



April 2020

City of Lindsay General Plan Draft Safety Element Public Review

Public Review and Comments for Draft General Plan Safety Element

State law requires each city to adopt a General Plan to guide growth and development. This Plan includes various chapters, called "Elements." State law also requires periodic revision of the Safety Element, which addresses various potential hazards to public safety. These must include the following topics: slope instability, seismic risks, flooding, wildland and urban fires, and climate change. The City has created a draft document for review by the public and by the State of California. The City is seeking written comments on the draft document.

Comments are preferred to be e mailed to the following addresses:

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Re.: Public Review and Comments for Draft General Plan Safety Element

All comments must be received by June 1st, 2020. After that time, the City will make any necessary revisions and advertise the document for public hearing by the City Council.

City of Lindsay

Draft 2020 Safety Element



City of Lindsay

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Acknowledgements

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Introduction

Summary

State law (Government Code § 65302(g)) requires the City to adopt a Safety Element in the General Plan to address various potential hazards to public safety, including:

- Slope instability
- Seismic risks
- Flooding
- Wildland and urban fires
- Climate change

This Element meets minimum requirements of state law and replaces the 1989 Lindsay General Plan Hazardous Management Element Section A (Safety).

Background

According to the state's [General Plan Guidelines](#),

“The goal of the safety element is to reduce the potential short and long-term risk of death, injuries, property damage, and economic and social dislocation resulting from fires, floods, droughts, earthquakes, landslides, climate change, and other hazards. Other locally relevant safety issues, such as airport land use, emergency response, hazardous materials spills, and crime reduction, may also be included. Some local jurisdictions have chosen to incorporate their hazardous waste management plans into their safety elements.”

The 1989 General Plan contained a Hazardous Management Element with a limited section devoted to safety. The 1989 Element only addresses seismic safety and urban fire hazards and incorporated by reference much of the content of the 1975 Tulare County General Plan Seismic Safety and Safety Elements. As a result of significant changes in state law, comprehensive revisions to the 1989 Element are required to address statutory requirements for a wider variety of safety issues. In summary, state law (§ 65302(g)(1)) requires:

A safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence; liquefaction; and other seismic hazards identified pursuant to Chapter 7.8 (commencing with Section 2690) of Division 2 of the Public Resources Code, and other geologic hazards known to the legislative body; flooding; and wildland and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, military installations, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.

Data Notes

Data used in this Element represent the most recent (2019) and reliable data known to the City. Percentages are rounded to the nearest decimal except where otherwise indicated. Census data used in this Element are from the American Communities Survey (ACS), unless otherwise indicated. The ACS uses sample survey methodology, based on a smaller set of survey questions and respondents. As a result, ACS data is more limited and subject to statistically higher rates of error compared to decennial census data from 2010. Distance measurements are typically expressed in miles, to the nearest decimal.

Abbreviations and Definitions

ACS: American Communities Survey, Census Bureau.

Adaptation: Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which minimizes harm or takes advantage of beneficial opportunities.

AE Flood Zone: A flood hazard zone. Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. Base Flood Elevations (BFEs) are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.

AH Flood Zone: A flood hazard zone. Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between one and three feet. Base Flood Elevations (BFEs) derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements and floodplain management standards apply. Homeowners using mortgages that are federally insured (which comprise most new loans issued), are required to obtain flood insurance. Lindsay and Tulare County are both participants in the [National Flood Insurance Program](#). Lindsay floodplain management standards take effect if development or improvements are proposed within designated flood zones. For single project development (including additions, fire renovations or reconstruction), proposed improvements must meet base flood elevations. For larger commercial or residential developments, management standards must meet base flood elevations and may include development of storm retention basins to manage flood or storm runoff, collection and storage.

CalFire: California Department of Forestry and Fire Protection.

CFS: Cubic feet per second – a measure of water flow volume and velocity.

CVFPB: Central Valley Flood Protection Board.

CEQA: The California Environmental Quality Act (Public Resources Code § 21000 et seq.) and California Code of Regulations (Title 14, §15000 et seq.), as amended.

CIP: City of Lindsay Capital Improvements Plan.

City: City of Lindsay.

Climate Change: Any significant change in the measures of climate lasting for an extended period of time. In other words, climate change includes major changes in temperature, precipitation, or wind patterns, among other effects, that occur over several decades or longer. (United States Environmental Protection Agency, EPA).

County: County of Tulare.

Critical Facilities: City facilities which should be open and accessible to City staff during emergencies. These shall include City Hall, Public Safety facilities, the City Corporation Yard, the City Water Treatment Plant, and the City Wastewater Treatment Plant.

Department: The City of Lindsay Department of Public Safety (including both Police and Fire).

DWR: California Department of Water Resources.

Element: Safety Element, the General Plan Hazardous Management Element (Section A – Safety), as amended (unless otherwise specified). The original (1989) Element incorporated by reference content from the County 1975 Seismic Safety and Safety Element. Unless otherwise specified, Element shall refer to this current document.

EnviroStor: The State Department of Toxic Substances Control data management system for tracking cleanup, permitting, enforcement and investigation efforts at hazardous waste facilities and sites with known contamination or sites where there may be reasons to investigate further.

Essential Public Facilities: Hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities.

Fault: A fracture or zone of closely associated fractures along which rocks on one side have been displaced with respect to those on the other side. A fault zone is a zone of related faults which commonly are braided, but which may be branching. A fault trace is the line formed by the intersection of a fault and the earth's surface.

FEMA: Federal Emergency Management Agency.

Flood Hazard Zone: Designation by FEMA of location in special flood hazard zone, as delineated on [FEMA maps](#) as Zones AE or AH.

General Plan: The Comprehensive General Plan for the City of Lindsay, California, 1989 (as amended).

General Plan Guidelines: State of California Office of Planning and Research, General Plan Guidelines: 2017 Update.

Goal: Establishes the end toward which effort is directed. It is an ideal future end related to the public health, safety, or general welfare. A goal is a general expression of community values and, therefore, may be abstract in nature. Consequently, a goal is generally not quantifiable or time-dependent.

GPM: Gallons per minute.

Ground Failure: Mudslide, landslide, liquefaction, or soil compaction.

HCD: State of California Department of Housing and Community Development.

Housing Element: The City of Lindsay 2019 General Plan Housing Element.

Implementation Measure: An action, procedure, program, or technique that carries out General Plan policy.

LAFCO: Tulare County Local Agency Formation Commission.

Lindsay: Incorporated areas within the Lindsay city limits.

Liquefaction: A process by which water-saturated granular soils transform from a solid to a liquid state during strong ground shaking.

LUSD: Lindsay Unified School District.

MJLHMP: [2017 Tulare County Multi-Jurisdictional Local Hazard Mitigation Plan](#), March, 2018.

Natural Infrastructure: The preservation or restoration of ecological systems, or utilization of engineered systems that use ecological processes, to increase resiliency to climate change, manage other environmental hazards, or both.

NFIP: The FEMA National Flood Insurance Program [mapping tool](#). The NFIP aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners, renters and businesses and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on structures. The program reduces the socio-economic impact of disasters by promoting the purchase and retention of general risk and flood insurance.

Objective: A specified end, condition, or state that is an intermediate step toward attaining a goal. It should be achievable and, when possible, measurable and time specific. An objective may pertain to one aspect of a goal or it may be one of several successive steps toward goal achievement. Consequently, there may be more than one objective for each goal.

Peakload Water Supply: The supply of water available to meet both domestic water and firefighting needs during the particular season and time of day when domestic water demand on a water system is at its peak.

Plan Area: The geographic area contained in the boundaries of the General Plan, including incorporated lands within the Lindsay city limits and nearby unincorporated Tulare County lands that may be annexed to the City in the future.

Planning Period: The period of time from the year 2020 through 2030, unless amendments or adjustments to this Element are warranted based on changing community needs, legal compliance, or other similar factors.

Policy: A specific statement that guides decision-making. It indicates a commitment of the local legislative body to a course of action. A policy is based on and helps implement a General Plan's vision.

PSI: Pounds per square inch.

Public Policy Process: A process that results in decisions affecting City public resources or services.

Resilience: The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to adapt to stress and change.

Seiche: An earthquake-induced wave in a lake, reservoir, or harbor.

Seismic Hazard Zone: A regulatory zone, delineated by the State Geologist, within which site-specific geologic, soils, and foundation engineering studies are required to identify and avoid earthquake-caused ground-failure hazards, or selected other earthquake hazards, prior to subdivision of land and for construction of most structures for human occupancy.

Sphere of Influence (SOI): A plan for the probable physical boundaries and service area of the City, as determined by LAFCO) (Government Code § 56076). The SOI includes incorporated areas and unincorporated areas that may ultimately be eligible for annexation.

Subsidence: The gradual settling or sinking of the earth's surface with little or no horizontal motion (subsidence is usually the result of gas, oil, or water extraction, hydrocompaction, or peat oxidation, and not the result of a landslide or slope failure).

Seismically Induced Surface Rupture: A break in the ground's surface and associated deformation resulting from the movement of a fault.

Strategy: A plan of action or policy designed to achieve a major or overall aim.

TCAG: Tulare County Association of Governments.

TCFCD: Tulare County Flood Control District, an independent special district with powers established under Tulare County Flood District Act (1969 Cal. Stat. 2218; Cal. Water Code App. 111-1 et seq.). The County Board of Supervisors acts as the governing board of the District and appoints a seven-member Commission to provide operational oversight of the District. The Tulare County Resource Management Agency (RMA) is responsible for the operations and management of the District. Duties of the District include: planning, designing, constructing and maintaining flood control projects within the District; coordinating with Federal and State flood control agencies; maintaining channels, pumps, and ponding basins; administering the FEMA National Flood Insurance Program in Tulare County; and providing flood zone information and performing flood control investigations.

Tsunami: A wave, commonly called a tidal wave, caused by an underwater seismic disturbance, such as sudden faulting, landslide, or volcanic activity.

USACE: United States Army Corps of Engineers.

Wildland Fire: A fire occurring in a suburban or rural area that contains uncultivated lands, timber, range, watershed, brush, or grasslands. This includes areas where there is a mingling of developed and undeveloped lands.

WTP: City of Lindsay Water Treatment Plant, currently located at 729 E. Honolulu Street.

X Flood Zone: Not a flood hazard zone. Moderate to low risk flood hazard areas, between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood.

Organization of This Element

This Element is organized to mirror the "completeness checklist" in the General Plan Guidelines. Each major section contains background information, a problem statement describing the safety hazard, a recommended policy approach to address the problem, and goals, objectives, policies, etc. to implement this policy approach. An additional section addresses miscellaneous topic requirements of § 65302(g)(1): evacuation routes, military installations, peakload water supply requirements, and minimum road widths and clearance around structures as those items relate to identified fire and geologic hazards.

Other Plans and Documents Incorporated by Reference

The following plans and documents are incorporated by reference.

- *Tulare County General Plan Health and Safety Element*, pertaining to slope instability.

- *2017 Tulare Multi-Jurisdictional Local Hazard Mitigation Plan*, pertaining to climate change adaptation and resilience.

Where there are differences or unclear provisions between the Element and other referenced documents, this Element shall take precedence.

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Identification of Unreasonable Risks

State law requires this Element to identify unreasonable risks to public safety and to provide policies for the protection of the community from those risks. The following table references Element sections that provide detailed discussion of a range of safety risks as required by state law. The following table summarizes these risks, which are considered to be unreasonable, and provides summary references to policies to address such risks.

Risk Category	Unreasonable Risk?	Policies to Address Risk (abbreviated – full discussion in following Element sections)	Page Reference
Slope Instability	No	N/A	6
Seismic Risks	No	N/A	7
Flooding	Yes	<ol style="list-style-type: none"> 1. New Development Flood Risks. 2. New Development in Flood Hazard Zones. 3. Integrity of Essential Public Facilities. 4. New Essential Public Facilities Location. 5. Cooperate Relationships Among Public Agencies. 	10
Wildland and Urban Fire	Yes	<ol style="list-style-type: none"> 1. Developer/Builder Education. 2. Public Education. 3. Inspections. 4. Fire Hazard Mitigation. 5. Construction Review. 6. Personnel. 7. Equipment. 8. Training. 9. Communications. 10. Coordination. 11. Mutual Aid. 12. Emergency Plans. 	15
Climate Change	Yes	<ol style="list-style-type: none"> 1. Seismic Retrofit. 2. Tree Chipping / Pick Up Day. 3. Roof Bolt-Downs. 	21

Slope Instability

State law requires this element to identify slope instability leading to mudslides and landslides. County and State reference documents indicate low to minimal slope instability risks in the Plan Area. The County General Plan Health and Safety Element covers this topic well and is incorporated by reference. More specifically, that element:

Tulare County is characterized as Severity Zone "Nil" and "Low" groundshaking with zero (no) declared landslides according to the updated report "State of California Multi Hazard Mitigation Plan Chapter 6 - Other Hazards: Risks and Strategies" (published in October 2010) by the California Geological Survey, Department of California. This report does provide very general statewide maps of both "Landslide Hazard Potential" and "Declared Landslide (1950 to 2009) Events" and so is an additional resource for information that can be used in site specific project analysis in addition to Figure 10-4 Ground Shaking and Landslide Potential for Tulare County in this chapter. The referenced mapping specific to ground shaking and earthquake shaking potential within Tulare County taken from the Department of Conservation website indicate that Tulare County is located some distance from known, active faults and will experience lower levels of shaking less frequently. In most earthquakes, only weaker, masonry buildings would be damaged. However, very infrequent earthquakes could still cause strong shaking within Tulare County." (Page 10-5)

The County's [Landslide Hazard Potential Map](#) indicates a low landslide hazard potential in the Plan Area, with increased landslide hazard potential further east of the City in the foothill area. According to the State Department of Conservation ([Reported California Landslides](#)), there have been no recent reported landslides in the Plan Area.

Problem Statement: Slope Instability

The Plan Area has low likelihood of community risks resulting from slope instability.

Policy Approach

Slope instability is not an unreasonable safety risk for the City. The City will monitor slope instability issues and information resources for additional relevant risks in the Plan Area, for consideration and inclusion in future General Plan amendments as necessary.

Goal

n/a.

Objectives

n/a.

Seismic Risks

State law requires this Element to identify seismic risks, including:

- Seismically induced surface rupture
- Ground shaking
- Ground failure
- Tsunami
- Seiche
- Dam failure
- Subsidence
- Liquefaction
- Other seismic hazards
- Other geologic hazards known to the legislative body

Analysis of Seismic Risks

Seismically Induced Surface Rupture: According to the Tulare County MJLHMP, the risk for seismically induced surface rupture is low, more specifically as follows:

Probability of Future Events: The USGS has stated that the probability of a M 6.7 earthquake in California within the next 30 years exceeds 99% while the likelihood of an earthquake with a greater than M 7.5 is calculated to be 46%. The fault rupture characteristics such as length, depth and epicentral location cannot be accurately predicted. Ongoing field and laboratory studies suggest the following maximum, likely magnitudes and recurrence intervals for the major faults near the County:

- *San Andreas Fault: M 6.8-8.0, recurrence interval varies from under 20 years to over 300 years*
- *Owens Valley fault zone: M 6.5-8.2, recurrence interval likely between 2,000 to 3,000 years*
- *Kern Canyon fault: M 6.0-7.0, recurrence interval unknown*
- *Clovis fault: Magnitude and recurrence interval unknown.” (p. 65-66)*

Ground Shaking: According to the MJLHMP, the earthquake shaking risk for Lindsay is low, as follows:

- Frequency: occasional (between 1 and 10% probability in the next year or at least one chance in next 100 years)
- Extent: extensive (50 to 100% of planning area)
- Magnitude: limited (10 to 25% of area affected)
- Significance: low

The MJLHMP states that Tulare County regions “are distant from known, active faults and will experience lower levels of shaking less frequently. In most earthquakes, only weaker, masonry buildings would be damaged. However, very infrequent earthquakes could still cause strong shaking here.” (p. B-3)

Ground Failure: *[See the Slope Instability discussion above on page 12 for analysis pertaining to mudslide and landslide risks, and the Liquefaction discussion below, on page 14 for analysis of soil compaction].*

Tsunami: There is no hazard of tsunami in Lindsay. The City is located approximately 115 miles from the closest Pacific Ocean exposure (at Morro Bay).

Seiche: According to Tulare County (December 2007 General Plan Background Report):

“Studies of true seismic seiches are limited, but the largest recorded seiche was 1.2 feet during the 1964 Alaska earthquake. Since this is less than wave heights that could be expected from wind-induced waves, earthquake-induced seiches are not considered a risk in Tulare County. In addition, the effects from a seiche would be similar to the flood hazard for a particular area, and the risk of occurrence is perceived as considerably less than the risk of flooding.” (p. 8-11)

Dam Failure: Two major dams in the region represent potential flood hazard from dam failure: Richard L. Schafer Dam, at Lake Success (East of Porterville) and Terminus Dam, at Lake Kaweah (east of Woodlake). According to the MJLHMP (Page B-6), flooding from failure of either dam would not impact Lindsay or nearby agricultural areas. The MJLHMP discusses dam failure impacts to Lindsay as a hazard “with unlikely frequency, limited extent, limited magnitude and low significance.” (Annex D, p. 3)

Subsidence: According to the MJLHMP:

“As warmer temperatures and increasing drought require additional and prolonged pumping of ground water for agricultural irrigation, land over depleted aquifers subsides. The Central Valley has been sinking at differing rates since the 1920’s and is estimated to have sunk up to 28 feet in some areas. During drought years, the Valley is prone to accelerated subsidence.” (p. 51)

The MJLHMP discusses subsidence in Lindsay, as a hazard “with unlikely frequency, limited extent, limited magnitude and low significance.” (Annex D, p. 3). Additional technical and background information pertaining to land subsidence may be found in the East Kaweah Groundwater Sustainability Agency’s Groundwater Sustainability Plan (January 2020; Provost & Pritchard Consulting Group). That document additionally noted potential impacts of subsidence on groundwater storage capacity and flooding risk due to levee subsidence.

Liquefaction: The MJLHMP discusses earthquake liquefaction in Lindsay as a hazard “with unlikely frequency, limited extent, limited magnitude and low significance.” (Annex D, p. 3). The MJLHMP further discusses liquefaction and soil compaction risks, as follows:

Liquefaction ground settlement and soil compaction may occur as a result of seismic ground shaking. When unconsolidated valley sediments are saturated with water, water is forced to the ground surface, where it emerges in the form of mud spouts or sand boils.

If soil liquefies in this manner (known as liquefaction), it loses its supporting capacity, which can result in the minor displacement to total collapse of structures.

These types of unconsolidated sediments represent the poorest kind of soil condition for resisting seismic shock waves.

No specific County-wide assessments to identify liquefaction hazards have been performed. Areas where groundwater is less than 30 feet below the surface occur primarily in the San Joaquin Valley portion of the County. However, soil types in the area are not conducive to liquefaction because they are either too coarse or too high in clay content. Detailed geotechnical engineering investigations would be necessary to more accurately evaluate liquefaction potential in specific areas and to identify and map the extent of locations subject to liquefaction. A liquefaction analysis is conducted as part of all bridge and bridge replacement projects. (p. 65)

Other Seismic Hazards: There are no other geologic hazards in the Plan Area known to the legislative body.

Problem Statement: Seismic Risks

The Plan Area is subject to low to minimal seismic risks.

Policy Approach

Seismic risk is not an unreasonable safety risk for the City. The City will monitor seismic issues and information resources for additional relevant risk identification in the Plan Area.

Goal

N/a.

Objectives

N/a.

Flooding

State law (Government Code § 65302(g)(2)) requires this Element to address flooding risks, including:

- Flood Hazard Zones
- FEMA Flood Insurance Maps
- Army Corps of Engineer Flood information
- Flood maps from the Central Valley Flood Protection Board Flood Maps
- Dam Failure Maps (Office of Emergency Services)
- California Department of Water Resources Floodplain Maps
- Maps of Levee Protection Zones
- Areas subject to inundation in the event of the failure of levees and floodwalls
- Historic flood information
- Existing and planned development in flood hazard areas
- Agencies with responsibility for flood protection

This Element must also provide goals, policies, and objectives to:

- Avoid and minimize flood risks for new development
- Determine appropriateness of new development in flood hazard zones
- Maintain the integrity of essential public facilities.
- Locate, when feasible, new essential public facilities outside of flood hazard zones
- Establish cooperative working relationships among public agencies with responsibility for flood protection
- Identify feasible mitigation measures, to implement the policies above

Analysis of Flooding Risks

FEMA Flood Hazard Maps: See Exhibit A for the FEMA National Flood Insurance Program (NFIP) flood map (map number 06107C1305E, effective June 16, 2009). Most of Lindsay is not located in a flood hazard zone. Approximately 20% of the City is in a flood hazard zone. Parts of the north and northeastern areas of Lindsay are in flood hazard zones associated with the drainage area of Lewis Creek. About half of this area is designated Zone X, with low to moderate chance of flood hazard. The remaining area is designated Zones AE or AH, with shallow flooding hazard with ponding of average depths of between one and three feet.

Army Corps of Engineers: A search of [USACE flood information resources](#) revealed no contemporary flood information resources specific to the Plan Area.

Central Valley Flood Protection Board: CVFPB references the [Best Available Maps \(BAM\) online digital maps resource tool](#) as produced by the California Department of Water Resources. This mapping tool is duplicative of the FEMA flood hazard maps as discussed above.

Dam Failure Maps (Office of Emergency Services): Office of Emergency Services dam failure [online resources](#) offer no specific dam failure information pertinent to the Plan Area.

DWR Floodplain Maps: [Best Available Maps \(BAM\)](#) produced by the Department of Water Resources are duplicative of the FEMA flood hazard maps, as discussed above.

Levee Protection Zones: Department of Water Resources [Levee Flood Protection Zone Maps](#) indicate no levee flood risks in the Plan Area.

Failure of Levees and Floodwalls: See previous discussion regarding levee flood risks.

Historic Flood Information: According to City records and various external published flood history resources for the San Joaquin Valley, the following significant rain events have caused flooding in or near Lindsay. Records for specific impacts and damage locations prior to 1998 have not been found. General historic flood hazards have included minor property damage in northeast Lindsay, in the vicinity of the Page-Moore Tract (an area predominately outside of the City limits which is served by a county-controlled storm drain collection and pump system). In addition, street flooding in this and other areas has been observed during significant rainfall events.

Historic Flood Events in Lindsay Area

Event	Rainfall	Property Damage in Lindsay	Damage Locations
December 1966	4.6"	Unknown	n/a
January 1969	5.3"	Unknown	n/a
April 1982	1.1"	Unknown	n/a
January 1983	2.9"	Unknown	Street flooding
January 1997	1.6"	Unknown	n/a
February 1998	0.9"	Unknown	n/a
April 1998	1.0"	Minor	NE Lindsay: homes damaged in Page-Moore Tract; street flooding (Foothill Avenue and Fir Street).
December 2010	5.7"	Minor	NE Lindsay: homes damaged in Page-Moore Tract; street flooding (Foothill Avenue, Fir Street, Hickory Street, and Lafayette Avenue).

Sources:

<http://ipm.ucanr.edu/calludt.cgi/WXDATAREPORT#summary>

http://www.deltarevision.com/maps/islands_floods_levees/sac_flood_history-detailed_usace.pdf

<http://www.tularebasinwildlifepartners.org/ow7-flood-history.html>

<https://irmaservices.nps.gov/datastore/v4/rest/DownloadFile/462557?accessType=DOWNLOAD>

https://water.ca.gov/LegacyFiles/sfmp/resources/Attachment_C_History.pdf

Existing Development in Flood Hazard Areas: Most land within the Plan Area that is within a flood hazard zone is already developed. This includes:

- 1,045 housing units (estimated), primarily single family detached
- 5 schools: John H. Cairns Continuation High School, Lincoln Elementary School, Lindsay High School, Kennedy Elementary School, Reagan Elementary School
- 5 churches: Apostolic Assembly Church, Church of Jesus Christ of Latter-Day Saints, First Baptist Church of Lindsay, Jehovah's Witnesses, Immanuel Southern Baptist Church
- 3 public / public service facilities: City of Lindsay Water Treatment Facility, Friant Water Authority, and Harvard Avenue Storm Drain Basin
- 2 manufacturing / industrial facilities: Sierra Citrus Association and NDS, Inc.

- 4 retail facilities: Day & Night Liquor, R&N Market, Town Market, and Valley Christian Community Thrift

Planned Development in Flood Hazard Areas: There is an estimated 174 undeveloped acres within the Plan Area located in flood hazard areas. At typical development densities and under existing land use plan designations, these areas could potentially accommodate an estimated additional 615 housing units and 220,000 square feet of industrial building area. Most new development in the past decade has been in the west half of Lindsay, outside of flood hazard areas. The likely reason for this geographic focus is the proximity of services, shopping, and highway access located in west Lindsay. The one notable exception to this pattern has been the development of the new Lindsay High School / Kennedy Elementary School complex on the far east side of Lindsay. That development involved the contiguous replacement of Lindsay High School and reuse of the former high school site for an elementary/junior high school.

Agencies with Responsibility for Flood Protection: The entire Plan Area is governed by the Tulare County Flood Control District. Incorporated lands are also governed by the City, which is a participant in the National Flood Insurance Program (NFIP). Unincorporated lands are also governed by Tulare County, which is also a participant in the NFIP. The NFIP requires participating jurisdictions to comply with floodplain management control regulations. This includes regulations pertaining to waterways and construction practices within identified floodplain hazard areas. The City administers a flood damage prevention program for properties located in the City limits. This program is established by the Lindsay Municipal Code (Title 19, § 19.01.010 through 19.01.060) and provides for flood hazard mitigation. This includes permitting and compliance for watercourse alteration, and restrictions on development within floodplains.

Problem Statement: Flooding

Parts of the Plan Area are at risk from flooding and resulting property damage. The Tulare County MJLHMP identifies flood risk in these areas as:

- *Likely:* between 10 and 100% probability in the next year or at least one chance in ten years
- *Extensive:* encompassing at least 50% of the geographic extent of the planning area. *[Staff disagrees with this assessment, noting that according to most recent FEMA flood zone maps, approximately 25% of the Lindsay Plan Area is located in a flood hazard zone]*
- *Critical:* affecting approximately 25% to 50% of the area
- *High Significance*

The principal flood hazard risks in these areas include shallow flooding resulting in property damage and temporary road blockage from standing flood waters. The property damage risk affects properties in the Plan Area that are located approximately 50% in the City limits and 50% outside of the City limits. Property damage risks include temporary to long-term structural impairment, resident dislocation, infrastructure damage, and loss of services. Potential temporary road blockage risks apply major arterial roads in the east part of the Plan Area, including portions of: Foothill Avenue, Tulare Road, and Honolulu Street.

Temporary blockage of these roads could result in decreased response time for emergency response vehicles, and impaired access for residents, business, and service facilities. This notably includes three elementary schools and one high school.

Policy Approach

Flooding is an unreasonable safety risk for the City. The City will comply with applicable regulatory controls for floodplain management and continue to seek cooperative opportunities to improve waterways and building practices in the affected areas.

Goal

Protect people and property from flood risk.

Policies

1. Avoid and minimize flood risks for new development.
2. Determine appropriateness of new development in flood hazard zones.
3. Maintain the integrity of essential public facilities.
4. Locate new essential public facilities outside of flood hazard zones, when feasible.
5. Establish cooperative working relationships among public agencies with responsibility for flood protection.

Objectives

1. Avoid and minimize flood hazard risks for new development by active participation in the NFIP, public education, and appropriate development regulation:
 - a. *Participation in Federal Flood Insurance Program.* The City shall continue to participate in the NFIP. Where possible, increase participation in the NFIP by enhanced floodplain management activities that may allow property owners to receive a discount on their flood insurance.
 - b. *Hazard Awareness and Public Education.* The City shall continue to promote awareness and education among residents regarding possible natural hazards, including flooding. This shall specifically include a public outreach program that informs property owners located in flood hazard areas about voluntary flood insurance.
 - c. *New Development Flood Risk Mitigation.* New development and divisions of land, especially residential subdivisions, shall be developed to minimize flood risk to structures, infrastructure, and ensure safe access and evacuation during flood conditions.
 - d. *Flood Protection Upgrades.* Within the City limits, where storm and flood prevention improvements have not been installed, a program to upgrade should be initiated. Priorities should be conditioned upon locations where flood and road blockage hazards are greatest.
 - e. *Floodplain Development Restrictions.* The City shall ensure that riparian areas and drainage areas within 100-year floodplains are free from development that may adversely impact floodway capacity or characteristics of natural/riparian areas or natural groundwater recharge areas.

- f. *Impacts to Downstream Properties.* The City shall ensure that new City flood control projects will not adversely impact downstream properties or contribute to flooding hazards.
 - g. *Multi-Purpose Flood Control Measures.* The City shall encourage multi-purpose flood control projects that incorporate recreation, resource conservation, preservation of natural riparian habitat, and scenic values.
 2. Determine appropriateness of new development in flood hazard zones:
 - a. *Development Compliance.* The City shall ensure that all development within the designated floodway or floodplain zones conforms to FEMA regulations.
 - b. *Mapping of Flood Hazard Areas.* The City shall require subdivision maps and site plans to delineate areas subject to flooding during a 100-year flood event.
 3. Maintain the integrity of essential public facilities:
 - a. *Reinforce Infrastructure.* Reinforce the City's transportation infrastructure to protect against flooding through activities such as road elevation and culvert installation.
 4. Locate new essential public facilities outside of flood hazard zones:
 - a. *Permitted Development.* The City shall not permit development of critical facilities within 100-year floodplain.
 - b. *Drainage Obstructions.* The City shall strive to plan and site new roads to minimize disturbances to banks and existing channels and avoid excessive cuts and accumulations of waste soil and vegetative debris near natural drainage ways.
 5. Establish cooperative working relationships:
 - a. *Flood District Referrals.* The City shall monitor Tulare County Flood Control District efforts affecting the Plan Area and shall actively comment on such efforts as needed.

Wildland and Urban Fires

State law (Government Code § 65302(g)(3)) requires this Element to address wildland and urban fire risks. State regulatory requirements for this Element are based on whether the City is in a “State Responsibility Area” or a “Fire Hazard Severity Zone.” The Plan Area is not a State Responsibility Area nor is it within a Fire Hazard Severity Zone (as discussed below), so the regulatory burden on the City for this Element topic is comparatively light. Even though Lindsay is not considered to be fire prone, structural and nonstructural fires pose a greater risk to life and property than wildland fires.

The State requires this Element to discuss:

- Fire hazards
- Fire hazard severity zones
- Historical data on wildfires
- Wildfire hazard areas
- Agencies responsible for fire protection
- Goals, policies, and objectives for the protection from the unreasonable risk of wildfire
- Feasible implementation measures for avoiding or minimizing the wildfire hazards associated with new uses of land
- Working cooperatively with public agencies with responsibility for fire protection

City Fire Protection Overview

The Lindsay Department of Public Safety employs an integrated public safety model of operation, where Police, Fire and Animal Control Services are provided by cross-trained personnel. Every one of the department’s 16 sworn members is responsible for all duties of each of the three listed disciplines, including fire protection. Personnel also respond to emergency medical service calls, and members are trained to provide basic life support efforts using first aid/CPR/AED skills.

Equipment: The Department operates a 2001 American LaFrance Eagle Fire Engine with a 750 gallon tank and 1500 GPM pump; a 2019 Pierce Enforcer 61’ Sky Boom Aerial Quint with a 500 Gallon tank and 1500 GPM pump; and a 2003 Dodge Ram 4500 Patrol/Brush Vehicle with a 350 gallon skid unit. Apparatus are parked at City Hall, located in the approximate geographic center of the Plan Area. This location allows convenient and expedient emergency response within the Plan Area.

Service Area: The Department provides fire protection services within the city limits, comprised of approximately 2.7 square miles. It also provides additional protection and assistance outside this boundary by request through mutual aid agreements. Within its incorporated boundaries, the City has six K-8 elementary schools, two high schools, a convalescent hospital, a shopping center, and several large commercial and industrial facilities.

Communications: The Department utilizes Tulare County Sheriff’s Department communications and dispatching services and operates with allied fire service agencies through mutual aid agreements for fire suppression activities.

The City is also a member of the Tulare-Kings Regional Hazardous Materials Team, which provides Haz-Mat responses and mitigation on a contracted basis.

Service Demands: Emergency service demands are mostly related to emergency medical service calls, with a limited number of true fire incidents.

Fire Incidents in City Limits

Working Fire Type	Incidents (2019)	Percent of Total (rounded)
Dumpster/debris	8	26%
Vehicle	7	23%
Electrical	6	20%
Wildland/vegetation	5	17%
Structure	4	13%
	30	100%

Calls for Service

Call Type	Number (2019)	Percent of Total (rounded)
Medical Aid	793	61%
Motor Vehicle Accident	301	23%
Fire	93	7%
Fire Alarm	67	5%
Fireworks	55	4%
	1309	100%

Fire Prevention Programs: The Department operates the following fire prevention programs:

- Quarterly business safety and fire prevention meetings
- Annual fire/life safety inspections for businesses and public buildings
- Station tours for schools, which include a fire safety and prevention component
- Seasonal social media informational content related to fireworks and other fire hazards

Existing City Fire Plans and Policies: In 2019, the City contracted with an outside consultant (Lexipol) to provide a comprehensive fire policy and procedure manual. Existing fire pre-plans are outdated and need to be revised.

Major Fire Service Challenges: The biggest challenge for City fire service, as with many other service areas, is the budget. The Department has been operating an integrated public safety model since 2010. Since that time, staff positions have been eliminated through attrition, which reduces the available stable workforce. As all firefighters have other primary duties in addition to firefighting, many other operational areas, such as volunteer recruitment have suffered. Training has been at a bare minimum due to budget and staffing limitations.

Fire Service Improvements: The City recently purchased a 2019 Pierce Enforcer 61' Aerial Quint to replace an outdated 1983 Spartan it had operated since 2003. Plans to separate the fire service to provide dedicated fire service personnel have been continually delayed due to budget constraints.

Nearby Fire Protection Resources

Tulare County, the City Porterville, and the City of Tulare operate fire emergency services outside but proximate to the Plan Area, as follows:

- Tulare County Fire Station #15 (Lindsay) is located approximately 1.75 miles west of the Plan Area
- Tulare County Fire Station #11 (Exeter) is located approximately 6.25 miles northeast of the Plan Area
- Tulare County Fire Station#16 (Strathmore) is located approximately 6.5 miles south of the Plan Area
- The City of Porterville Fire Department operates two fire stations located approximately 9 miles southeast of the Plan Area
- Tulare County Fire Station #25 (Tulare) is located approximately 12.5 miles west of the Plan Area
- The City of Tulare Fire Department operates three fire stations located approximately 13 miles west of the Plan Area

Area Responsible Agencies

A variety of other responsible agencies provide emergency fire services in the area, as follows:

Area Responsible Agencies

Agency	Jurisdiction
CalFire	Privately owned wildlands, and state and private forests
Bureau of Land Management	Publicly owned lands
Porterville Fire Department	City of Porterville
Strathmore Fire Protection District	Strathmore Fire Protection District
Tulare County Fire Department	Unincorporated Tulare County
Tulare Fire Department	City of Tulare
Tule River Tribe Fire Department	Tule River Reservation

Fire and Wildfire Hazards

- **State Responsibility Areas:** The Plan Area is not within a State Responsibility Area. Therefore, statutory requirements for this Element regarding the general location and distribution of existing and planned uses of land in state responsibility areas do not apply. According to the CalFire, Fire and Resource Assessment Program, the Plan Area is an unzoned Local Responsibility Area (where fire protection and response is a local responsibility). State Responsibility Areas generally include foothill areas located east of the Friant-Kern Canal, and the Sierra Nevada.
- **Fire Hazard Severity Zone:** The Plan Area is not within a fire hazard severity zone. Therefore, statutory requirements for this Element regarding the general location and distribution of existing and planned uses of land in very high fire hazard severity zones do not apply.
- **USGS Wildfire Hazard Areas:** No information was found on the USGS website pertaining to wildfire hazard areas affecting the Plan Area.

- **Historical Wildland Fires:** Wildland fires within the Department’s jurisdiction have averaged approximately four per year, with most being spot fires affecting less than one acre of land. One fire in 2016 involved approximately 25 acres of grassland and required a mutual aid response. The Department responded to assist the Tulare County Fire Department at the scene of a wildland fire in the Tulare County Local Response Area which involved a large amount of grass on the side of a prominent hill known as “Elephant Back” located approximately one mile northeast of the eastern city limits.
- **Wildfire Hazard Areas:** Wildfire hazards in the Plan Area include vacant / fallow lands that have dry vegetation and/or agricultural debris storage (e.g., limbs, trimmings, etc.). These hazards are more common on non-irrigated lands, during drought years, and in dry seasons.
- **Fire Hazards:** The principal fire hazards in the Plan Area include:
 - Outside rubbish fires
 - Vehicle fires
 - Electrical fires
 - Natural vegetation fires
 - Structure fires

Problem Statement: Wildland and Urban Fire Hazards

The principal fire hazard risks in the Plan Area involve:

- Constrained resources in terms of personnel and equipment. This limits the ability and effectiveness of fire response. This situation will likely continue during the Planning Period.
- Resources shared with non-fire related emergency service functions, resulting in diminished focus for fire-only response situations
- Wildland and vegetative fires at the urban fringe
- Non-structural fire risks, such as debris, vegetative, and vehicular fire risks
- Limited structural fire risks

Policy Approach

Urban fires are an unreasonable safety risk for the City, primarily related to resource constraints. The City will emphasize fire prevention programs that are likely to reduce the frequency and severity of fire hazards in the Plan Area. This approach will leverage low-cost prevention methods that promote the most efficient use of limited resources.

Goal

Protect the Planning Area from fire hazards and reduce the adverse impacts of fire events.

Objectives

- 1) **Fire Prevention:** Prevent fire hazards through fire prevention programs to be implemented during the planning period.
- 2) **Fire Protection:** Protect the community against adverse impacts of fire events through fire protection activities to be implemented during the planning period.

Policies

The following policies will apply to the Planning Area throughout the Planning Period. Unless otherwise specified, the City will be the responsible implementation authority.

Fire Prevention Policies: Prevent fire events and mitigate property damage and associated life safety risks, through voluntary public education and awareness efforts. These efforts shall include, for example:

1. ***Development/Builder Education.*** Inform property owners regarding fire hazards that may not be addressed in existing ordinances and policies, but which may be addressed through the development process. These efforts should address building materials, structure type, structure location, subdivision design, road widths, fire hydrant location, water supply proximity, and other similar important considerations. State building codes require fire suppression systems in new or substantially renovated single family residential units and commercial structures.
2. ***Public Education.*** Coordinate a public education program to foster public awareness of fire hazards, with the intention of reducing injury, loss of life, damage to property, and degradation of the natural environment. This education program should be carried out through schools, the library, City departments, the news media, and civic organizations. The program should seek to reach all age groups, and social and economic classes. Educational materials should be offered in Spanish and English, as appropriate. This program should leverage free and low-cost methods such as social media, business partnerships, and pre-prepared fire safety literature produced by other organizations.
3. ***Inspections.*** Continue to actively enforce weed abatement, building, and fire code requirements to assure adequate fire protection through construction and property maintenance activities.
4. ***Fire Hazard Mitigation.*** Promote fire hazard mitigation programs, including:
 - a) **Fire Buffers:** Maintaining fire buffers along heavily traveled roads by thinning, disking, or controlled burning, or the use of open space to serve as a fuel break.
 - b) **Weed Abatement:** Encouraging weed abatement programs to promote fire safety.
 - c) **Vegetation Management:** Managing vegetation in areas within and adjacent to public rights-of-way and critical facilities, in order to reduce the risk of tree failure and property damage. The City promotes vegetation management in these areas as well as all private properties through an existing weed abatement policy. Fire and code enforcement personnel perform citywide property reviews and send letters of abatement to violators. The City hires a contractor to abate hazards where no action is taken and charges the violating property owners.
 - d) **Vegetation Pick-Up:** Offering a free annual tree chipping and tree pick-up day that encourages residents to manage trees and shrubs that are at risk to nearby structures. The City offers a free commercial green waste collection program for landscape contractors.
 - e) **Public Areas:** Implementing a fuel reduction program, such as the collection and disposal of dead fuel, within publicly owned open spaces and near critical facilities.

- f) Targeted Populations: Implementing a program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.
 - g) Landscaping Recommendations: Implementing a fuel modification program, providing recommended guidelines for planting and a listing of highly flammable plant species to avoid.
 - h) No Burn Program: Implementing “no-burn” programs, particularly in undeveloped areas and properties located at the urban fringe.
5. *Construction Review*. Mitigate fire hazards through the planning, development, and construction review processes, including:
- a) Plans and Permit Review: Continuing to seek the input of the Department in reviewing development plans and permits. Such a coordinated effort should be aimed at reducing property loss and potential loss of life.
 - b) Codes Review: Consulting the Department during amendments and updates to the Subdivision Zoning Ordinances, to assure appropriate standards for fuel breaks, fuel reduction, and fire buffer zones for development at the urban fringe.

Fire Protection Policies: Protect the community against adverse impacts of fire events through fire protection activities to be implemented during the planning period. These efforts shall include, for example:

- 6. *Personnel*. Prioritizing funding to provide adequate personnel levels to maintain fire safety.
- 7. *Equipment*. Regularly evaluate existing emergency service equipment for deficiencies in response capability.
- 8. *Training*. Encouraging periodic joint training exercises with other City agencies and outside emergency response agencies, with the goal of developing the best possible coordinated action in the event of a natural or human-made hazard.
- 9. *Communications*. Regularly evaluate existing emergency service communications equipment and practices for deficiencies in response capability.
- 10. *Coordination*. Coordinating emergency response with local, state, and federal governmental agencies charged with disaster and emergency preparedness responsibilities.
- 11. *Mutual Aid*. Maintaining automatic and/or mutual aid agreements with surrounding jurisdictions, county, state, and federal agencies for fire protection.
- 12. *Emergency Plans*. Reviewing and updating, as appropriate, emergency response plans, including:
 - a) Emergency evacuation plans for flooding events.
 - b) Emergency centers, to provide emergency backup systems to enable uninterrupted continuous operations as required by the Essential Services Buildings Seismic Safety Act of 1986.
 - c) Disaster preparedness strategies.

Climate Change Adaptation and Resilience

State law (Government Code § 65302(g)(4)) requires this Element to incorporate climate change adaptation and resiliency strategies, including:

1. A vulnerability assessment that identifies the risks that climate change poses to the local jurisdiction and the geographic areas at risk from climate change impacts.
2. Adaptation and resilience goals, policies, and objectives for the protection of the community.
3. Feasible implementation measures designed to carry out the adaptation and resilience goals, policies, and objectives.

2017 Tulare County Multi-Jurisdictional Local Hazard Mitigation Plan

State law (Government Code §§ 65302(g)(4)(D)(ii)) provides:

“Cities or counties that have an adopted hazard mitigation plan, or other climate adaptation plan or document that substantially complies with this section, or have substantially equivalent provisions to this subdivision in their general plans, may use that information in the safety element to comply with this subdivision, and shall summarize and incorporate by reference into the safety element the other general plan provisions, climate adaptation plan or document, specifically showing how each requirement of this subdivision has been met.”

The Tulare County MJLHMP complies with these requirements and is incorporated by reference.

Analysis of Climate Change Risks

Climate change refers to significant change in the measures of climate lasting for an extended period of time. *Adaptation* refers to adjusting to climate change, while *resilience* refers to the ability to absorb disturbances that may result from climate change. The MJLHMP identifies effects and risks resulting from climate change. These apply to the County as a whole and to City as well. The MJLHMP (pp. 94-95) speaks to general climate change impacts and costs:

Impacts: Climate change will cause multiple effects to infrastructure and community public health. Warmer weather associated with climate change will result in more heat related illness. Drier weather will place increasing demands on imported and well water, and may lead to long lasting droughts that result in water rationing.

Costs: Climate change costs are difficult to specify. They will occur and accrue over centuries. As temperatures rise, additional costs for climate control such as air conditioning will occur. Less precipitation may result in depletion of stored and ground water reserves with potential for increased water costs and rationing. Much of these costs will be borne by individuals and families. Increased costs will also affect businesses and government owned facilities. Researchers at UC Berkeley (Science, May 2017) concluded that for every 1-degree Fahrenheit increase in global temperatures, the U.S. economy stands to lose about 0.7 percent of its Gross Domestic Product, with each degree of warming costing more than the last.

Note: City drought response begins with water conservation before rationing. This policy applies to the remainder of this section wherever the term “rationing” is used.

The MJLHMP (pp. 53-54) discusses specific anticipated climate change impacts as follows:

- Increased temperatures (7 to 11 degrees Fahrenheit by 2100)
- Increased heatwaves (temperature exceeding 100°, by 7-10 days annually by 2100)
- Increased wildfire risks
- Decreased rainfall (by 3.5 inches annually by 2100)
- Decreased snowpack

Vulnerability Assessment

The MJLHMP (pp. 47-89) provides vulnerability assessments within each of the following individual potential hazard areas:

- Civil disturbances
- Climate change
- Dam failure
- Drought
- Earthquake
- Energy emergency
- Extreme heat
- Fire
- Floods
- Hazardous material and oil spills
- Landslides/mudslides/debris flows
- Levee failure
- Pandemics and vector borne diseases
- Severe winter storm/high winds
- Terrorism and cyber terrorism
- Fog

The MJLHMP provides a summary analysis of the most likely impacts for each jurisdiction.

Summary of Potential Climate Change Hazards, Impacts, and Costs (MJLHMP Annex D)

Hazards	Impacts	Costs
Climate Change	<ul style="list-style-type: none"> • Increased heat related illness • Longer lasting droughts 	<ul style="list-style-type: none"> • Increased water costs • Water rationing
Drought	<ul style="list-style-type: none"> • Reduced crops productivity • Increased fire hazard • Reduced water levels • Increased livestock and wildlife mortality • Water rationing • Increased prices for food and lumber • Increased unemployment • Reduced tax revenues • Increased crime • Foreclosures on bank loans to farmers and businesses • Migration • Loss of private and public landscaping 	<ul style="list-style-type: none"> • Increased costs for water • Reduced property values • Loss of tax revenue • Migration
Extreme Heat	<ul style="list-style-type: none"> • Increased adverse health impacts (heat-related mortality, cardiovascular-related mortality, respiratory mortality, heart attacks) • Increased hospital admissions and emergency room visits • Heat stress potentially leading to death 	<ul style="list-style-type: none"> • Increased electricity usage costs • Additional health care costs • Reduced economic activity
Flood	<ul style="list-style-type: none"> • Increased flooding 	<ul style="list-style-type: none"> • Structural damage • Lost economic activity • Flood costs in excess of \$100,000,000

Problem Statement: Climate Change

Potential / likely adverse effects resulting from climate change include drought, extreme heat, and flood hazards. These hazards are not isolated to Lindsay but have far reaching impacts at the county level and well beyond. The causes of climate change are significantly beyond the control and significant influence of the City.

Policy Approach

Climate change is an unreasonable safety risk for the City. The City will adopt climate change adaptation and resilience policies that best position the City to adjust to climate change and to absorb disturbances that may result from climate change. Such efforts shall:

1. Emphasize regional solutions in partnership with Tulare County, recognizing the County's regional leadership role.
2. Minimize adverse local effects to life, property, and community health.
3. Promote realistic local solutions that are cost effective and economically realistic.

Adaptation and Resilience Goals, Policies, and Objectives

Goals: The MJLHMP (p. 98) provides the following hazard mitigation *goals*:

- Goal 1: Protect life, property, and reduce potential injuries from natural, technological, and human-caused hazards.
- Goal 2: Improve public understanding, support and need for hazard mitigation measures.
- Goal 3: Promote disaster resistance for the County's natural, existing, and future built environment.
- Goal 4: Strengthen partnerships and collaboration to implement hazard mitigation activities.
- Goal 5: Enhance the County's ability to effectively and immediately respond to disasters.

This Element incorporates the above listed goals by reference.

Objectives: Since the MJLHMP does not include adaptation and resilience *objectives* (i.e., intermediate steps towards attaining goals), this Element must provide separate objectives. The following objectives shall apply to the Plan Area for the Planning Period:

- Objective 1: Protect life, property, and reduce potential injuries by supporting Tulare County MJLHMP mitigation strategies, and by strengthening critical City facilities.
- Objective 2: Improve public understanding and support for hazard mitigation through public education efforts promoting:
 - a) Fire and flood hazard mitigation
 - b) Water conservation (addressing extreme drought hazards)
 - c) Energy conservation
 - d) Heat stress prevention (addressing extreme heat hazards)
- Objective 3: Promote disaster resistance through implementation of fire and flood hazard mitigation efforts discussed in this Element.

- Objective 4: Strengthen partnerships and collaboration to implement hazard mitigation by:
 - a) Active participation in countywide hazard mitigation efforts
 - b) Preserving and strengthening emergency mutual aid systems
- Objective 5: Enhance City ability to respond to disasters by:
 - a) Reducing the likely frequency and adverse impacts of disasters, by public education efforts outlined in Objective 2, above.
 - b) Improved mutual aid systems, as outlined in Objective 4, above.
 - c) Implementation of fire prevention policies, as outlined on page 26.

Policies: The MJLHMP provides mitigation *strategies* (i.e., plans of action designed to bring about major or overall aims) which may also be viewed as *policies* (i.e., specific statements that guide decision-making), as required by state law. The MJLHMP provides 22 countywide mitigation strategies which are the responsibility of the County, and three mitigation strategies which are the responsibility of the City.

Tulare County Climate Change Mitigation Strategies (summarized)

Strategy #	Page #	Summary
1-12	100	Support / encourage new agricultural industries*
1-48	105	Conduct hydrological survey/study for subsidence issues*
1-49	105	Promote stormwater management through groundwater recharge*
1-56	105	Develop countywide drought response plan
1-65	106	Develop countywide stormwater resources plan
1-66	106	Develop program/policies to protect surface and groundwater resources*
1-67	106	Develop groundwater recharge projects*
2-4	107	Develop countywide program to promote water conservation*
3-1	107	Conduct site hazard investigations for new development*
3-2	107	Maintain agriculture as primary land use in valley region
3-3	107	Develop agricultural conservation easement program
3-4	107	Protect/enhance surface and groundwater resources*
3-5	108	Identify infill development opportunities near employment areas*
3-6	108	Encourage high density residential development in key areas*
3-7	108	Review leadership in LEED programs*
3-8	108	Encourage employee services near employment centers*
3-9	108	Encourage new streets for pedestrian and cyclist environments*
3-10	108	Locate new schools near residential areas, with pedestrian access
3-11	108	Study methods of transportation to reduce air pollution*
3-12	109	Encourage energy conservation and green building practices*
5-2	110	Require road networks to provide safe emergency access/evacuation routes*
5-4	110	Expand street name and numbering ordinance to include private roads

* Tulare County mitigation strategies where City has existing policies, programs, actions, etc. to promote implementation at the local level.

City of Lindsay Climate Change Mitigation Actions (as per the MJLHMP)

Action #	Summary	Priority	Timeframe
1	Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency	Medium	5 or more years
2	Develop a free annual tree chipping and tree pick-up day that encourages residents living in wind hazard areas to manage trees and shrubs at risk of falling on nearby structures. <i>[It should be noted that the City offers a free commercial green waste program].</i>	Medium	5 or more years
3	Bolt down the roofs of critical facilities in wind gust hazard areas in order to prevent wind damage. <i>[It should be noted that there are no presently identified wind gust hazard areas in Lindsay. However, should such areas be identified, this mitigation measure would apply].</i>	High	2-5 years

MJLHMP, Annex E, p. 4

Feasible Implementation Measures

The following discussion addresses State legal requirements for this Element to contain feasible implementation measures designed to carry out Element goals, policies, and objectives (Government Code § 65302(g)(4)(C)). The General Plan Guidelines define an implementation measure as “an action, procedure, program, or technique that carries out general plan policy.”

Minimize Climate Change Impacts Associated with New Development

The State requires this Element to discuss minimizing climate changes impacts associated with new development. This Element recommends implementation measures that encourage efficient higher density infill development patterns, and direct new development to areas outside of flood hazard zones: The following feasible mitigation measures are recommended:

- **Residential Project Density Bonus.** The City will amend the Zoning Code to comply with Government Code § 65915, to equally provide for density bonuses in all zoning districts where residential uses are permitted. This shall include provisions relative to density bonuses, incentives, and concessions as required by State code. In addition, this amendment will specifically address density bonus requirements of Government Code § 65915(c)(3) pertaining to replacement of affordable units (for low or very-low income households) on non-vacant sites and vacant sites with previous residential uses that have been vacated or demolished. *[This implementation measure was recently adopted in the Housing Element].*
- **Accessory Dwelling Units (ADUs).** The City shall review and amend the Zoning Code to integrate all applicable recently adopted State legislation pertaining to ADUs. This may include the following bills: SB 13, AB 68, AB 587, AB 670, AB 671, and AB 881. It is the intent of this program to bring forward a single, integrated code amendment that addresses, as necessary, various new state legal requirements affecting ADU regulation by the City. *[This implementation measure was recently adopted in the Housing Element].*
- **Development Outside of Flood Hazard Zones.** New development and divisions of land, especially residential subdivisions, shall be developed to minimize flood risk to structures, infrastructure, and ensure safe access and evacuation during flood conditions.

Location of New Essential Public Facilities Outside of At-Risk Areas

The State requires this Element to discuss the location of new essential public facilities outside of at-risk areas.

Essential public facilities include hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities. All such existing facilities are currently located outside of flood hazard zones. *At risk areas* for the purposes of this Element include flood hazard zones. The following feasible mitigation measure is recommended:

- *Zoning Restriction Review*: Review zoning restrictions for essential public facilities and methods to restrict such development to areas located outside of flood hard zones.

Designation of Adequate and Feasible Infrastructure Located in At-Risk Areas

The State requires this Element to discuss designation of adequate and feasible infrastructure located in at risk areas. “Adequate infrastructure” of the purposes of this Element shall mean public infrastructure such as public utility and transportation improvements that meet minimum identified community standards. Transportation improvements in this section are limited to public roads, since public transit services in Lindsay are located outside of at-risk areas. The following feasible mitigation measures are recommended:

- *Storm Drainage*. The City shall identify and prioritize for CIP funding storm drainage system improvements in northeast Lindsay, near existing developed areas, to address drainage deficiencies that may exacerbate flood risk in flood hazard areas.
- *Roads*. The City shall conduct a vulnerability analysis and resilience strategy to address street flooding in northeast Lindsay, focusing on roads where past flooding events have occurred, including Foothill Avenue, Fir Street, Hickory Street, and Lafayette Avenue. It should be noted that these roads contain both City and County rights-of-way. The City shall work collaboratively with the County to address roads at risk for flooding.
- *Water Treatment Plan Vulnerability Analysis / Resilience Strategy*. The City shall conduct a vulnerability analysis and resilience strategy for the City WTP, to assure uninterrupted operations during flood conditions. The City is currently conducting a regional water treatment plant study. While the existing WTP is in a flood zone, the study will provide viable alternate locations for a new WTP, built to flood elevation base flood elevations if located in a flood zone.

Guidelines for Working Cooperatively with Local, Regional, State, and Federal Agencies

The State requires this Element to discuss guidelines for working cooperatively with relevant local, regional, state, and federal agencies. The following feasible mitigation measure is recommended:

- *Mutual Aid Review*: The City shall review existing and pending mutual aid agreements to evaluate opportunities for shared response for drought, extreme heat, and flood hazards.

Identification of Natural Infrastructure That May be Used in Adaptation Projects

The State requires this Element to identify natural infrastructure that may be used in adaptation projects.

Natural infrastructure means the preservation or restoration of ecological systems, or utilization of engineered systems that use ecological processes, to increase resiliency to climate change, manage other environmental hazards, or both. State guidance suggests this may include:

- Combining levees with restored natural systems to reduce flood risk
- Floodplain restoration or preservation
- Urban tree planting to mitigate high heat days
- Wetlands restoration or preservation

It should be noted that the only levee in the Plan Area is the Friant-Kern Canal, which is concrete-lined for bulk water conveyance, and is not suited for combining purposes. The following feasible mitigation measures are recommended:

- *Floodplain Restoration / Preservation.* The City shall encourage property owners of undeveloped / fallow lands in the floodplain to restore or preserve such lands.
- *Urban Tree Planting.* The City shall review and revise as necessary development standards pertaining to tree planting to reduce heat islands and excessive building cooling. This shall encourage use of drought tolerant native deciduous tree species in parking lots and along south and west facing building exposures.
- *Wetland Restoration / Preservation.* The City shall encourage property owners of wetlands in the floodplain to restore or preserve such lands.

Miscellaneous Other Requirements

State law (Government Code § 65302(g)(1)) requires this Element to discuss “*evacuation routes, military installations, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.*”

Evacuation Routes: Lindsay is generally laid out in a formal grid street pattern served by north/south and east/west arterial roads at ½ mile distance separation and interconnected by local roads. This pattern is strongest in west and central Lindsay, where development densities are the greatest and where most industrial and commercial facilities are located. The grid pattern is disrupted in north Lindsay in/around the area of Towt’s Hill (which affects Hickory Street and Harvard Avenue). This gridded street pattern generally provides redundant and efficient evacuation route choices in case of a significant emergency.

- *Related to Identified Fire Hazards:* There are no identified fire hazards that relate to the need or improvement of evacuation routes.
- *Related to Identified Geologic Hazards:* There are no identified geologic hazards that relate to the need or improvement of evacuation routes.

Military Installations: There are no military installations in or adjacent to the Plan Area.

Peakload Water Supply Requirements:

- *Related to Identified Fire Hazards:* Lindsay relies on treated surface water from the Friant-Kern Canal and two groundwater well sources (Wells 14 and 15). There is a third well, Well 11 (1,100 GPM), that has perchlorate and nitrate contaminants that exceed maximum contaminant levels (MCL) and if ever used, the City would have to deliver “Do Not Drink” notification (due to perchlorate contamination). During normal operations, the surface water treatment plant (WTP, 1,700 GPM capacity) is the primary water source.

Well 14 (850 GPM) and Well 15 (950 GPM) provide backup water supply during times where the WTP cannot meet demand. Between these three water sources and the City’s existing elevated four million-gallon storage tank, system pressure varies between 35-45 PSI.

Lindsay experiences varying system pressures throughout the seasons. In times of low demand, the WTP provides system pressure, along with the storage tank supply. At times between November and January (sometimes even into February), the WTP must be turned off as there is no system demand and the tank level activates the high-water level alarm. If there were to be a fire that demands additional supply and pressure, City Services utility staff would activate Wells 14 and 15 as well as put the WTP back online.

As identified above, the City has the ability to provide 850 GPM to 2,650 GPM depending on water supply operations. In the past four years, there have been several structure fires with the most significant fire located at a large packing facility (during August 2016). There have also been other structure fires (one involving three single family residential properties) as well as other smaller structure fires and minor grass fires. Only in the most extreme case (a packing house fire) did the City consider (and was ready) to activate Well 11 to introduce additional capacity into the water system for fire hazard control. Luckily, the decision to activate Well 11 was avoided.

In October 2013, a water feasibility study was completed and provided a groundwork for the water distribution system and weaknesses regarding fire flows. Utilizing this feasibility study, the City has been able to identify capital improvement projects (CIP) that have been completed or included in current CIP budgets.

- *Related to Identified Geologic Hazards:* There are no identified geologic hazards that relate to peakload water supply requirements.

Minimum Road Widths: Most streets in the historic core of Lindsay (generally bounded by Tulare Road, Harvard Avenue, Valencia Street, and Sweetbrier Avenue) are oversized with a 66-80'- typical right-of-way width. Most streets outside of the historic core and in outer edge developing areas are narrower, with 60-66' typical right-of-way. With few exceptions (which involve older subdivisions along alleys, such as Pleasant Street, Denver Court, Warmer Court, Blue Gum Avenue) most roads in Lindsay provide sufficient road width to provide parking on both sides of the street and two vehicular travel lanes. This is also a requirement for new residential development.

- *Related to Identified Fire Hazards:* Road standards provide sufficient minimum pavement width for emergency vehicle access for identified fire hazards. In limited circumstances in older developed areas with alley, most properties are served by a redundant grid system providing adequate alternate emergency access options.
- *Related to Identified Geologic Hazards:* There are no identified geologic hazards that relate to minimum road widths.

Clearance Around Structures: Clearance around structures is the function of building setbacks required by zoning district. The most common residential zoning districts (R-1-7 and R-M-3) require a minimum side yard setback of five feet, providing a minimum clearance of ten feet between adjacent structures). Industrial zoning districts provide even greater building side yard setback when adjacent to non-industrial uses, with a minimum distance of 15 feet.

- *Related to Identified Fire Hazards:* Existing building setback standard provide safe separation between structures to help mitigate risk from identified fire hazards. In addition, where buildings are contiguous (such as for multifamily, commercial, office, and industrial structures), fire code requirements for resistive fire wall separation and fire sprinklers also help mitigate risks related to identified fire hazards.
- *Related to Identified Geologic Hazards:* There are no identified geologic hazards that relate to clearance around structures.

Consultation Requirements

State law (Government Code § 65302.5) states:

“At least 45 days prior to adoption or amendment of the safety element, each county and city shall submit to the California Geological Survey of the Department of Conservation one copy of a draft of the safety element or amendment and any technical studies used for developing the safety element. The division may review drafts submitted to it to determine whether they incorporate known seismic and other geologic hazard information, and report its findings to the planning agency within 30 days of receipt of the draft of the safety element or amendment pursuant to this subdivision. The legislative body shall consider the division’s findings prior to final adoption of the safety element or amendment unless the division’s findings are not available within the above prescribed time limits or unless the division has indicated to the city or county that the division will not review the safety element. If the division’s findings are not available within those prescribed time limits, the legislative body may take the division’s findings into consideration at the time it considers future amendments to the safety element. Each county and city shall provide the division with a copy of its adopted safety element or amendments. The division may review adopted safety elements or amendments and report its findings. All findings made by the division shall be advisory to the planning agency and legislative body.”

DRAFT

Attachment A

FEMA Flood Map

(Map Number 06107C1305E, Effective June 16, 2009)

