yes
Earthquake Action (EQ)					
EQ #2	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current Building Codes.	Community Development	Short Term (0-2 Years)	General Fund, HMGP, HMA, SRGP	BC: TBD TF: Yes
Flood Actions (FL) - *including erosion*					
FL #3	Develop an outreach program to educate public concerning NFIP participation benefits, floodplain development, land use regulation, and NFIP flood insurance availability to facilitate continued compliance with the NFIP.	Community Development	Short Term (0-2 Years)	General Fund, HMA	BC: TBD TF: Yes
FL #4	Develop, implement, and enforce floodplain management ordinances.	Community Development, Public Works	Ongoing	General Fund, FMA	BC: TBD TF: Yes

Source: City of Dallas NHMP Steering Committee, 2017
MH=Multi-Hazard, DR=Drought, EQ=Earthquake, FL=Flood

Table DA-2 Dallas Action Item Pool (continued)

Action Item #	Description	Managing Department / Agency	Timeline	Potential Funding Source(s)	Benefit- Costs / Technical Feasibility
Action Item Pool					
FL #5	Implement mitigation measures identified by critical facilities' owners, and other facility owners, to protect facilities located within the 100-year floodplain.	Community Development, Public Works	Short Term (0-2 Years)	General Fund, HMA	BC: TBD TF: Yes
FL #6	Increase culvert size to increase its drainage efficiency.	Public Works	Ongoing	General Fund, FMA	BC: TBD TF: Yes
Landslide Actions (LS)					
No specific actions identified; see multi-hazard actions.					
Volcano Actions (VE)					
VE #1	Update emergency response planning and develop client focused outreach program for ash fall events affecting river, air, and highway transportation, and industrial facilities and operations.	City Manager	Long Term (5+ Years)	General Fund, NOAA/ NWS	BC: TBD TF: Yes
VE #2	Evaluate capability of water treatment plant to deal with high turbidity from ash falls, update emergency response plans, and upgrade treatment facilities' physical plant to deal with ash falls.	City Manager & Public Works	Short Term (0-2 Years)	General Fund, NOAA/ NWS	BC: TBD TF: Yes
Wildfire Actions (WF)					
WF #2	Develop, adopt, and enforce burn ordinances that require burn permits, restricts campfires, and controls outdoor burning.	PC SW Rural Fire District Polk County & City Manager	Ongoing	General Fund	BC: TBD TF: Yes
WF #3	Develop outreach program to educate and encourage fire-safe construction practices for existing and new construction in high risk areas.	PC SW Rural Fire District Polk County & City Manager	Ongoing	General Fund	BC: TBD TF: Yes
WF #4	Develop outreach program to educate and encourage home landscape cleanup (defensible space) and define debris disposal programs.	PC SW Rural Fire District Polk County & City Manager	Ongoing	General Fund	BC: TBD TF: Yes
Windstorm Action (WS)					
WD #1	Identify and prioritize critical facilities' overhead utilities that could be placed underground to reduce power disruption from windstorm / tree blow down damage.	Public Works & Pacific Power & Light	Mid-Term (2-5 Years)	General Fund, HMGP, HMA, Utility Co.	BC: TBD TF: Yes

Source: City of Dallas NHMP Steering Committee, 2017
FL = Flood, VE=Volcano, WF=Wildfire, WD=Windstorm

Table DA-2 Dallas Action Item Pool (continued)

Action Item #	Description	Managing Department / Agency	Timeline	Potential Funding Source(s)	Benefit- Costs / Technical Feasibility
Action Item Pool					
Winter Storm Actions (WT)					
WS #1	Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe winter storms.	Public Works	Short Term (0-2 Years)	General Fund	BC: TBD TF: Yes
WS #2	Update or develop, implement, and maintain jurisdictional debris management plans.	Public Works	Mid-Term (2-5 Years)	General Fund, PA	BC: TBD TF: Yes
WS #3	Develop and maintain severe winter storm public outreach program defining mitigation activity benefits through educational outreach aimed at households and businesses while targeting special needs populations.	Police, Fire, Public Work	Short Term (0-2 Years)	General Fund, NOAA/ NWS, HMGP	BC: TBD TF: Yes

Source: City of Dallas NHMP Steering Committee, 2017
WS = Winter Storm

Plan Implementation and Maintenance

The City Council will be responsible for adopting the City of Dallas addendum to the Polk County NHMP. This addendum designates a coordinating body and a convener to oversee the development and implementation of action items. Because the city addendum is part of the county's multi-jurisdictional NHMP, the city will look for opportunities to partner with the county. The city's steering committee will convene after re-adoption of the City of Dallas addendum on an annual schedule; the county is meeting on a semi-annual basis and will provide opportunities for the cities to report on NHMP implementation and maintenance during their meetings. The City Clerk will serve as the convener and will be responsible for assembling the steering committee (coordinating body). The steering committee will be responsible for:

- identifying new risk assessment data,
- reviewing status of mitigation actions,
- identifying new actions, and
- seeking funding to implement the city's mitigation strategy (actions).

The convener will also remain active in the county's implementation and maintenance process (see Volume I, Section 4 for more information).

The city will utilize the same prioritization process as the county (See Volume I, Section 4: Plan Implementation and Maintenance and Volume III, Appendix C: Economic Analysis of Natural Hazard Mitigation Projects for more information).

Implementation through Existing Programs

Many of the Natural Hazards Mitigation Plan's recommendations are consistent with the goals and objectives of the city's existing plans and policies. Where possible, the City of Dallas will implement the NHMP's recommended actions through existing plans and policies. Plans and policies already in existence have support from local residents, businesses, and policy makers. Many land-use, comprehensive, and strategic plans get updated regularly, allowing them to adapt to changing conditions and needs. Implementing the NHMP's action items through such plans and policies increases their likelihood of being supported and implemented.

Dallas' acknowledged comprehensive plan is the Dallas Comprehensive Plan. The Oregon Land Conservation and Development Commission first acknowledged the plan in 1998. The City last amended the plan in July 2013. The City implements the plan through the Dallas Zoning and Development Code, which was last amended in 2016.

Dallas currently has the following plans, programs, and policies that relate to natural hazard mitigation. For a complete list visit the city website:

Table DA-3 Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Name	Effects on Hazard Mitigation
Plans	Emergency Operations Plan	Identifies emergency planning, policies, procedures, and response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies.
	Downtown Commercial Master Plan	Guides development and future growth
	Comprehensive Plan	The Dallas Comprehensive Plan includes goals and policies that provide specific direction in making "quasi-judicial" land use decisions; i.e., decisions that require judgment in the application of general policies to specific situations, such as zone changes, annexations, conditional use permits and major variances.
	Transportation System Plan (2008)	The purpose of the TSP is to develop a plan that addresses the transportation issues and needs for all users of Dallas's transportation network over a 20-year planning horizon. The TSP provides for a safe, efficient, multi-modal transportation network.
	Master Sewer Plan	Provides a description and analysis of sewer system and outlines planned improvements.
	Master Water Plan	Provides a description and analysis of water system and outlines planned improvements.
	Stormwater Master Plan	Identifies and prioritizes capital improvements relating to the existing stormwater collection and conveyance system.
	Public Facilities Plan	Comp Plan, Chapter 7. To provide a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for community development.
	Rickreall Creek Basin Plan	The City shall continue to participate in a Watershed Council and coordinate with Polk County, the Water Resources Department and affected property owners in the development and implementation of the Rickreall Creek Basin Plan.

	Rickreall Watershed Management Strategies Assessment (2013)	Inventories the watershed with the goal of identify and prioritize beneficial uses of the watershed while understand its ecological function and is used to assist with management strategies.
Programs	National Flood Insurance Program (NFIP)	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods.
	Polk Soil & Water Conservation District	The mission of the Polk/Dallas Field Office Service Area is to promote the conservation, wise use and sustained production of the soil, water and related resources.
Policies (Municipal Codes)	Ash Creek Water Control District	Provides a system of responsibilities and outlines planned improvements.
	City Code (May 2016)	Delineates policies, requirements, and responsibilities.
	Development Code Zoning Map	Guides the City of Dallas's community development
	Dallas Charter	To provide for the government of the city of Dallas, Polk County, Oregon.
	Floodplain Ordinance No. 1670	Guides community development within the known floodplain. Comp Plan, Chapter 6 Sec 6.2.6 and Floodplain Ordinance 1670. The City shall ensure against flood damage to persons and property through the effective implementation of flood plain regulations, consistent with FEMA standards.

Table DA-4 Administrative and Technical Resources for Hazard Mitigation

Staff/Personnel Resources	Department/Division Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	Com Dev Jason Locke Police: Jay Fox
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Community Development Director: Jason Locke
Planner(s) or engineer(s) with an understanding of manmade or natural hazards	Senior Planner: Suzanne Dufner
Floodplain manager	Jason Locke, Community Development Director
Personnel skilled in GIS and/or HAZUS-MH	Public Works: Tom Gilson, Frank Anderson
Director of Emergency Services	EMS Chief: Fred Hertel
Finance (grant writers, purchasing)	Cecilia Ward
Public Information Officers	Emily Gagner, Tom Simpson

Table DA-5 Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
General funds	Yes
Authority to levy taxes for specific purposes	Elections to seek voter approval for a serial tax levy or bond measure to be used exclusively for street improvements.
Incur debt through general obligation bonds	No
Incur debt through special tax and revenue bonds	No
Incur debt through private activity bonds	No

Note: See Appendix D – Grant Programs for additional financial resources.

Continued Public Participation

Keeping the public informed of the city's efforts to reduce the city's risk to future natural hazards events is important for successful plan implementation and maintenance. The city is committed to involving the public in the plan review and updated process. See Volume I, Section 4, for more information.

Plan Maintenance

The Polk County Multi-Jurisdictional Natural Hazards Mitigation Plan and city addendum will be updated every five years in accordance with the update schedule outlined in the Disaster Mitigation Act of 2000. During the county plan update process, the city will also review and update its addendum. The convener will be responsible for convening the steering committee to address the questions outlined below.

- Are there new partners that should be brought to the table?
- Are there new local, regional, state, or federal policies influencing natural hazards that should be addressed?
- Has the community successfully implemented any mitigation activities since the plan was last updated?
- Have new issues or problems related to hazards been identified in the community?
- Are the actions still appropriate given current resources?
- Have there been any changes in development patterns that could influence the effects of hazards?
- Have there been any significant changes in the community's demographics that could influence the effects of hazards?
- Are there new studies or data available that would enhance the risk assessment?
- Has the community been affected by any disasters? Did the plan accurately address the impacts of this event?

These questions will help the steering committee determine what components of the mitigation plan need updating. The steering committee will be responsible for updating any deficiencies found in the plan.

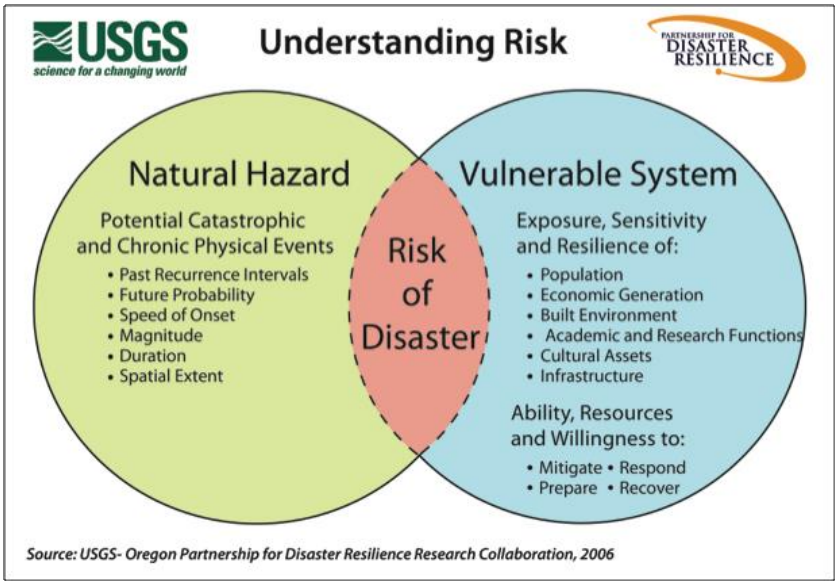
Risk Assessment

This section of the NHMP addendum addresses 44 CFR 201.6(b)(2) - Risk Assessment. In addition, this chapter can serve as the factual basis for addressing Oregon Statewide Planning Goal 7 – Areas Subject to Natural Hazards. Assessing natural hazard risk has three phases:

- **Phase 1:** Identify hazards that can impact the jurisdiction. This includes an evaluation of potential hazard impacts – type, location, extent, etc.
- **Phase 2:** Identify important community assets and system vulnerabilities. Example vulnerabilities include people, businesses, homes, roads, historic places and drinking water sources.
- **Phase 3:** Evaluate the extent to which the identified hazards overlap with, or have an impact on, the important assets identified by the community.

The local level rationale for the identified mitigation strategies (action items) is presented herein, and within Section 2, *Risk Assessment*, and Appendix B, *Community Profile*. The risk assessment process is graphically depicted in Figure DA-1 below. Ultimately, the goal of hazard mitigation is to reduce the area of risk, where hazards overlap vulnerable systems.

Figure DA-1 Understanding Risk



Hazard Analysis Methodology

This NHMP utilizes a hazard analysis methodology that was first developed by FEMA circa 1983, and gradually refined by the Oregon Military Department's Office of Emergency Management over the years.

The methodology produces scores that range from 24 (lowest possible) to 240 (highest possible). Vulnerability and probability are the two key components of the methodology. Vulnerability examines both typical and maximum credible events, and probability endeavors to reflect how physical changes in the jurisdiction and scientific research modify the historical record for each hazard. Vulnerability accounts for approximately 60% of the total score, and probability approximately 40%.

This method provides the jurisdiction with a sense of hazard priorities, or relative risk. It doesn't predict the occurrence of a particular hazard, but it does "quantify" the risk of one hazard compared with another. By doing this analysis, planning can first be focused where the risk is greatest.

In this analysis, severity ratings, and weight factors, are applied to the four categories of history, vulnerability, maximum threat (worst-case scenario), and probability as shown in the table below. See Volume I, Section 2 (Risk Assessment) for more information.

Hazard Analysis

The Dallas steering committee developed their hazard vulnerability assessment (HVA), using the county's HVA as a reference. Changes from the county's HVA were made where appropriate to reflect distinctions in vulnerability and risk from natural hazards unique to Dallas, which are discussed throughout this addendum.

Table DA-6 shows the HVA matrix for Dallas showing each hazard listed in order of rank from high to low. For local governments, conducting the hazard analysis is a useful step in

planning for hazard mitigation, response, and recovery. The method provides the jurisdiction with sense of hazard priorities, but does not predict the occurrence of a particular hazard.

Two chronic hazards (flood and windstorm) and one catastrophic hazard (Cascadia Subduction Zone earthquake) rank as the top hazard threats to the city (Top Tier). The Windstorm, drought, and crustal earthquake hazards comprise the next highest ranked hazards (Middle Tier), while wildfire, landslide, and volcano hazards comprise the lowest ranked hazards (Bottom Tier).

Table DA-6 Hazard Analysis Matrix – Dallas

Hazard	History	Probability	Vulnerability	Maximum Threat	Total Threat Score	Hazard Rank	
Flood - Riverine	14	70	30	80	194	#1	*Top Tier*
Winter Storm	14	56	25	70	165	#2	
Earthquake - Cascadia	2	21	40	100	163	#3	
Windstorm	10	42	25	60	137	#4	*Middle Tier*
Drought	6	28	20	80	134	#5	
Earthquake - Crustal	4	14	25	70	113	#6	
Wildfire (WUI)	4	14	5	40	63	#7	*Bottom Tier*
Landslide	2	14	10	20	46	#8	
Volcano	2	7	15	20	44	#9	

Source: Dallas NHMP Steering Committee, 2017.

Table DA-7 categorizes the probability and vulnerability scores from the hazard analysis for the city and compares the results to the assessment completed by the Polk County NHMP Steering Committee (areas of differences are noted with **bold** text within the city ratings). The city ranked their vulnerability to Cascadia Subduction Zone earthquakes higher than the county.

Table DA-7 Probability and Vulnerability Comparison

	Dallas		County	
Hazard	Probability	Vulnerability	Probability	Vulnerability
Drought	Moderate	Moderate	Moderate	Moderate
Earthquake (Cascadia)	Low	**High**	Moderate	Moderate
Earthquake (Crustal)	**Low**	Moderate	Moderate	Moderate
Flood	High	Moderate	High	Moderate
Landslide	**Low**	Low	High	Low
Volcano	Low	**Low**	Low	Moderate
Wildfire	**Low**	**Low**	Moderate	Moderate
Windstorm	**Moderate**	**Moderate**	High	High
Winter Storm	High	**Moderate**	High	High

Source: Dallas NHMP Steering Committee and Polk County NHMP Steering Committee, 2017.

Between 2010 and 2015 the City grew by 450 people (3%) and median household income decreased by 8% (see Appendix B). New development has complied with the standards of the Oregon Building Code and the city's development code including their floodplain ordinance. During this period Whitworth Elementary School and the Dallas Fire Station

received Seismic Rehabilitation Grants for structural retrofits of their facilities. As such changes in population, demographics, and development have had a negligible impact upon vulnerability. However, decreased household income within the community may be a signal that segments of the community may have a difficult time recovering from a natural hazard. See specific hazard sections below for more information.

Community Asset Identification

This section provides information on city specific assets. For additional information on the characteristics of Dallas, in terms of geography, environment, population, demographics, employment and economics, as well as housing and transportation see Volume III, Appendix B, *Community Profile*. Many of these community characteristics can affect how natural hazards impact communities and how communities choose to plan for natural hazard mitigation. Considering the city specific assets during the planning process can assist in identifying appropriate measures for natural hazard mitigation.

Community Characteristics

Dallas is located in the mid-Willamette Valley near the foothills of the Coast Range and is located on Rickreall Creek covering an area of about 4.8 square miles. The climate of Dallas is moderate; the average monthly temperatures range from 49 – 82 degrees in July and August, and 33-46 degrees in December and January, and the city receives approximately 48 inches of rain each year[1]. Monthly precipitation is about 6-9 inches during the wetter months of November – March, and average about 0.3-1.3 inches during the drier months of June - September. The city's topography is relatively flat.

Economy

Dallas benefits from its location to Salem which is the State Capital and a regional center for industrial technology, engineering, research, commerce, and health care. Dallas has some manufacturing businesses, however, most employment is outside of the city.

Asset Inventory

Asset inventory is the first step of a vulnerability analysis. Assets that may be affected by hazard events include population, residential and nonresidential buildings, critical facilities, and infrastructure.

The asset inventory delineates the City's existing building and infrastructure assets and insured values and are identified in detail in Table DA-8 and Map DA-1 (Attachment A).

Table DA-8 Dallas Critical Facilities and Infrastructure

Facility Type	Name / Number	Address	Value[1]
Government	Dallas City Hall	187 SE Court	$3.1 Million
	Dallas Public Works	820 SW Ash	$1.2 Million
	Dallas Civic Center	Jefferson Street	In City Hall
	Dallas Public Library	950 Main Street	$1.2 Million

[1] Western Regional Climate Center, "Dallas 2 NE, OR (352112)". Retrieved November 22, 2016.

Facility Type	Name / Number	Address	Value[1]
	Polk County Courthouse	850 Main Street	Unknown
	Polk County Jail	883 SE Jefferson Street	Unknown
	County Maintenance Shop		Unknown
	City of Dallas Animal Shelter	350 Main Street	$500,000
	Oregon Military Department & National Guard	817 SW Church	
Emergency Response	Dallas Fire Department	910 SE Shelton	$1.82 Million
	Dallas Police Department	In City Hall	In City Hall
	Dallas Ambulance Service	SE Washington	$469,000
	County Emergency Operations Center	850 Main Street	
Educational	School Administrative Offices	111 SW Ash Street	Unknown
	Dallas High School	901 SE Ash Street	Unknown
	LaCreole Middle School	701 SE La Creole	$12,236,700
	Lyle Elementary School	185 SW Levens	District
	Oakdale Heights Elementary School	1375 SW Maple	$6,109,810
Educational	Whitworth Elementary School	1151 SE Miller	$7,030,250
	Morrison Campus Alternative School	1251 Main Street	Unknown
	Faith Christian School	2290 E Ellendale Ave	Unknown
	Luckiamute Valley Charter Schools	12975 Kings Valley Hwy	Unknown
	Chemeketa Community College (satellite campus)	1340 SE Holman Ave	Unknown
Care Facility	West Valley Hospital / Emergency Room	525 SE Washington Street	Unknown
	West Valley Physicians & Surgeons Clinic	555 SE Washington Street	Unknown
	Dallas Family Medicine	641 SE Miller Avenue	Unknown
	Flaming Medical Center	1000 SE Uglow Avenue	Unknown
	Polk County Family Planning	182 SW Academy Street # 302	Unknown
	Sable House (shelter)	289 E Ellendale Avenue # 701	$ 350,000
	Dallas Senior Center	955 SE Jefferson Street	Unknown
	Dallas Retirement Village-Apartments/Townhouses	310 W. Ellendale Avenue	Unknown
	Dallas Retirement Village-Assisted Living	340 NW Brentwood Avenue	Unknown
	Dallas Retirement Village-Health Center	377 NW Jasper Street	Unknown
	Jefferson Manor Residential Care	664 SE Jefferson Street Dallas, OR 97338	Unknown
	Four Seasons Residential Care Facility	280 SE Uglow St	Unknown
	Ellendale Home	511 E Ellendale Avenue Dallas, OR 97338	Unknown
	Medical Arts Center	200 SE Washington Street	Unknown
	South View Medical Arts	531 SE Clay Street	Unknown
	Valley Community Hospital	550 SE Clay Street	Unknown
Community	Dallas Aquatic Center	1005 SE La Creole Drive	$ 7.0 Million
	Dallas City Park		$ 2.5 Million
	Birch Street Park		$ 200,000
	Gala Park		$ 350,000
	Kingsborough Park		$ 300,000
	Rotary Park		$150,000

Facility Type	Name / Number	Address	Value[1]
	Polk County Fairgrounds	520 N Pacific Hwy, Rickreall	Unknown
	Hunter Aboretum		$500,000
	Dallas Cemetery	2065 SW Fairview Avenue	Unknown
	Guthrie Park Community Center	4320 Kings Valley Hwy	Unknown
	Historical Building List		Unknown
	Apostolic Faith Church	217 SW Court Street	$412,910
	Berean Baptist Church	1156 SE Holman Avenue	Unknown
	Bridgport Community Church	16930 Bridgeport Road	Unknown
	Christian & Mission Alliance		Unknown
	Church of Dallas		Unknown
	Church of Christ	691 NE Kings Valley Hwy	$704,060
	Church of Christ of Latter Day Saints	1401 SW 13th Street	$2,627,440
Community	Dallas Alliance Church	775 E Ellendale Avenue	Unknown
	Dallas Church of the Nazarene	1151 SE Miller Avenue	Unknown
	Dallas Evangelical Church	783 SW Church Street	$286,520
	Evangelical Bible Church	1175 SE Howe Street	Unknown
	Faith Evangelical Free Church	2290 E Ellendale Avenue	$3,043,040
	Falls City First Christian Church	233 S Main St, Falls City	
	First Baptist Church	245 SW Church Street	$637,050
	First Presbyterian Church	879 SW Levens Street	$974,100
	Grace Community Fellowship	598 E Ellendale Avenue	Unknown
	Kingdom Hall Jehovah's Witnesses	233 SE Dimick	Unknown
	Jesus Our Jubilee Ministries	174 SW River Drive	$444,030
	Living Word Faith Fellowship	830 SE Shelton Street	$427,800
	Mennonite Brethren Church of Dallas	976 SW Hayter Street	$813,080
	Salt Creek Baptist Church	15075 Salt Creek Road	Unknown
	Seventh-Day Adventist	589 SW Birch Street	Unknown
	St. Thomas Episcopal Church	1486 SW Levens Street	Unknown
	Trinity Lutheran Church	450 SE Washington St	$1,135,270
	United Methodist Church	565 SE Lacreole Drive	$1,901,570
	Valley Life Center Assembly of God	1795 SE Miller Avenue	Unknown
	Dilbert Hunter Arboretum	187 SE Court Street	$500,000
	Basket Slough Wildlife Refuge		Unknown
	Cross Creek Golf Course	13935 Highway 22	Unknown
	Dallas Retirement Village	377 NW Jasper Street	Unknown
	Itemizer Observer Newspaper	147 SE Court Street	Unknown
State and Federal Highways	State Hwy 222, (King's Valley Hwy)	3 miles within city	(3*$2.2 Million/Mile)= $6.6M
Railroads	Portland Western RR Company (Industrial use)	5 miles within city	Unknown
Bridges	LaCreole Bridge		$1.2 Million
	Levens Street Bridge		$ 1.3 Million
	Godsey Road Bridge		$ 200,000
	Main Street & Jefferson Br.		$ 3.0 Million
Transportation Facilities	Local Streets & Roads	54 miles in city	$1.5 Million/ Mile
	Transit Authority (Bus) Cherriot Bus Service-Salem		Unknown
	School Bus Facilities		Unknown

Facility Type	Name / Number	Address	Value[1]
Utilities	NW Natural Gas	3123 Broadway NE	Unknown
	Pacific Power (Electric)	583 SE Jefferson Street	Unknown
	Intake Station		$ 3.2 Million
	Water Treatment Facility		$12 Million
	Wastewater Treatment Facility	Bowersville Road	$15 Million
	Wastewater Distribution System		$ 32.6 Million
	Peters Fuel Company	1386 SE Uglow Avenue	Unknown
	Home Service Oil Company		Unknown
	Recycle Center	1845 SE Holman Avenue	Unknown
	Lift Stations(2)		$500,000
	Treated Water Storage (4 sites)		$ 7.25 Million
	Pacific Power		Unknown
	KPIE Radio station/tower		Unknown
Dams	Mercer Reservoir & Dam	West Rickreall Road	$25 Million
	Reimer Dam		Unknown
	Morgan Brothers Dam		Unknown

Note: [1]Estimated and/or insured structural and/or Polk County Assessed value for critical facilities and estimated values for critical infrastructure in 2009 dollars

See hazard sections below and Section 2, *Risk Assessment*, for potential hazard vulnerabilities to these facilities.

Hazard Characteristics

Drought

The steering committee determined that the city's probability for drought is **moderate** (which is the same as the county's rating) and that their vulnerability to drought is **moderate** (which is the same as the county's rating).

Volume I, Section 2, *Risk Assessment*, adequately describes the characteristics of drought hazards, as well as the location and extent of a potential event. Due to a cool, wet climate, past and present weather conditions have generally spared Polk County communities from the effects of drought; however, Polk County was included in a Governor declared drought declaration in 1992 and a Presidential drought declaration in 2015.

Dallas' primary water supply comes from the Rickreall Creek and the Rickreall Watershed (Mercer Reservoir is owned by the city and is the source of the city's water supply). The city has four (4) storage reservoir(s) for a total of 7.5 million gallons of treated water storage capacity. The city's water treatment plant has been operating since 1973 and was updated in 1994 and again in 2008. The city has a water master plan that is currently being updated and will be complete in 2018. In general, water supply is available and sufficient. Additional, drought-related community impacts are described within the county's Drought Hazard Annex. The city maintains a public facilities water map, click http://www.ci.dallas.or.us/DocumentCenter/View/3394 to access the map.

Expansive Soils

Volume I, Section 2, *Risk Assessment*, adequately describes the characteristics of drought hazards, as well as the location and extent of a potential event. The addition of moisture to any soil will cause a change in volume, which is referred to as a shrink-swell characteristic.[2]

According to the previous version of this plan the City of Dallas has critical facilities and infrastructure located within areas of low, moderate and high risk; see Map DA-2 (Attachment A).

Low risk areas contain approximately 3,490 residential structures (value $414.6M) and 20 non- residential structures (value unknown).

Moderate risk areas contain approximately 3,733 residential structures (value $443.5M), 29 non-residential structures (value unknown), six government facilities (value $4.3M), four emergency response facilities (value $2.3M), seven educational facilities (value $7M), 13 care facilities (value$350K), 14 community facilities (value $7.1M), three bridges (value $2.7M), one transportation facility (value unknown), five utility facilities (value $15M) and two dams (value unknown).

High risk areas contain approximately 3,057 residential structures (value $363.2M), 20 non-residential structures (value unknown), one government facility (value $500K), three education facilities (value $18.3M), eight care facilities (value $350K), seven community facilities (value $5.3M), three bridges (value $5.5M), one transportation facility (value unknown) and two utility facilities (value unknown).

A comprehensive risk and vulnerability assessment is not available for the drought hazard. Statewide droughts have historically occurred in Oregon, and as it is a region-wide phenomenon, all residents are equally at risk. Structural damage from drought is not expected; rather the risks are present to humans and resources. Agriculture, fishing, and timber have historically been impacted, as well as local and regional economies.

Please review the Risk Assessment (Volume I, Section 2) for additional information on this hazard.

Earthquake

The steering committee determined that the city's probability for a Cascadia Subduction Zone (CSZ) Earthquake event is **low** (which is lower than the county's rating) and that their vulnerability to a Cascadia Earthquake event is **high** (which is higher than the county's rating). The steering committee determined that the city's probability for a Crustal Earthquake event is **low** (which is lower than the county's rating) and that their vulnerability to a Crustal Earthquake event is **moderate** (which is the same as the county's rating).

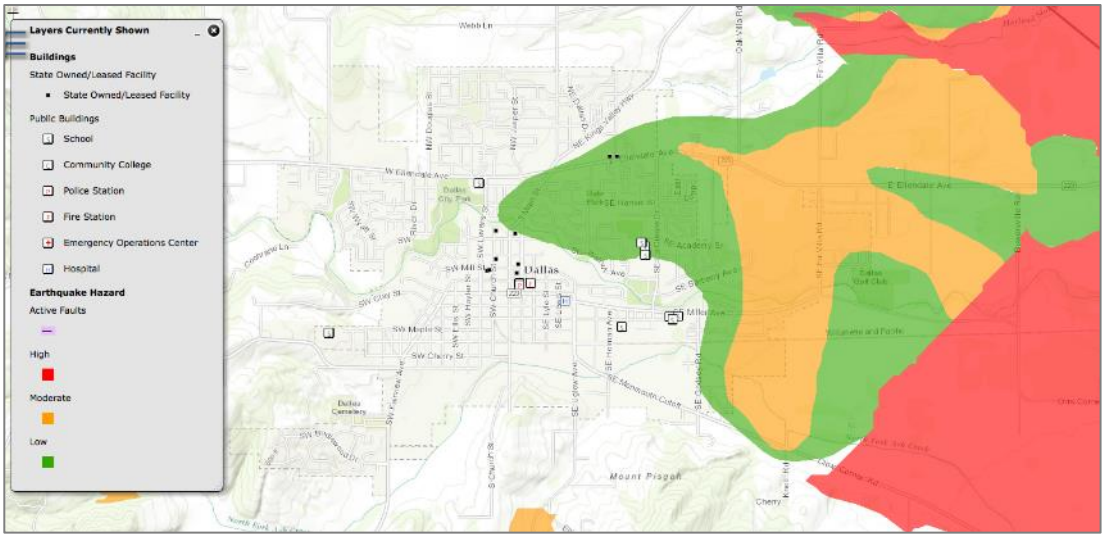
Volume I, Section 2, *Risk Assessment*, adequately describes the characteristics of earthquake hazards, history, as well as the location and extent of a potential event. Generally, an event that affects the county is likely to affect Dallas as well. The causes and characteristics of an

[2] US Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2008. National Cooperative Soil Survey, Physical Soil Properties–Polk County, Oregon.

earthquake event are appropriately described within the county's plan, as well as the location and extent of potential hazards. Previous occurrences are well-documented within the county's plan, and the community impacts described by the county would generally be the same for Dallas as well.

Earthquake-induced damages are difficult to predict, and depend on the size, type, and location of the earthquake, as well as site-specific building and soil characteristics. Presently, it is not possible to accurately forecast the location or size of earthquakes, but it is possible to predict the behavior of soil at any particular site. In many major earthquakes, damages have primarily been caused by the behavior of the soil. Figure DA-2 displays relative liquefaction hazards. As shown, the area of greatest concern is just east of the Dallas city limits (darker areas) that are adjacent to Rickreall Creek where the concentration of soft soils is the highest.

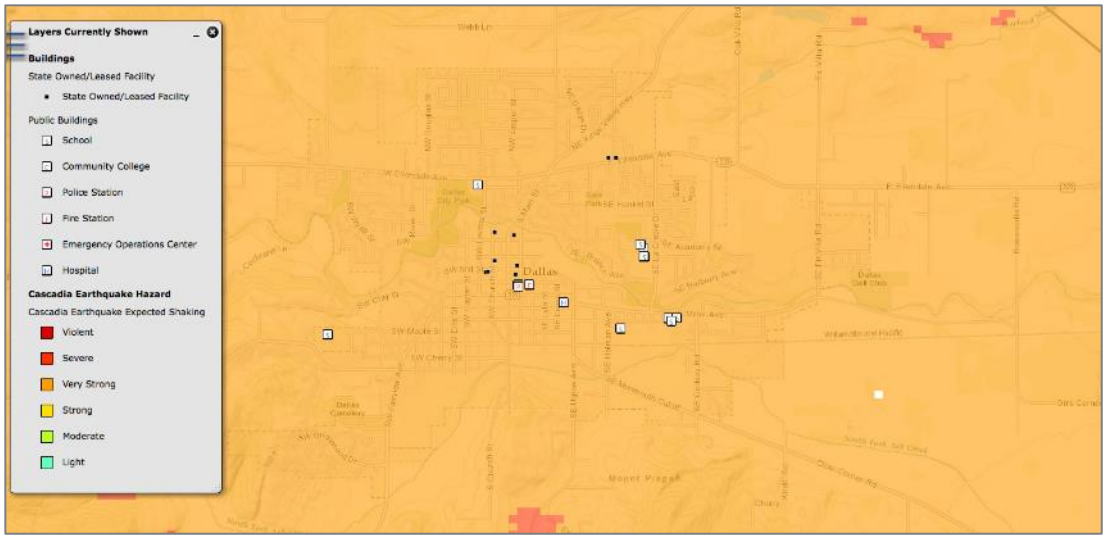
Figure DA-2 Active Faults and Soft Soils



Source: Oregon HazVu: Statewide Geohazards Viewer (DOGAMI)

Figure DA-3 below shows the expected shaking/ damage potential for Dallas because of a Cascadia Subduction Zone (CSZ) earthquake event. The figure shows that the city will experience "very strong" shaking that will last two to four minutes. The shaking will be extremely damaging to lifeline transportation routes including Highway 22, 99, and Interstate 5. For more information on expected losses due to a CSZ event see the Oregon Resilience Plan.

Figure DA-3 Cascadia Subduction Zone Expected Shaking



Source: Oregon HazVu: Statewide Geohazards Viewer (DOGAMI)

As noted in the community profile approximately 57% of residential buildings were built prior to 1990, which increases the city's vulnerability to the earthquake hazard. Information on specific public buildings' (schools and public safety) estimated seismic resistance, determined by DOGAMI in 2007, is shown in Table DA-9; each "X" represents one building within that ranking category. Of the facilities evaluated by DOGAMI using RVS, one (1) has a very high (100% chance) collapse potential, and eight (8) have a high (greater than 10% chance) collapse potential. Two facilities received Seismic Rehabilitation Grant Programs funds: Dallas Fire Station (2009-2010 grant award, $887,725) and Whitworth Elementary School (Dallas; Phase One of 2015-2016 grant award, $1,492,900) to retrofit their structures[3].

In addition, the following structures have also had some structural and/ or non-structural seismic retrofitting:

- *Whitworth Elementary School (Dallas School District 2), brick flue was removed and a stainless-steel flue was installed, funded per 2009 local school bond (completed in August 2010).*
- *Lyle Elementary School (Dallas School District 2), brick flue was removed and a stainless-steel flue was installed, funded per 2009 local school bond (completed in August 2010).*
- *Dallas High School (Dallas School District 2), brick flue was removed and a stainless-steel flue was installed, funded per 2009 local school bond (completed in August 2010).*
- *Morrison Campus Alternative School (1251 Main St., Dallas School District 2), brick flue was removed and a stainless-steel flue was installed, stadium concrete foundation was installed, dry rot removed and structural upgrades to columns, press*

[3] Additional information on seismic retrofits on the Whitworth School is found on the DOGAMI RVS webpage: http://www.oregongeology.org/sub/projects/rvs/activity-updates/2016/Dallas_SD2_SB1566Form2016.pdf

box support was engineered and upgraded; funded per2009 local school bond (completed in August 2010, stadium upgrades in September 2011).

In addition to building damages, utility (electric power, water, wastewater, natural gas) and transportation systems (bridges, pipelines) are also likely to experience significant damage.

Utility systems will be significantly damaged, including damaged buildings and damage to utility infrastructure, including water treatment plants and equipment at high voltage substations (especially 230 kV or higher which are more vulnerable than lower voltage substations). Buried pipe systems will suffer extensive damage with approximately one break per mile in soft soil areas. There would be much lower rate of pipe breaks in other areas. Restoration of utility services will require substantial mutual aid from utilities outside of the affected area.

Table DA-9 Rapid Visual Survey Scores

Facility	Site ID*	Level of Collapse Potential			
		Low (< 1%)	Moderate (>1%)	High (>10%)	Very High (100%)
Schools					
Dallas High (Dallas SD 2) (1250 Holman Ave)	Polk_sch02			X	
LaCreole Middle (Dallas SD 2) (701 SE La Creole Dr)	Polk_sch01	X		X,X	
Lyle Elementary (Dallas SD 2) (185 SW Levens St)	Polk_sch08			X	
Oakdale Heights Elementary (Dallas SD 2) (1275 SW Maple St)	Polk_sch11		X		
Whitworth Elementary (Dallas SD 2) (1151 SW Miller Ave)	Polk_sch12	**Mitigated per 2015-2016 SRGP (Ph. I)**			
Universities/ Colleges					
Chemeketa CC (Dallas Academy) (915 SE Ash)	Polk_sch02			X	
Public Safety					
Dallas Police Department (187 SE Court St)	Polk_pol02		X		X
Polk County Sheriff (850 Main St)	Polk_pol01		X		
Dallas Fire Station (915 SE Shelton St)	Polk_fir03	**Mitigated per 2009-2010 SRGP**			
Hospitals					
West Valley Community Hospital (Salem Health West Valley) (525 SE Washington St)	Polk_hos01	X			

Source: DOGAMI 2007. Open File Report 0-07-02. Statewide Seismic Needs Assessment Using Rapid Visual Assessment.

"*" – Site ID is referenced on the RVS Polk County Map

A comprehensive risk and vulnerability assessment is not available. As of the publication of this NHMP FEMA is providing an opportunity for the county and city to participate in a Risk Mapping, Assessment, and Planning (Risk MAP) process that would generate additional data on risks and vulnerabilities. The Risk Report would provide a quantitative risk assessment

that informs communities of their risks related to certain natural hazards (including earthquake). If pursued, once complete the city can incorporate the risk assessment into their addendum to provide greater detail to sensitivity and exposure to the earthquake hazard.

According to the previous version of this plan approximately 4,906 residential structures (value $583M), 38 non-residential structures (value unknown), nine government facilities (value $6M), four emergency response facilities (value $2.3M), ten educational facilities (value $25M), 16 care facilities (value $350K), 42 community facilities (value $25M), two miles of highways (value $8.1M), five rail segments (value unknown), four bridges (value $5.7M), three transportation facilities (value $81M), 13 utilities (value $70M), and three dams (value $25M) in the strong shaking hazard area.[4]

Please review the Risk Assessment (Volume I, Section 2) for additional information on this hazard.

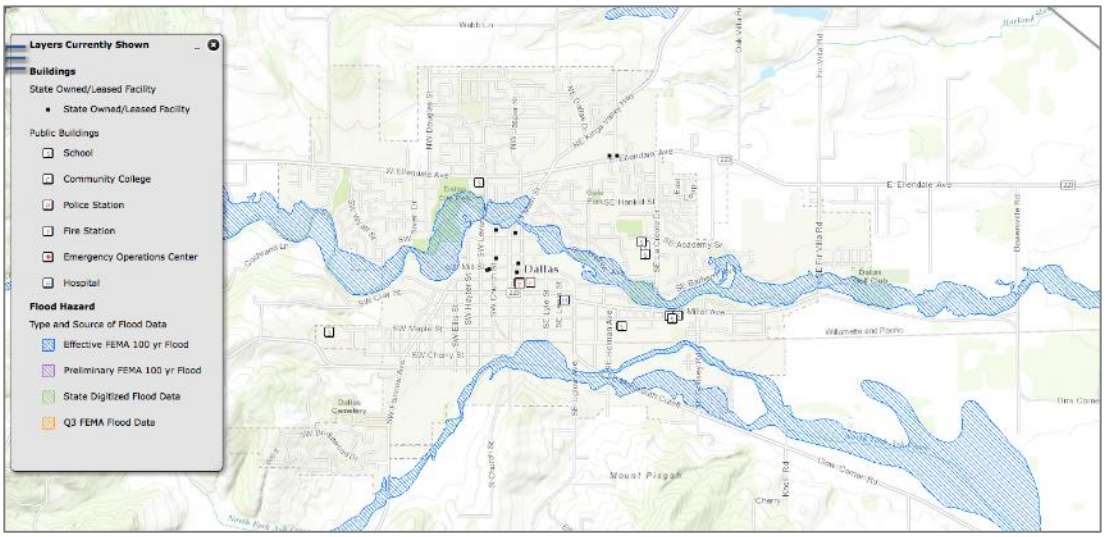
Flood

The steering committee determined that the city's probability for riverine flood is **high** (which is the same as the county's rating) and that their vulnerability to flood is **moderate** (which is the same as the county's rating).

Volume I, Section 2, *Risk Assessment*, adequately describes the causes and characteristics of flooding hazards within the region, as well as previous flooding occurrences. General flood-related community impacts are adequately described within the Flood Hazard Annex of Polk County's Natural Hazards Mitigation Plan. Portions of Dallas have areas of flood plains (special flood hazard areas). These include areas along Rickreall Creek and North Fork Ash Creek (see Figure DA-4 and Attachment A, Map DA-3). Furthermore, other portions of Dallas, outside of the mapped floodplains, are also subject to significant, repetitive flooding from local storm water drainage. In general, the 100-year floodplain delineates an area of high risk, while the 500-year floodplain delineates an area of moderate risk.

[4] URS, 2009 Polk County Natural Hazards Mitigation Plan; values are in 2009 dollars.

Figure DA-4 Special Flood Hazard Area



Source: Oregon HazVu: Statewide Geohazards Viewer (DOGAMI)

A comprehensive risk and vulnerability assessment is not available. As of the publication of this NHMP FEMA is providing an opportunity for the county and city to participate in a Risk Mapping, Assessment, and Planning (Risk MAP) process that would generate additional data on risks and vulnerabilities. The Risk Report would provide a quantitative risk assessment that informs communities of their risks related to certain natural hazards (including flood). If pursued, once complete the city can incorporate the risk assessment into their addendum to provide greater detail to sensitivity and exposure to the earthquake hazard.

Per the previous version of this plan approximately 1,736 residential structures (value $206.2M), eight non-residential structures (value unknown), one government facility (value $500K), one educational facility (value $7.03M), three community facilities (value unknown), four bridges (value $5.7M), one transportation facility (value unknown), three utility facilities (value $15M), and one dam (value unknown). Within the 500-year floodplain, the City of Dallas has 1,690 residential structures (value $200.8M), 7 non-residential structures (value unknown), and one care facility (value unknown).[5]

National Flood Insurance Program (NFIP)

FEMA modernized the Dallas Flood Insurance Rate Maps (FIRMs) in December 2006. Table DA-10 shows that as of September 2016, Dallas has 156 National Flood Insurance Program (NFIP) policies in force. Of those, 68 are for properties that were constructed before the initial FIRM. The last Community Assistance Visit (CAV) for Dallas was on June 3, 2004. Dallas is not a member of the Community Rating System (CRS). The table shows that most flood insurance policies are for residential structures, primarily single-family homes. There has been a total of nine (9) paid claims for $103,826.

For more information on flood risk see the Polk County Flood Insurance Study (2006).

[5] URS, 2009 Polk County Natural Hazards Mitigation Plan; values are in 2009 dollars.

The Community Repetitive Loss record for Dallas identifies no Repetitive Loss Properties[6] and no Severe Repetitive Loss Properties[7].

Table DA-10 Flood Insurance Detail

Jurisdiction	Effective FIRM and FIS	Initial FIRM Date	Total Policies	Pre-FIRM Policies	Policies by Building Type: Single Family	2 to 4 Family	Other Residential	Non-Residential	Minus Rated A Zone
Polk County	-	-	428	183	334	27	25	42	28
Dallas	12/19/2006	4/5/1988	156	68	131	14	6	5	8

Jurisdiction	Insurance in Force	Total Paid Claims	Pre-FIRM Claims Paid	Substantial Damage Claims	Total Paid Amount	Repetitive Loss Properties	Severe Repetitive Loss Properties	CRS Class Rating	Last CAV
Polk County	$ 93,520,500	40	33	0	$ 682,241	1	0	-	-
Dallas	$ 33,852,300	9	8	0	$ 103,826	0	0		6/3/2004

Source: Information compiled by Department of Land Conservation and Development, September 2016.

Riverine Erosion

Riverine erosion rarely causes death or injury. However, erosion causes significant destruction of property, development, and infrastructure. Erosion hazard data is not readily available; however, descriptions of several localized areas were identified during the development of this document and are identified only by location on Map DA-4 (Attachment A). Critical facilities that may be at risk of erosion were identified using a 300 foot-buffer in the areas identified as having historic erosion impacts to conservatively account for building footprints.

A comprehensive risk and vulnerability assessment is not available for the riverine erosion hazard. Per the previous version of this plan approximately 337 residential structures (value $40M) and one community facility (value $2.5M) were identified as being at risk.[8]

Please review the Risk Assessment (Volume I, Section 2) for additional information on this hazard.

[6] A Repetitive Loss (RL) property is any insurable building for which two or more claims of more than $1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. A RL property may or may not be currently insured by the NFIP.

[7] A Severe Repetitive Loss (SRL) property is a single family property (consisting of 1 to 4 residences) that is covered under flood insurance by the NFIP and has incurred flood-related damage for which 4 or more separate claims payments have been paid under flood insurance coverage, with the amount of each claim payment exceeding $5,000 and with cumulative amount of such claims payments exceeding $20,000; or for which at least 2 separate claims payments have been made with the cumulative amount of such claims exceeding the reported value of the property.

[8] URS, 2009 Polk County Natural Hazards Mitigation Plan; values are in 2009 dollars.

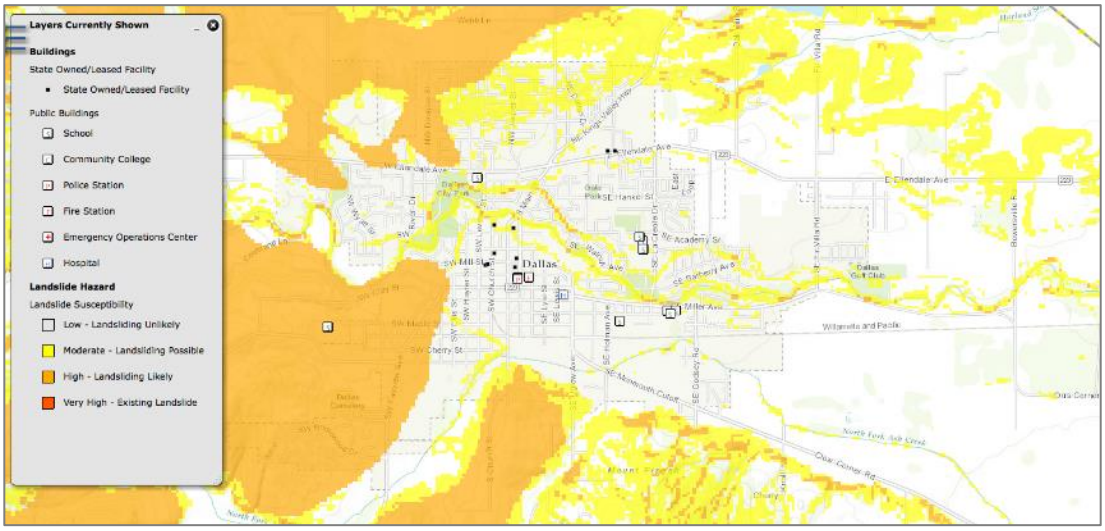
Landslide

The steering committee determined that the city's probability for landslide is **low** (which is lower than the county's rating) and that their vulnerability to landslide is **low** (which is the same as the county's rating).

Volume I, Section 2, *Risk Assessment*, adequately describes the characteristics of landslide hazards, history, as well as the location, extent, and probability of a potential event within the region. The potential for landslide in Dallas is low except for areas to the west near the Dallas Cemetery, to the south near Church Street, and in the hilly area to the north and in the areas immediately adjacent to stream channels.

Sedimentary rock underlies Dallas. Sedimentary rock is primarily conglomerate, claystone, and siltstone with some sandstone toward the west. Sedimentary rock is less resistant to stream action. Landslide susceptibility exposure for Dallas is shown in Figure DA-5 and Map DA-5 (Attachment A). Approximately 19% of Dallas has High, and approximately 13% Moderate, landslide susceptibility exposure[9].

Figure DA-5 Landslide Susceptibility Exposure



Source: Oregon HazVu: Statewide Geohazards Viewer (DOGAMI)

Potential landslide-related impacts are adequately described within the county's plan, and include infrastructural damages, economic impacts (due to isolation and/or arterial road closures), property damages, and obstruction to evacuation routes. Rain-induced landslides and debris flows can potentially occur during any winter in Polk County, and highway and other major roads beyond city limits are susceptible to obstruction as well.

A comprehensive risk and vulnerability assessment is not available. As of the publication of this NHMP FEMA is providing an opportunity for the county and city to participate in a Risk Mapping, Assessment, and Planning (Risk MAP) process that would generate additional data on risks and vulnerabilities. The Risk Report would provide a quantitative risk assessment

[9] DOGAMI Open-File Report, O-16-02, Landslide Susceptibility Overview Map of Oregon (2016)

that informs communities of their risks related to certain natural hazards (including landslide). If pursued, once complete the city can incorporate the risk assessment into their addendum to provide greater detail to sensitivity and exposure to the earthquake hazard.

According to the previous version of this plan approximately 1,806 residential structures (value $214.5M), 20 non-residential structures (value unknown), one government facility (value $500K), two educational facilities (value $13.15M), one care facility (value unknown), five community facilities (value $637K), two bridges (value $4.3M), three utility facilities (value $15M), and three dams (value $25M). There are 304 residential structures (value $36.1M), one non-residential structures (value unknown), and no critical facilities located within high landslide risk areas.[10]

Please review the Risk Assessment (Volume I, Section 2) for additional information on this hazard.

Volcano

The steering committee determined that the city's probability for volcanic event is **low** (which is the same as the county's rating) and that their vulnerability to volcanic event is **low** (which is lower than the county's rating).

Volume I, Section 2, *Risk Assessment*, adequately describes Dallas' risk to volcanic events. Generally, an event that affects the county is likely to affect Dallas as well. The causes and characteristics of a volcanic event are appropriately described within the county's plan, as well as the location and extent of potential hazards. Previous occurrences are well-documented within the county's plan, and the community impacts described by the county would generally be the same for Dallas as well. Dallas is very unlikely to experience anything more than volcanic ash during a volcanic event. When Mt. Saint Helens erupted in 1980, the city was not impacted.

A comprehensive risk and vulnerability assessment is not available for the volcano hazard. Due to the nature of the hazard, it is impossible to predict the location or extent of future events with any probability, although it can be assumed that all residential and critical facilities and infrastructure within the City of Dallas are at risk.

Please review the Risk Assessment (Volume I, Section 2) for additional information on this hazard.

Wildfire

The steering committee determined that the city's probability for wildfire is **low** (which is lower than the county's rating) and that their vulnerability to wildfire is **low** (which is lower than the county's rating).

Volume I, Section 2, *Risk Assessment*, adequately describes the causes and characteristics of wildfires, as well as the county and city's history of wildfire events. There are no known large wildfire events in Dallas. The location and extent of a wildfire vary depending on fuel,

[10] URS, 2009 Polk County Natural Hazards Mitigation Plan; values are in 2009 dollars.

topography, and weather conditions. Weather and urbanization conditions are primarily at cause for the hazard level.

The potential community impacts and vulnerabilities described in the county's plan are generally accurate for the city as well. Polk County developed a Community Wildfire Protection Plan (CWPP) in 2009, which mapped wildland urban interface areas and developed actions to mitigate wildfire risk (see Attachment A, Map DA-6). The city is a participant in the CWPP and will update the city's wildfire risk assessment if the CWPP presents better data during future updates. In general, wildfire conditions are greatest in the hilly area surrounding the water treatment plan, Mercer Reservoir (10 miles west of the city), and homes in the southeast portion of the city.

History:

- 1987 – 5,000 acre fire in the Rickreall Watershed caused sediment damage to the Mercer Reservoir which is the source for Dallas' drinking water supply.[11]
- *August 17, 2013. 200-acre wildfire along Highway 22 burned near a winery close to Dallas. Firefighters from Dallas, Yamhill, Polk County, Sheridan, Willamina, McMinnville and Depoe Bay were utilized.*

Irrigated agricultural land surrounds much of Dallas, thereby reducing the risk to wildfire to the city.

A comprehensive risk and vulnerability assessment is not available. The Polk County CWPP provides some risk and vulnerability information related to Dallas that has been incorporated into this plan as applicable.

Per the previous version of this plan Dallas has critical facilities and infrastructure located within areas of moderate, high, very high and extreme risk.[12]

Moderate risk areas contain 4,754 residential structures (value $564.8M), 38 non-residential structures (value unknown), eight government facilities (value $6M), four emergency response facilities (value $2.3M), 10 educational facilities (value $25.3M), 16 care facilities (value

$350K), 21 community facilities (value $10M), four bridges (value $5.7M), one transportation (value unknown), five utility facilities (value $15M) and three dams (value $25M).

High risk areas contain 3,498 residential structures (value $415.6M), 20 non-residential structures (value unknown), one government facility (value $500K), five educational facilities (value 13.1M), five care facilities (value unknown), nine community facilities (value $3.7M), three bridges (value $5.5M), one transportation facility (value unknown), three utility facilities (value $15M) and three dams (value $25M).

[11] Polk County Community Wildfire Protection Plan (2009)

[12] URS, 2009 Polk County Natural Hazards Mitigation Plan; values are in 2009 dollars.

Very high risk areas contain 615 residential structures (value $73.1M), one educational facility (value unknown), one utility facility (value unknown), and one dam (value $25M).

Please review the Risk Assessment (Volume I, Section 2) for additional information on this hazard.

Windstorm

The steering committee determined that the city's probability for windstorm is **moderate** (which is lower than the county's rating) and that their vulnerability to windstorm is **moderate** (which is lower than the county's rating).

Volume I, Section 2, *Risk Assessment*, adequately describes the causes and characteristics of windstorms, as well as the location and extent of windstorm hazards. The region's (and city's) history of events is adequately described within the county's plan as well. Because windstorms typically occur during winter months, they are sometimes accompanied by ice, freezing rain, flooding, and very rarely, snow.

Polk County's plan adequately describes the impacts caused by windstorms, including power outages, downed trees, heavy precipitation, building damages, and storm-related debris. Additionally, transportation and economic disruptions result as well.

A comprehensive risk and vulnerability assessment is not available for the windstorm hazard. Due to the nature of the hazard, it is impossible to predict the location or extent of future events with any probability, although it can be assumed that all residential and critical facilities and infrastructure within Dallas are at risk.

Please review the Risk Assessment (Volume I, Section 2) for additional information on this hazard.

Winter Storm (Snow/ Ice)

The steering committee determined that the city's probability for winter storm is **high** (which is the same as the county's rating) and that their vulnerability to winter storm is **low** (which is lower than the county's rating).

Volume I, Section 2, *Risk Assessment*, adequately describes the causes and characteristics of winter storms, as well as the location and extent of winter storm hazards. The region's (and city's) history of events is adequately described within the county's plan as well. Severe winter storms can consist of rain, freezing rain, ice, snow, cold temperatures, and wind. They originate from troughs of low pressure offshore that ride along the jet stream during fall, winter, and early spring months. Severe winter storms affecting the city typically originate in the Gulf of Alaska or in the central Pacific Ocean. These storms are most common from November through March.

Major winter storms can and have occurred in the Dallas area, and while they typically do not cause significant damage, they are frequent and have the potential to impact economic activity. Road closures on major roads due to winter weather are an uncommon occurrence, but can interrupt commuter and large truck traffic.

A comprehensive risk and vulnerability assessment is not available for the winter storm (snow/ice) hazard. Due to the nature of the hazard, it is impossible to predict the location or extent of future events with any probability, although it can be assumed that all residential and critical facilities and infrastructure within Dallas are at risk.

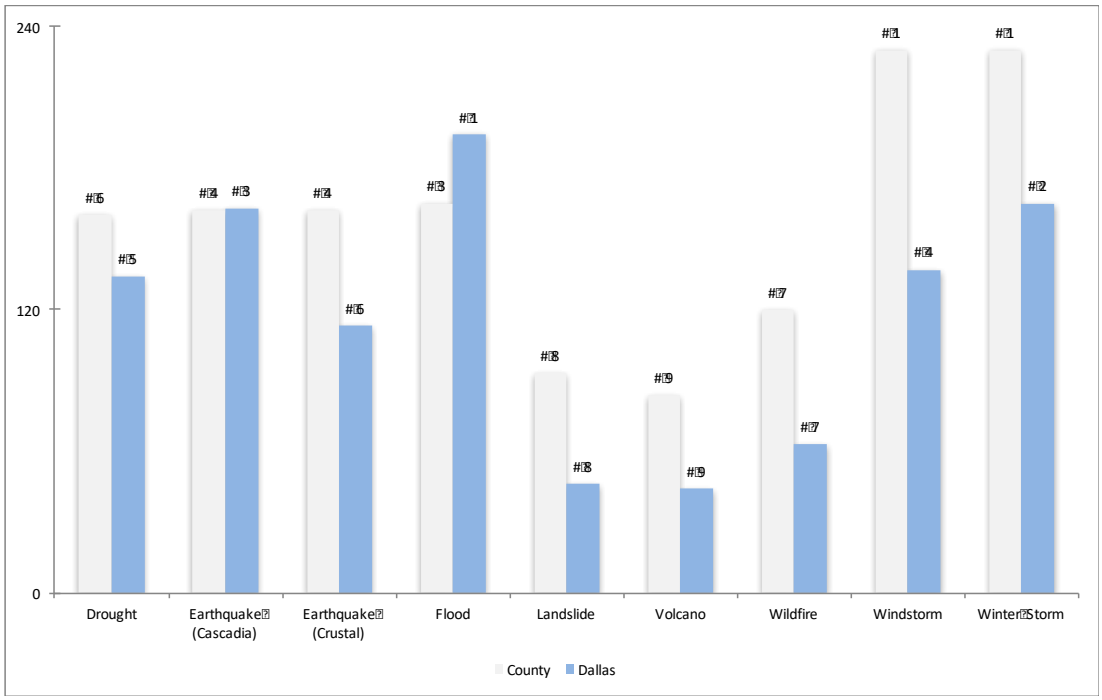
Please review the Risk Assessment (Volume I, Section 2) for additional information on this hazard.

Summary

Figure DA-6 presents a summary of the hazard analysis for the City of Dallas and compares the results to the assessment completed by Polk County.

The city rated their threat to the Cascadia Subduction Zone earthquake and flood higher than the county. The top four hazards for the city are flood, winter storm, Cascadia Subduction Zone earthquake, and windstorm.

Figure DA-6 Overall Hazard Analysis Comparison –Polk County/ Dallas



Source: City of Dallas NHMP Steering Committee and Polk County NHMP Steering Committee

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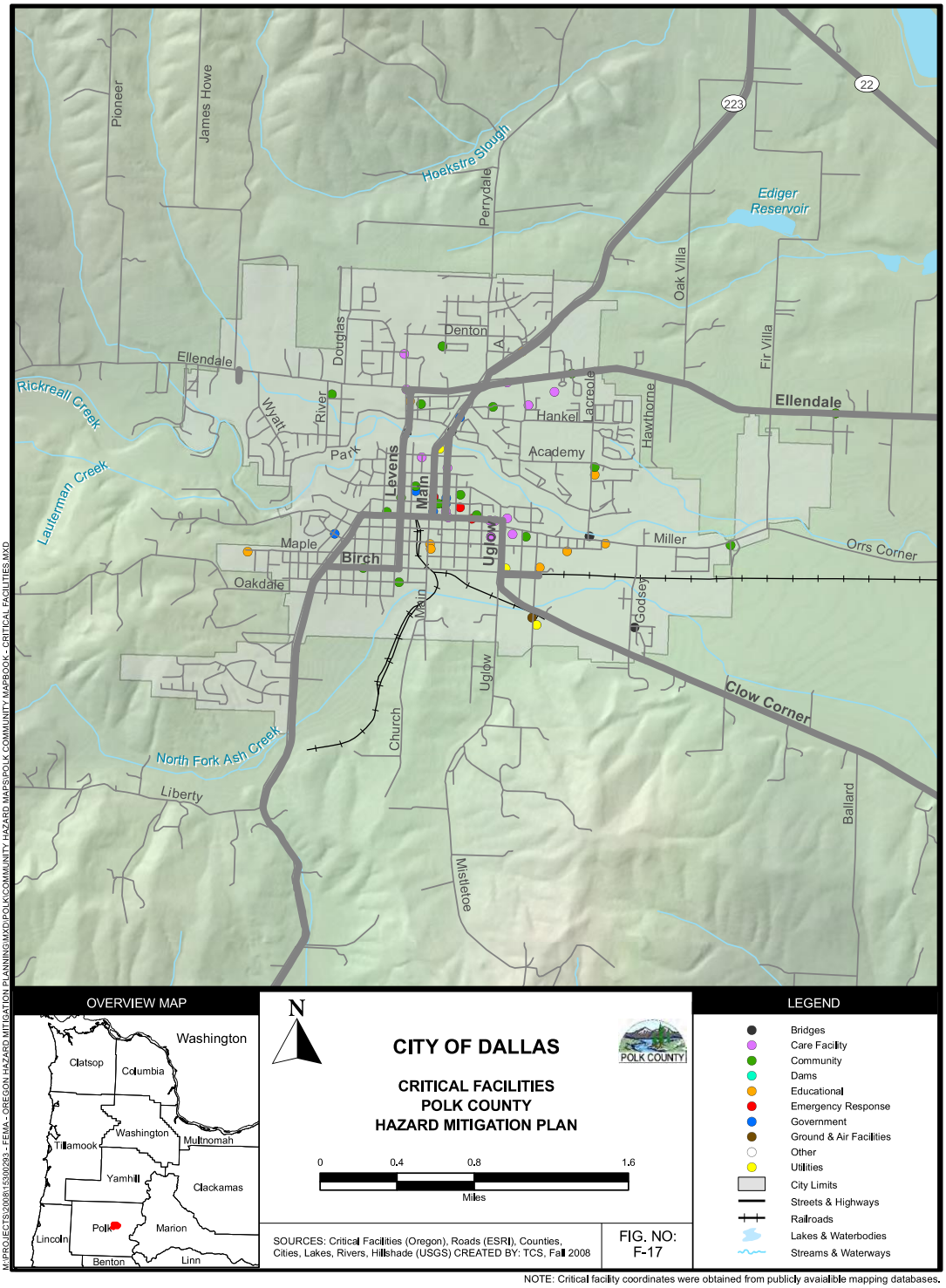
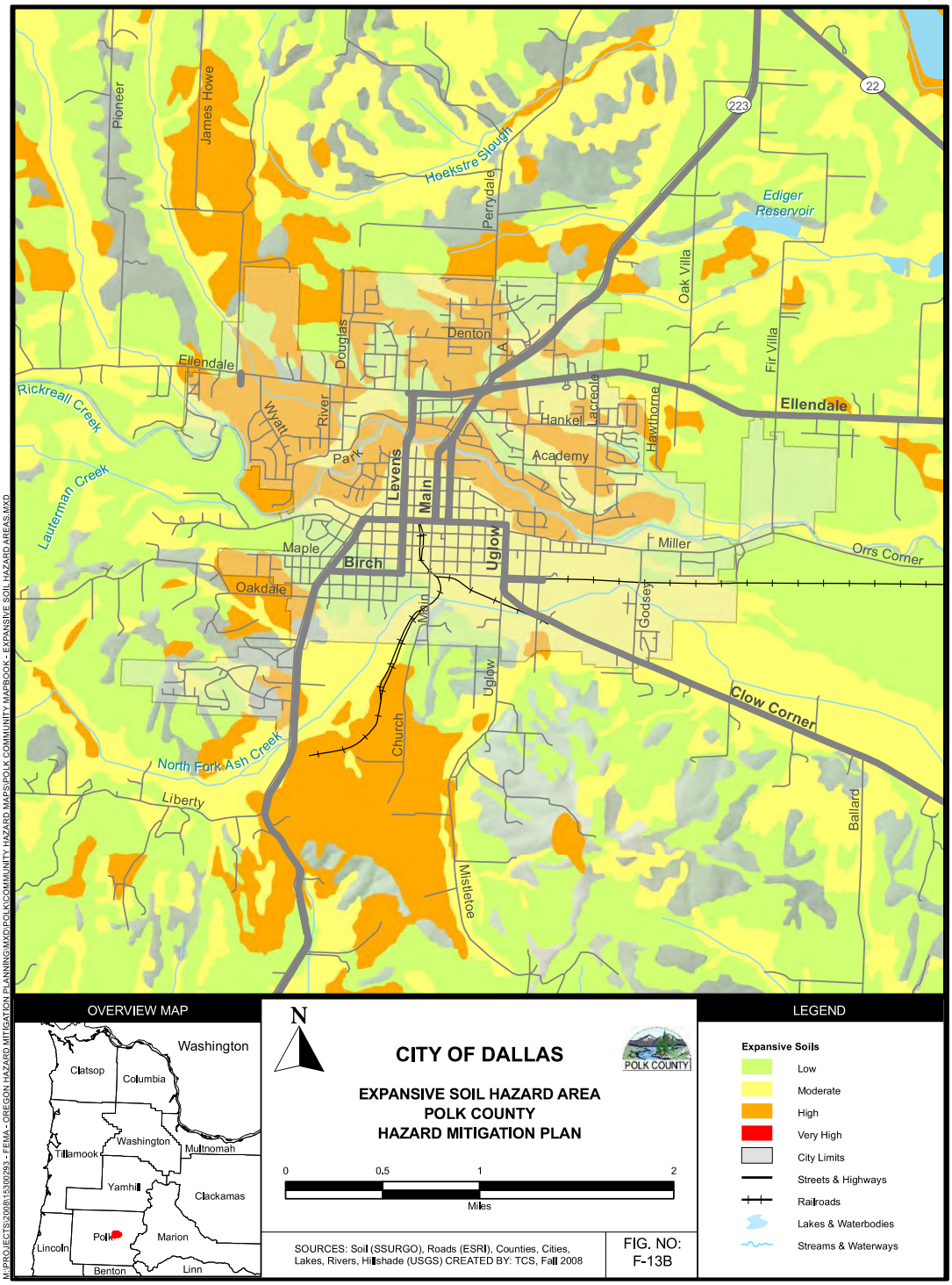
Map DA-1 Critical Facilities - Dallas



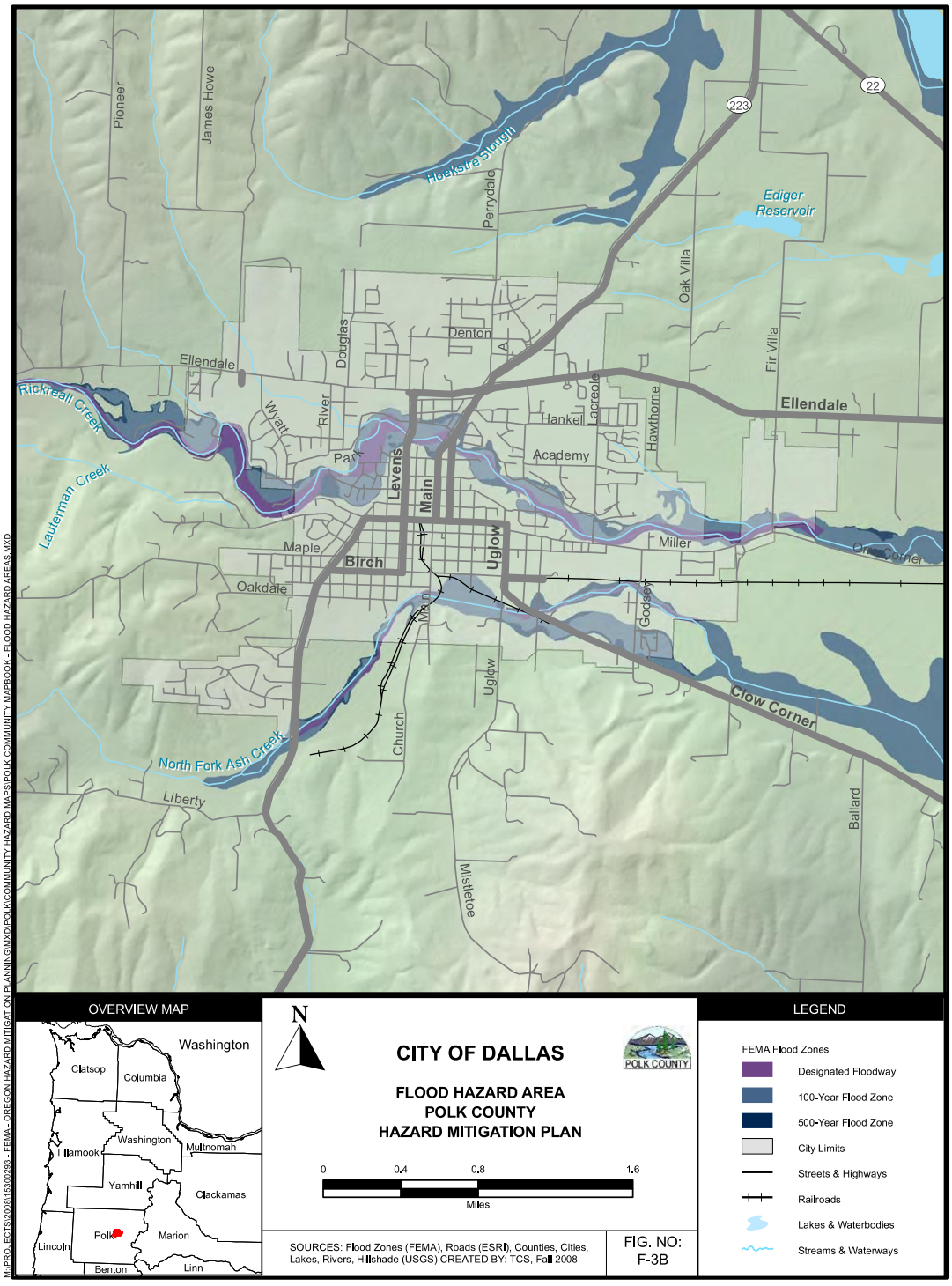
Source: Polk County NHMP (2009).

Map DA-2 Expansive Soils Hazard Area - Dallas



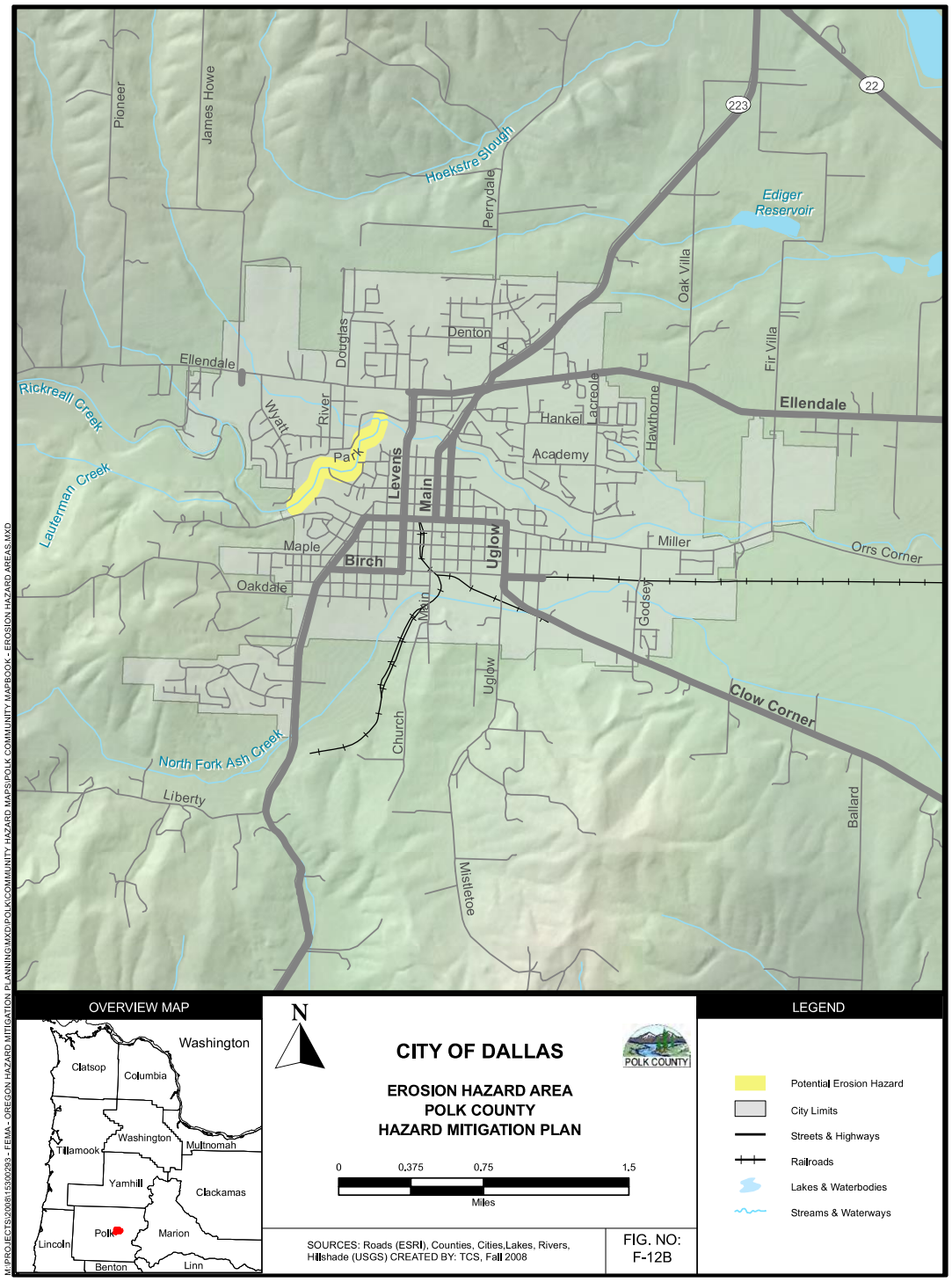
Source: Polk County NHMP (2009).

Map DA-3 Flood Hazard Area - Dallas



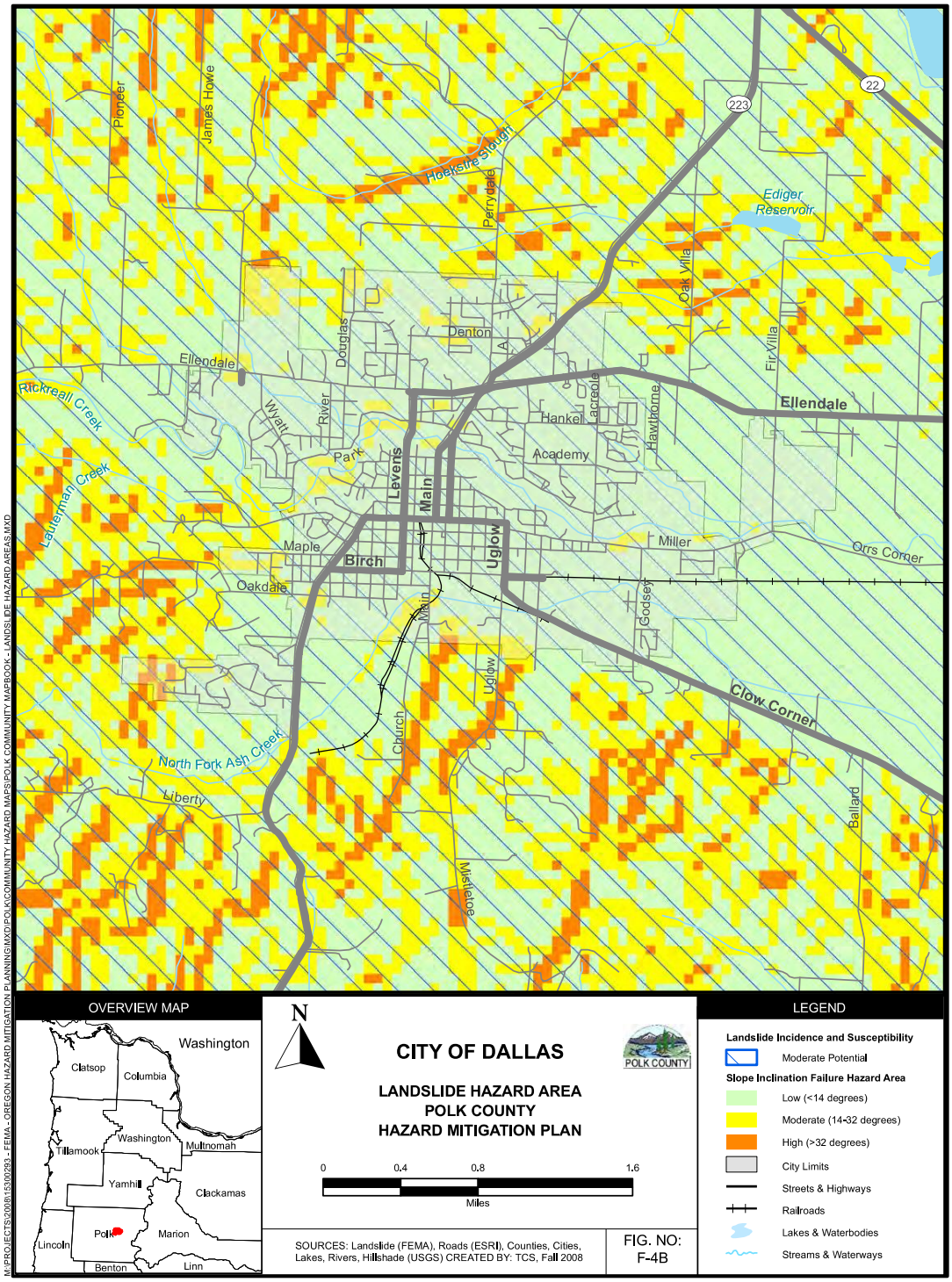
Source: Polk County NHMP (2009).

Map DA-4 Erosion Hazard Area - Dallas



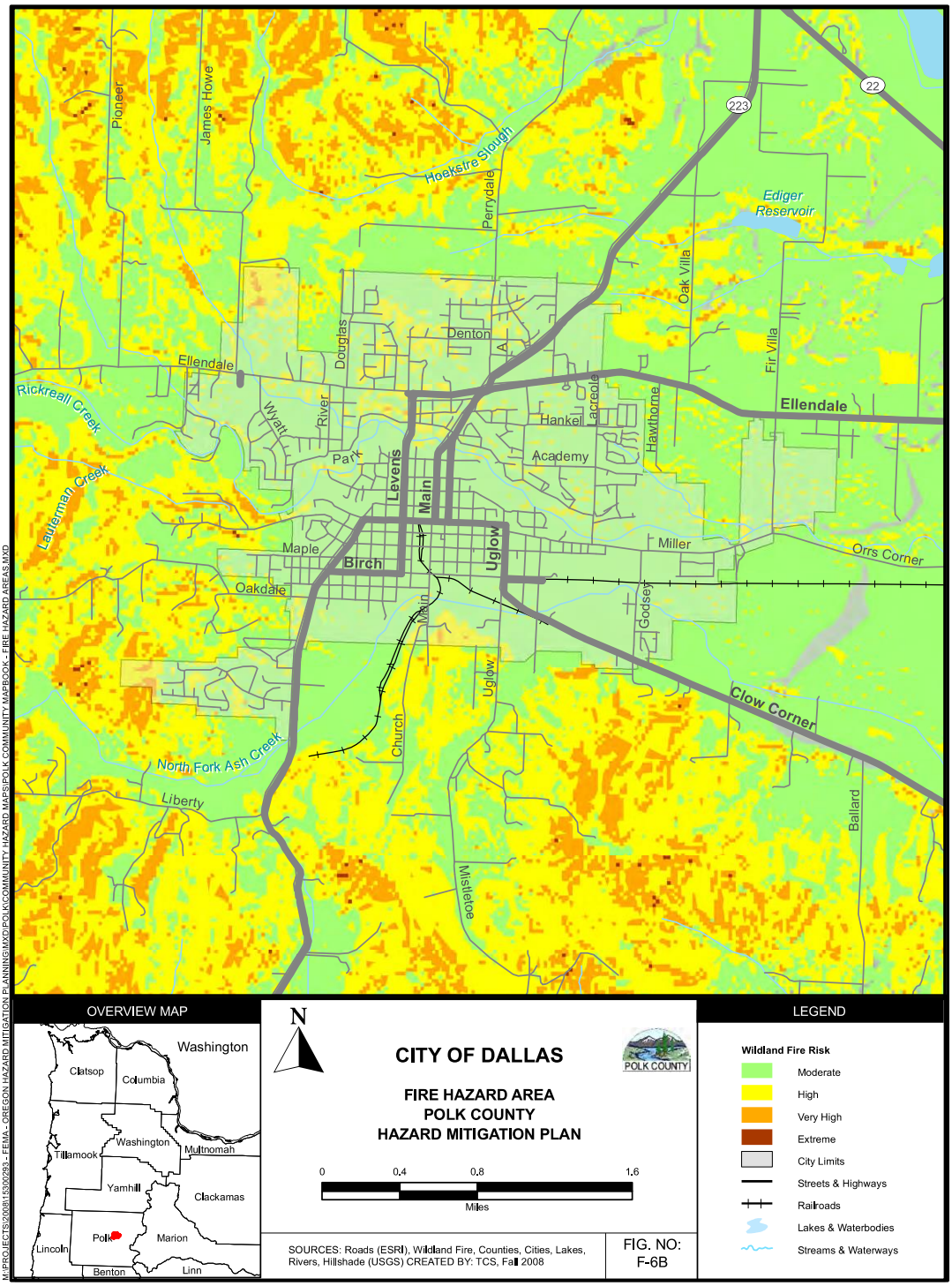
Source: Polk County NHMP (2009).

Map DA-5 Landslide Hazard Area - Dallas



Source: Polk County NHMP (2009).

Map DA-6 Wildfire Hazard Area - Dallas



Source: Polk County NHMP (2009).