



Planning Commission

Agenda

Study Session

September 10, 2018

Noon

Lausmann Annex, Room 151

200 South Ivy Street, Medford, Oregon

-
10. Introductions
 20. Discussion items
 - 20.1 **CP-18-063** Natural Hazards Mitigation Plan
 - 20.2 **CP-16-075 & DCA-18-120** Urbanization Plans
 - 20.3 **CP-16-036** Transportation System Plan Update
 30. Adjournment

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MEMORANDUM

Subject Natural Hazards Mitigation Plan Comprehensive Plan Amendment
File no. CP-18-063
To Planning Commission *for September 10, 2018 study session*
From Seth Adams, AICP, Planner III
Date September 4, 2018

Direction Sought

Staff is asking the Planning Commission for direction on the following:

- 1) Identify any additional changes to be made to the proposal

Overview

A legislative amendment to incorporate by reference the 2017 City of Medford Natural Hazards Mitigation Plan (NHMP) into the Environmental Element of the Comprehensive Plan, and to make related updates to the Conclusions, Goals, Policies and Implementation Strategies of the Comprehensive Plan. **(Exhibits A – C)**

Background

Goal 7 (Areas Subject to Natural Hazards) of the *Statewide Planning Goals* requires local governments to consider natural hazards in their land use planning, and to adopt inventories, policies, and implementing measures in order to reduce the risk to people and property from natural hazards. As a result, the following natural topics are currently identified and discussed in the Environmental Element of the Comprehensive Plan:

- Air Quality
- Flooding
- Landslides
- Earthquakes
- Wildland Fires

These same natural hazards are also found, and much more extensively analyzed, in the City's *Natural Hazards Mitigation Plan* (NHMP). In addition, the NHMP also

analyzed the potential for natural hazards related to severe weather, volcanic eruptions, and emerging infectious diseases.

The NHMP was first adopted in 2004 as a requirement of the Disaster Mitigation Act of 2000 which is implemented by the Federal Emergency Management Agency (FEMA). A stipulation of the law is that in order to receive pre- and post-disaster mitigation funds from FEMA, local governments must have a current, FEMA-approved NHMP. The City updated its NHMP in 2010, and then undertook an extensive analysis and re-writing of it between June 2016 and August 2017 in order to incorporate current scientific information, recent hazard event data, and other more current information. The process included a substantial amount of public outreach and participation, including local and regional input from a 19-person steering committee, community events and notices, interviews, an open house, and study sessions with the Planning Commission and City Council.

The new NHMP was adopted by the City Council on September 7, 2017 per Resolution No. 2017-105, and approved by FEMA on September 13, 2017. With FEMA's approval of the plan, the City maintains its eligibility for federal disaster mitigation funds, as well as additional points under the National Flood Insurance Program's Community Rating System (CRS). The adopted and approved Plan is effective through September 12, 2022.

Proposed Comprehensive Plan Amendments

As already noted, the preparation of the 2017 NHMP involved a significant amount of analysis and new information which included mitigation plans for natural hazards that are not currently addressed in the Environmental Element of the Comprehensive Plan. Similar to what was been done in the past with the Leisure Services Plan, the proposed amendment would incorporate (by reference) the 2017 NHMP into the Comprehensive Plan (Environmental Element), and for consistency between the two documents, would also include new and/or updated summaries for each of the natural hazards identified in the NHMP.

NEXT STEPS

The tentative hearing schedule would include the following dates: the first evidentiary hearing with Planning Commission on September 27, 2018, and a City Council hearing on November 1, 2018.

Attachments

- A. [2017 City of Medford Natural Hazards Mitigation Plan](#) (please contact Planning if you would prefer a hard copy)

- B. Proposed Environmental Element Amendments
- C. Proposed Conclusions, Goals, Policies and Implementation Strategies Amendments

ENVIRONMENTAL ELEMENT

Prepared by
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~~James E. Huber, AICP, Planning Director~~

~~COMPREHENSIVE PLANNING SECTION~~

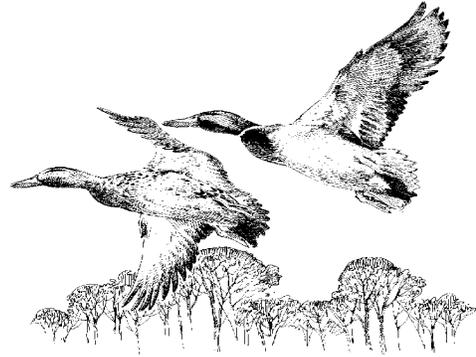
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~~Praline McCormack, Planner II~~
~~Chris Olivier, GIS Coordinator~~
~~Carla Angeli Paladino, Planner IV~~

Revised by
MEDFORD CITY COUNCIL
~~February 4~~ XXXXXXXXXX, 2016
Ordinance No. 20168-020

INTRODUCTION

PURPOSE

An issue in many Northwest communities is the declining environmental quality that accompanies urban growth. The Bear Creek Valley has an abundance of diverse natural resources that provide recreation, wildlife habitat, and valuable urban open space, and contribute to the quality of life in Medford. Urbanization has negatively impacted the valley's natural resources, and, therefore, our quality of life. Diminishing supplies of developable land have forced many communities such as Medford to face the difficult challenge of balancing natural resource protection with the needs and rights of property owners and competing land uses. The impacts of development on the natural environment and its scenic values are evident. Cities, farms, drainage projects, dams, channelized streams, and roads have shaped the local landscape. In many instances, development has out-stepped environmental planning efforts.



This “Environmental Element” of the *Medford Comprehensive Plan* provides goals, policies, and implementation strategies for improving and maintaining environmental quality in Medford, while accommodating continued growth. The *Statewide Planning Goals* that oversee the protection and conservation of natural resources in Oregon are *Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources*, and *Goal 6: Air, Water and Land Resources Quality*. Consistent with the objectives of Goals 5 and 6, the “Environmental Element” is a guiding document that strives to protect the natural environment and ensure that long-term growth does not adversely affect the natural resources that contribute to Medford’s livability. Other *Statewide Planning Goals* that are pertinent to the “Environmental Element” include *Goal 3: Agricultural Lands*; *Goal 7: Areas Subject to Natural ~~Disasters and~~ Hazards*; and *Goal 13: Energy Conservation*. Most of these *Statewide Planning Goals* are also addressed in other elements of the *Comprehensive Plan*, such as in the “Public Facilities Element,” and in related plan documents such as the *Medford Parks, Recreation, and Leisure Services Plan*, and the *City of Medford Natural Hazards Mitigation Plan*.

An overriding concept in the goals, policies, and implementation strategies in this element is to incorporate *preventive*, rather than *corrective* measures in land use planning. The goals, policies, and implementation strategies emphasize the importance of developing and maintaining an integrated open space system that incorporates parks and recreation, biological resources, agriculture, and waterways. They must be evaluated and updated regularly, with new information added to the “Environmental Element” as necessary.

* * *

NATURAL RESOURCES

Goal 6 of Oregon's *Statewide Planning Goals*, "Air, Water, and Land Resources Quality," strives "to maintain and improve the quality of the air, water, and land resources of the state." This section of the "Environmental Element" discusses Medford's natural resources, including air quality, water quality, wetlands, wildlife habitat, soils, and energy, and presents the conclusions, goals, policies, and implementation strategies pertinent to these factors. Because water quality, wetlands, ~~and~~, and wildlife habitat are interrelated, their Conclusions and Goals, Policies and Implementation Measures are combined.

AIR QUALITY

Statewide Planning Goal 6 requires Comprehensive Plans to provide for the maintenance and improvement of air resources. In air sheds, such as Medford's, that are "described or included in state environmental quality statutes, rules, standards and implementation plans" air emissions "shall not (1) exceed the carrying capacity of such resources, considering long range needs; (2) degrade such resources; or (3) threaten the availability of such resources."¹

In the past, the largest sources of air pollution in the region included industry and wood stoves, which emit particulate matter and carbon monoxide. Substantial efforts (discussed below) have been made to reduce these emissions. More recently, concerns for air quality arise when smoke from regional wildfires either blows through the valley or becomes trapped during inversions. ~~motor vehicle emissions have become the major source of air pollution. According to one source, "Motor vehicles are the single largest source of ozone and carbon monoxide emissions in the United States today. Cars, buses, and trucks are responsible for 50 percent of the smog, and 90 percent of the carbon monoxide that exists in urban areas."²—Wood stove, industrial, and motor vehicle emissions continue to be a major source of air pollution. A definite contributing factor to traffic congestion is Medford's role as a regional retail, health, and service center. ~~Medford is prone to accumulations of air pollution from motor vehicle emissions.~~ As noted previously, Medford provides services to an estimated population of 400,000 to 450,000, thereby exacerbating traffic congestion and the accumulation of air pollution from motor vehicle emissions. The high number of commuters traveling to Medford for work, services, education, and recreation will continue to increase in the future, especially from outlying communities such as Ashland, Grants Pass, and ~~even~~ Yreka, California, ~~affecting Medford's air quality.~~~~

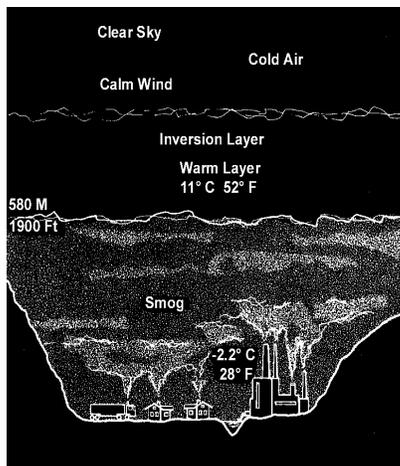
~~As noted in the *Physical Characteristics* section, historically,~~ Given its bowl-like shape, the Rogue Valley, ~~from Ashland to Grants Pass, has had a high propensity toward~~ experiences periods of air stagnation and atmospheric temperature inversions that trap pollution, particularly during the

¹Oregon's *Statewide Planning Goals and Guidelines*, ~~1995~~2010 Edition, Oregon Department of Land Conservation and Development.

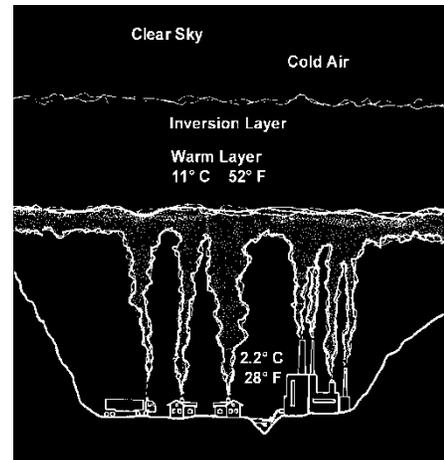
²~~Clean Air Act: Law and Explanation, Commerce Clearing House, Inc., 1990.~~

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months of [November](#), December, January, and February. During these months, the temperature near the ground decreases rapidly toward sunset. As the surface air cools, it flows down the mountain slopes, forming a pool of cold air on the valley floor with the warmer air above acting



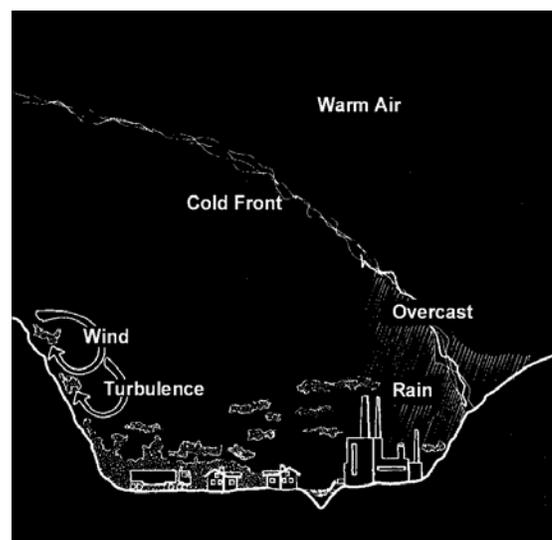
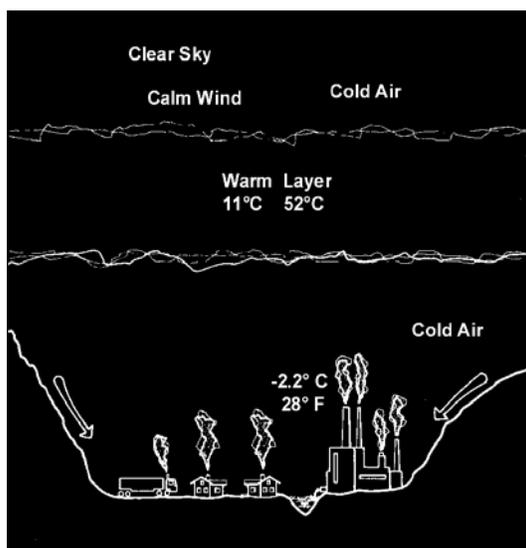
As nighttime comes, the surface air cools and moves down into the valley.



During the day, emissions rise, but become trapped by the warm air layer above.

as a lid. The cooling within this layer typically produces fog, and, as air pollutants are discharged, they become trapped. During these stagnant conditions, the fog and trapped air can remain under this “lid” for several days, becoming increasingly polluted. **Figure 1** illustrates the temperature inversion process.

Figure 1: Temperature Inversion



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Since there is no wind to carry the emissions away, the pollution remains under the “lid” of warmer air, accumulating until the inversion layer is broken up.

Breakup of the inversion layer may come from increased temperatures during the day, which increases the depth of the mixing layer, or from the arrival of a new air mass accompanied by stronger wind and precipitation.

~~Currently, local and state agencies are working to develop an air quality plan for the region that will not only maintain federal air quality standards, but continue to improve air quality, while satisfying the provisions of the *Statewide Planning Goals*. The City of Medford has also begun undertaking preventive strategies to reduce motor vehicle emissions. For example, mixed residential and commercial development, which lessens the number and length of auto trips for work or shopping, is being required in areas such as Southeast Medford.~~

~~The Rogue Valley Transportation District (RVTD) is one of the local agencies who is active in air quality issues through their efforts to reduce single occupancy vehicle trips and their use of compressed natural gas to fuel their buses. Mass transit vehicles operating on compressed natural gas are virtually non-polluting. Other public and private entities in the Medford-Ashland AQMA have turned to use of compressed natural gas as a fuel source, including Jackson County and Avista Utilities Company.~~

FEDERAL AND STATE REGULATIONS

~~Federal “Clean Air” legislation began in 1950s, and has undergone subsequent amendments, including revisions in 1960s, 1970s, and 1990s. While initial legislation concentrated on satisfying federal air quality standards, more recent revisions have incorporated the critical role of transportation planning in maintaining and improving air quality. In 1955, Congress took the first step in implementing regulations to improve air quality by passing the *Air Pollution Act*, which authorized the first federally funded air pollution research. Later, the passage of the *Motor Vehicle Pollution Control Act of 1965* expanded federal activity to include setting emission standards for automobiles.~~

~~In 1967, the *Air Quality Act* became law, followed in 1969 by the *National Environmental Policy Act (NEPA)*, which established the Council on Environmental Quality. The *Clean Air Act of 1970* established the existing system of national air quality standards, and issued a generalized compliance schedule to all states. In the 1970 amendments, it requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. were developed for seven major pollutants. The EPA has set NAAQS for seven principal pollutants, which are called “criteria” air pollutants. The seven “criteria” pollutants are: carbon monoxide (CO), particulate matter (PM₁₀ and PM_{2.5}), ozone (O₃), assigned NAAQS were total suspended particulate (TSP), sulfur dioxides (SO_{x2}), carbon monoxide (CO), hydrocarbons (HC), nitrogen dioxide (NO₂), photochemical oxidants (O_x), and lead (Pb). As part of the *Clean Air Act*, states were required to develop State Implementation Plans (SIPs) for attaining and maintaining the NAAQS.~~

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The federal Environmental Protection Agency (EPA) is responsible for approving or disapproving SIPs. Although the 1970 *Clean Air Act* established the NAAQS, many jurisdictions concentrated on attaining standards through emission controls, instead of fully addressing the prevention of air pollution and maintenance of air quality on a broad, regional level. In the early 1970s, the EPA disapproved all SIPs because many lacked effective mechanisms for maintaining federal standards. The EPA required states to identify areas that had air quality problems or where future growth rates would result in exceeding the NAAQS as “Air Quality Maintenance Areas” (AQMA). The Medford-Ashland area was designated as an AQMA in 1974, encompassing the communities of Medford, Ashland, Central Point, Phoenix, Talent, White City, Eagle Point, and Jacksonville (228 square miles). The Oregon Department of Environmental Quality (DEQ) was given primary responsibility for enforcing air quality standards in Oregon.

An AQMA that does not meet the NAAQS for a particular pollutant is labeled a “non-attainment area” for that pollutant. **Figure 2** illustrates the steps in developing a SIP in a non-attainment area under the *Clean Air Act*. Strategies for bringing the AQMA into compliance are required as a component of the SIP, as is a detailed analysis of the impact of projected future growth on air quality. Where the analysis indicates that an area may not maintain the NAAQS for the ten years after attainment, the state is required to submit an Air Quality Maintenance Plan.

Comprehensive amendments to the *Clean Air Act* in 1977 mandated significant involvement by local governments and elected officials in the development, implementation, and enforcement of plans to attain the NAAQS. The increased responsibility of local governments was identified specifically for areas subject to transportation-related photochemical oxidants (ozone or “smog”) and carbon monoxide standards that would not be met before 1979. In 1978, the Jackson County Board of Commissioners was identified as the lead agency responsible for controlling mobile air pollution sources in Jackson County. They appointed an Air Quality Advisory Committee to make recommendations on transportation-related air quality control measures for the Medford-Ashland AQMA.

Congress again amended the *Clean Air Act* in 1990, resulting in stricter standards and deadlines for compliance for non-attainment areas, with tougher sanctions for those areas that did not comply. A more recent requirement for non-attainment areas in Oregon is the *Oregon Transportation Conformity Rule*, approved by the state Environmental Quality Commission in April 1995. The *Transportation Conformity Rule* requires jurisdictions to consider air quality in transportation planning, or risk suffering a loss of federal funding and potentially violating the NAAQS in the future. For example, a “particulate matter conformity determination” must be made for future, regionally significant transportation projects in Jackson County. In 1998, additional amendments to the *Clean Air Act* set new standards for particulate matter and ozone.

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Figure 2
Steps to Developing a
State Implementation Plan (SIP)
Under the Clean Air Act

- ~~(1) National Ambient Air Quality Standards (NAAQS) promulgated by Environmental Protection Agency (EPA).~~
- ~~(2) States and EPA collect/evaluate ambient air quality data.~~
- ~~(3) EPA/states designate and classify areas based on NAAQS attainment status. If area in attainment, no new SIP required.~~
- ~~(4) If area found in non-attainment for one or more pollutant, SIP required.~~
- ~~(5) States develop emissions inventory.~~
- ~~(6) States develop SIP, consisting of rules, mobile source strategies, etc., to attain standards by Clean Air Act deadline.~~
- ~~(7) States demonstrate to EPA that SIP works, usually through modeling.~~
- ~~(8) States hold public hearing, adopt SIP, and submit to EPA for review and approval.~~
- ~~(9) SIP completeness determined by EPA within six months.~~
- ~~(10) If incomplete, SIP sent back to state to revise and re-submit; OR, if complete, EPA must approve, disapprove, or develop Federal Replacement SIP.~~

~~Source: Rogue Valley Council of Governments, 1997~~

AIR QUALITY MAINTENANCE AREA STATUS

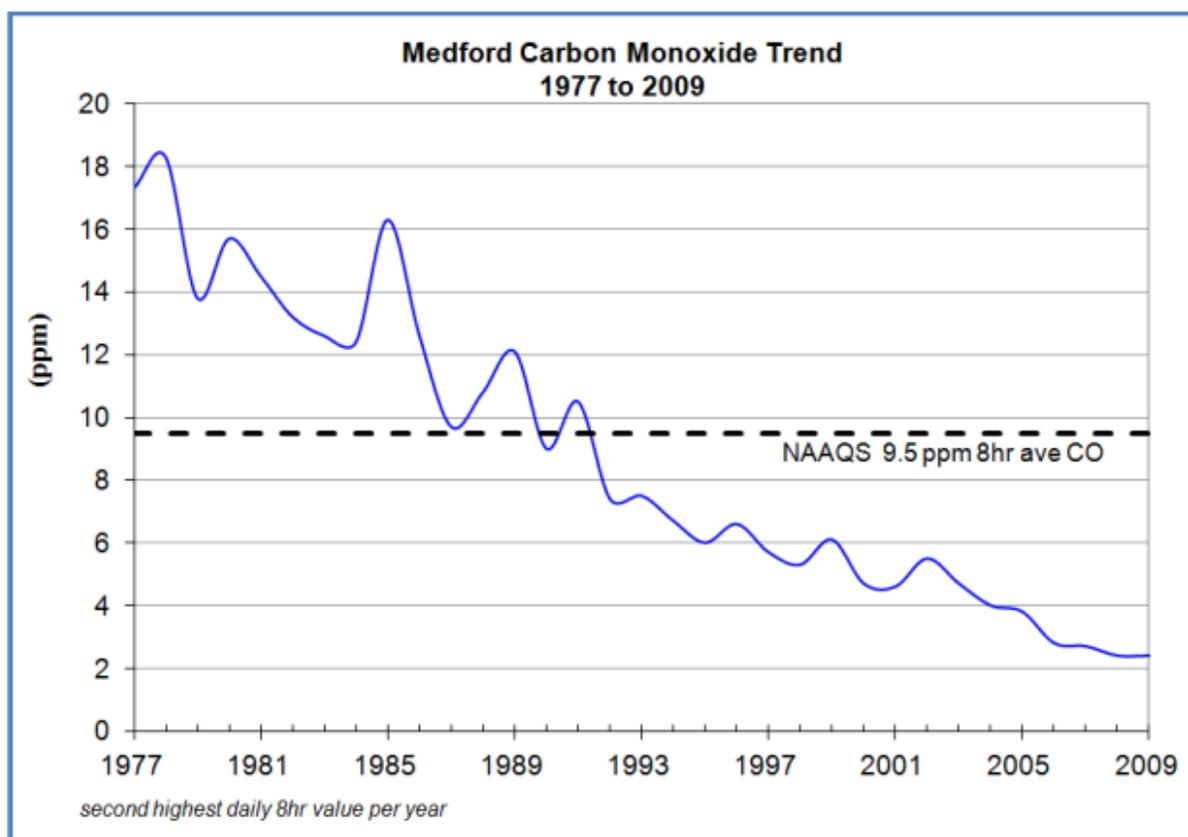
The Medford UGB was established as the non-attainment boundary for carbon monoxide (CO) in 1978, and, in 1987, the Medford-Ashland AQMA was designated as the non-attainment boundary for particulate matter (PM₁₀). As required by federal law, SIPs were prepared for these two pollutants that exceeded the NAAQS in the Medford-Ashland AQMA.

Carbon Monoxide (CO)

Carbon monoxide is a colorless, odorless gas that decreases the oxygen carrying capacity of the blood. High concentrations can severely impair the function of oxygen-dependent tissues, including the brain, heart, and muscle. Prolonged exposure to even low levels can aggravate existing conditions in people with heart disease or circulatory disorders. High levels of CO have traditionally been caused by emissions from motor vehicles.

Largely due to improvements in modern vehicle emission control systems, ~~A SIP for CO was developed in 1982 by Jackson County, and later approved by the EPA~~ CO levels have progressively improved in the years since the designation of the Medford-Ashland AQMA, and Medford has not violated the CO standard since 1991. In 2001 the State of Oregon submitted a ten-year CO Maintenance Plan to EPA and requested that Medford be re-designated to attainment. EPA approved the request as a revision to the SIP of September 23, 2002, and a second ten-year CO Maintenance Plan has been prepared by DEQ indicating how Medford will continue to maintain the CO standard through September 23, 2022. **Figure 2** depicts the trend in carbon monoxide levels in Medford between the years 1977 and 2009. The majority (72%) of the CO air emissions in the Medford UGB can be attributed to motor vehicles, residential wood combustion, and prescribed burning. ~~However, the SIP for PM₁₀, developed in 1991, was not approved, and has been withdrawn.~~

Figure 3
Medford Carbon Monoxide Trend 2nd highest 8-hour average, 1977-2009



Source: [Medford Carbon Monoxide Limited Maintenance Plan, December 2015, Oregon Department of Environmental Quality](#)

The CO Maintenance Plan relies on the following control measures for continued attainment of the NAAQS:

- Federal motor vehicle emission standards for new motor vehicles
- Use of Best Available Control Technology (BACT) for new or expanding major industry
- Oregon Vehicle Inspection Program (i.e. emissions testing and inspection) for vehicles up to 20 years old
- Emission certification for new wood stoves, wood stove change-out programs, and a voluntary curtailment program to reduce wood burning during stagnant weather periods.

Particulate Matter (PM₁₀)

There have been several PM₁₀ plans developed for the Medford-Ashland AQMA. The initial Attainment Plan adopted in 1991 contained a suite of emission reduction strategies that brought the area into compliance with PM₁₀ standards by the required Clear Air Act deadline of December 31, 1994. The Attainment Plan was again updated in 1998 and 2004. The 2004 Plan included a PM₁₀ Maintenance Plan for the AQMA, the objective of which is to continue the successful PM₁₀ strategies for the AQMA in order to ensure continued compliance with PM₁₀ standards. The A revised SIP for PM₁₀ and an Air Quality Maintenance Plan for CO are currently being developed. Representatives from industry, government, and public interest organizations comprise the local working group (Medford-Ashland Air Quality Advisory Committee) overseeing the development of these two plans.

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~~The original emission control measures in the PM₁₀ SIP included the following:~~

- ~~• Mandatory woodstove curtailment program~~
- ~~• Industrial source control technology requirements~~
- ~~• Local open burning ordinances~~
- ~~• Slash burning restrictions on “red days”~~
- ~~• Cleaner road sanding materials~~

~~New~~ emission control measures ~~recommended by~~ contained in the SIP for PM₁₀ in ~~the Medford-Ashland Air Quality Advisory Committee include~~ Maintenance Area are:

- ~~• Unified woodstove curtailment program for all jurisdictions in the AQMA~~ A mandatory woodstove curtailment program.
- ~~• Roadway paving projects in Medford and White City~~ Emission limit standards for existing industrial processes.
- ~~• Education program regarding “track out”³ for orchard owners~~
- ~~• Unified “track out” ordinance for all jurisdictions in the AQMA~~
- ~~• Improved street vacuuming programs in Medford and White City~~
- ~~• New industrial toxic air emission control standards~~
- ~~• Enhanced road cleaning program in Medford and White City.~~
- ~~• Management of prescribed forestry burning year round, and special protection for the Rogue Valley during the winter months.~~

The plan also continues the strictest requirements for managing emissions growth from future new and expanding major industry under the New Source Review (NSR) program. These include:

- A very low emission threshold level (5 tons/year) for triggering NSR.
- The requirements to install state-of-the-art emission control technology.
- The requirement to obtain emission offsets and demonstrate an air quality benefit (20% improvement in air quality).

NATIONAL AMBIENT AIR QUALITY STANDARDS

Air pollution reduction efforts have succeeded in reducing emissions in the Medford-Ashland AQMA due to increased public awareness and proactive programs, but the potential to revert to previous conditions still exists. The topography of the Rogue Valley, the abundance of motor vehicles, and the continued growth in population in the region are all factors that contribute to the potential for poor air quality.

~~Moreover, the 1998 revisions to the Clean Air Act, making the NAAQS stricter for both ozone and PM₁₀, could result in future violations.~~

³~~Track out describes dirt and mud deposited onto streets and roads from equipment and vehicle tires.~~

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Federal air quality standards were developed to address health, safety, and welfare concerns. The NAAQS are divided into two levels, “primary” and “secondary.” *Primary* standards are designed to protect the public health with a built-in margin of safety. *Secondary* air quality standards, which are more stringent than primary standards, are designed to protect the public welfare from adverse effects, such as injury to crops and livestock, decreased visibility, deterioration of materials and property, and other types of environmental damage. Oregon’s air pollution control strategies are directed to meet the more stringent *secondary* air quality standards. Where the secondary standard is identical to the primary standard, the primary standard is also protective of public welfare. **Figure 3** displays the ambient air quality standards currently in effect in Oregon.

**Figure 3
State and National Ambient Air Quality Standards**

Pollutant	Average-Time	Primary (Health)	Secondary (Welfare)	Proposed-Standard
<i>Carbon Monoxide (CO)</i>	<i>8 hours 1-hour</i>	<i>9 ppm 35 ppm</i>	<i>9 ppm 35 ppm</i>	<i>NA</i>
<i>Lead (Pb)</i>	<i>Calendar Quarter</i>	<i>1.5 mg/m³</i>	<i>1.5 mg/m³</i>	<i>NA</i>
<i>Nitrogen Dioxides (NO_x)</i>	<i>Annual Arithmetic Mean</i>	<i>.053 ppm</i>	<i>.053 ppm</i>	<i>NA</i>
<i>Ozone (O₃)</i>	<i>1-hour</i>	<i>.12 ppm</i>	<i>.12 ppm</i>	<i>.08 ppm</i>
<i>Sulfur Oxides (SO_x)</i>	<i>Annual Arithmetic Mean 24 hours 3-hours</i>	<i>.03 ppm .14 ppm .50 ppm</i>	<i>.02 ppm .10 ppm .50 ppm</i>	<i>NA</i>
<i>Particulate Matter (PM₁₀)</i>	<i>Annual Arithmetic Mean 24 hours</i>	<i>- -</i>	<i>50 mg/m³ 150 mg/m³</i>	<i>15 mg/m³-² 65 mg/m³-²</i>
<i>Total Suspended Particulate (TSP)</i>	<i>Annual Geometric Mean 24 hours</i>	<i>NA NA</i>	<i>60 mg/m³ 150 mg/m³</i>	<i>NA</i>

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Pollutant	Averaging Time	National Ambient Air Quality Standard (NAAQS) Violation Determination	Primary NAAQS Exceedance Level	Secondary NAAQS Exceedance Level
Carbon monoxide	1-hour	Not to be exceeded more than once/year.	35 ppm	-
	8-hour	Not to be exceeded more than once/year.	9 ppm	-
Lead	Three Months	Rolling 3 Month Average	0.15 µg/m ³	0.15 µg/m ³
Nitrogen dioxide	Annual	Annual arithmetic mean	53 ppb	53 ppb
	1-hour	3yr average of the maximum daily 98 th percentile one hour average.	100 ppb	-
Ozone	8-hour	3-year average of the annual 4th highest daily maximum 8-hour average.	0.070 ppm	0.070 ppm
PM _{2.5}	24-hour	3-year average of the 24 hour average daily 98 th percentile.	35 µg/m ³	35 µg/m ³
	Annual Average	3-year average of the annual arithmetic mean	12 µg/m ³	12 µg/m ³
PM ₁₀	24-hour	Not to be exceeded more than once per year on average over 3 years.	150 µg/m ³	150 µg/m ³
Sulfur dioxide	1-hour	3yr average of the maximum daily 99 th percentile one hour average.	75 ppb	-
	3-hour	Not to be exceeded more than once per year.	-	0.5 ppm

Notes: µg/m³ = micrograms of pollutant per cubic meter of air
 ppm = parts per million
 ppb = parts per billion

Source: ~~1995-2016~~ Oregon Air Quality Annual ~~Data Summary Report~~, Oregon Department of Environmental Quality, ~~Air Quality Division~~

Notes:—Oregon standards are the same as the federal secondary standards.
 ppm = parts per million
 µg/m³ = micrograms per cubic meter
 NA = not applicable
~~*These are the new standards for PM_{2.5}. It is expected that there will be stricter standards developed for PM₁₀ as well.~~

While there are NAAQS for seven pollutants, there are currently three pollutants of significant concern for Medford: ozone, ~~carbon monoxide, and~~ particulate matter (PM_{2.5}), and air toxics. At present, the DEQ does not have any air toxics monitors in SW Oregon.

Ozone (O₃)

Ozone is part of the ozone layer in the earth's stratosphere. Ozone is harmful outside of the ozone layer in the lower atmosphere, and at that point it is often referred to as ~~(smog, ground level ozone, or ozone pollution. Ozone)~~ typically forms on days when the temperature ~~exceeds 95 degrees and there is a high volume of motor vehicle traffic~~ is warm and stable, typical conditions during the summer in Medford. ~~According to data in the Jackson County Air Quality Annual Report, 1995-1996, the annual average ozone level in Medford was below the proposed new higher standard of~~

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~~.08 parts per million (ppm) for several years; however, several days in July and September of 1998 exceeded the existing standard of .12 ppm. Continued population growth and its accompanying traffic increases could lead to more violations of the federal and state standards in the future~~Ground level ozone is not emitted directly into the air, but is created by chemical reactions between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. Emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents are some of the major sources of NO_x and VOC. Breathing ozone can trigger a variety of health problems, particularly for children, the elderly, and people of all ages who have lung diseases such as asthma. Ground level ozone can also have harmful effects on sensitive vegetation and ecosystems. While ozone levels have declined in Medford since 2007, a slight uptick was measured in the 2013-2015 timeframe.

Carbon Monoxide (CO)

~~The NAAQS for carbon monoxide was exceeded throughout most of the 1980s in Medford, yet levels have decreased in recent years. CO, a colorless, odorless, deadly gas that interferes with the body's ability to use oxygen, is produced by all forms of combustion, including motor vehicle internal combustion engines. Between 1991 and 1999, CO standards were exceeded in the AQMA only once (in 1994) due to a car rally event in Medford. This was not considered a violation because it occurred only once. Sources of CO emissions include mobile "non-road" and "on-road" sources. Non-road sources include equipment, off-road vehicles, aircraft, and railroads. On-road sources are gas and diesel vehicles and trucks driven on roads. "Light duty gas vehicles" (generally cars) account for nearly 66% of CO emissions within the Medford AQMA, and most CO emissions occur on arterial streets.⁴ Monitoring systems for CO have been installed by the DEQ in Medford at two highly congested areas—near the Rogue Valley Mall and at Main Street and Central Avenue.~~

Particulate Matter (PM₁₀ and PM_{2.5})

~~The Clean Air Act requires the EPA to review and revise air quality standards to ensure that citizens are protected from the harmful effects of air pollution. "Particulate matter" comes mostly from smoke, dust, and vehicle exhaust. The current standard for particulate set iIn 1987, standards were established by the EPA for particulate matter particles ~~eovers particles that~~ that are 10 microns or less in diameter (PM₁₀). A comprehensive review of the human health effects of PM₁₀ revealed that the standards were not sufficient to protect human health. Health studies show harmful effects from breathing particles as small as 2.5 microns in diameter (PM_{2.5}). This smaller particle is inhaled deeper into the lungs and can potentially cause more damage than larger particles. Standards for ~~The new~~ PM_{2.5} were established in 1997 for 24 hour and annual levels, and in 2006 the PM_{2.5} levels for daily average levels were significantly reduced from 65ug/m³ to 35ug/m³. Medford trends close to the PM_{2.5} standard in both daily and annual average levels. ~~standard will require new monitoring equipment to collect data. According to the Oregon DEQ, any population center in the state may potentially violate the new PM_{2.5} standards. Particular areas of concern include Bend, Eugene Springfield, La Grande, Portland, Grants Pass, and Medford. Areas designated as out of compliance will have up to ten years to attain the new standards.~~⁵~~

⁴*Oregon 90-SIP: Introduction and Overview, Draft Plan.*

⁵*Proposed New Air Standards and How They Might Affect Oregon Communities, U.S. Environmental Protection Agency, December, 1996.*

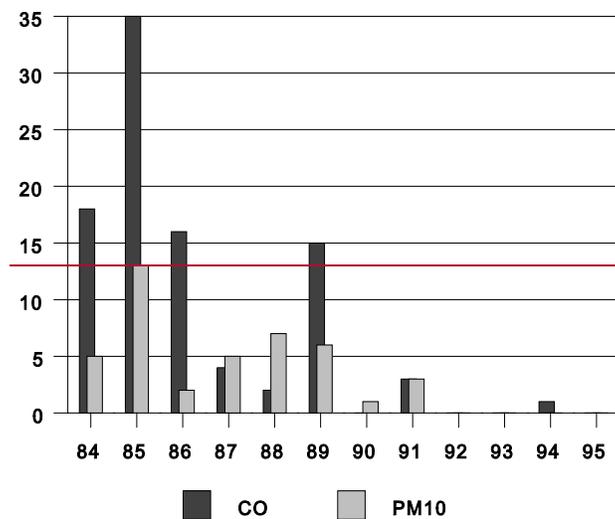
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In 1989, Jackson County began programs to improve PM₁₀ levels, including regulating industry, outdoor burning, and wood stoves to reduce the regional smoke problem. The most heavily polluted areas had more than double the hazardous level of PM₁₀.⁶ The more populated areas, such as Medford, were especially affected, although all portions of Jackson and Josephine Counties were affected to some degree. The severity of the wood smoke problem has decreased in recent years because of the smoke reduction measures and a decline in the wood products industry. PM₁₀ levels have been drastically reduced, to roughly 12.5% of their 1989 levels. The last exceedance of the 24-hour PM₁₀ standard in the Medford area occurred in 1991. The more recent standards for PM_{2.5} will create further challenges for the Medford-Ashland AQMA, however.

Land use strategies, implemented through the *Land Development Code* and *Comprehensive Plan*, such as those that reduce vehicle miles traveled (VMT) and retain vegetation can assist in achieving and maintaining compliance with the new standards. The present primary contributor of PM₁₀ is road dust from use by motor vehicles (55%), although industry (24%) could once again become a significant contributor according to DEQ.

Figure 4 lists a history of the air quality status of the two pollutants (CO and PM₁₀) in violation of the NAAQS in the Medford-Ashland AQMA. While the reduction in the number of days of NAAQS violations is notable, the region is still considered a non-attainment area, since the AQMA has no federally approved SIP for PM₁₀.

Figure 4
Number of Days Exceeding the NAAQS for CO and PM₁₀
Medford-Ashland AQMA, 1984-1995



⁶Jackson County Air Quality 1995/96 Annual Report, Jackson County Environmental Health Division.

Source: Jackson County Air Quality Annual Report, 1995-96.

Air Toxics

There are 188 air toxics, about 50 of concern, in Oregon. DEQ has monitored for air toxics in Medford in the past, but this monitoring was only temporary and is moved around the state. According to DEQ, air toxics include diesel soot, benzene, polycyclic aromatic hydrocarbons (tar-like by-products from auto exhaust and other sources), and metals including manganese, nickel and lead. Air toxics come from a variety of sources including cars and trucks, all types of burning (including fireplaces and wood stoves), businesses, and consumer products. Air toxics are air pollutants known or suspected to cause cancer or other serious health problems. National and state studies indicate that Oregonians are exposed to a number of air toxics at potentially harmful levels.

AIR QUALITY IMPROVEMENT PROGRAMS

~~As noted, air quality in the Medford-Ashland AQMA has improved dramatically in recent years, due, in part, to programs implemented in Medford and the Rogue Valley to reduce emissions and bring the area into attainment with the NAAQS. Although air quality has improved, there is a continuing need for the programs, especially with the arrival of the EPA's stricter 1998 provisions. Each air quality improvement program is briefly described in the following section.~~

- ~~● Vehicle Inspection and Maintenance (I & M) Program~~
- ~~● Oxygenated Fuel Program~~
- ~~● Small Business Assistance Program~~
- ~~● Woodstove Certification Program~~
- ~~● Woodstove Replacement Program~~
- ~~● Liaison Activities~~
- ~~● Daily Wood Stove Advisory~~
- ~~● Outdoor Burning Regulations~~
- ~~● Public Education~~
- ~~● Congestion Mitigation and Air Quality Improvement Program (CMAQ)~~
- ~~● Traffic Signal Timing Program~~

Vehicle Inspection and Maintenance (I & M) Program

~~All motor vehicles, with few exceptions, belonging to residents of the Medford-Ashland AQMA are required to be tested for excessive emissions through the state Vehicle Inspection and Maintenance (I & M) Program. The vehicles must meet specific standards each time licensing is required.~~

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Oxygenated Fuel Program

In 1992, the *Clean Air Act* began requiring the sale of oxygenated fuel during the winter in Jackson County, Grants Pass, and Klamath Falls, along with Multnomah, Clackamas, Washington, and Yamhill Counties, to reduce CO emissions. CO comes chiefly from motor vehicle exhaust, and can reduce the ability of the human body to process oxygen. The “oxy gas” program is in effect from November 1 through February 28, the season with typically the worst air quality conditions.

Small Business Assistance Program

The Small Business Assistance Program provides information and technical assistance to small businesses regarding air quality regulations and related environmental issues. Small businesses that produce air emissions, such as dry cleaners, auto body shops, printers, and small manufacturers, must address regulations in the *Clean Air Act*, and this program is designed to help them meet the most recent emission standards. The program, administered by the Oregon DEQ, is educational and informational in nature, and does not provide any direct financial assistance to the businesses.

Oregon's Wood Stove Certification Program

In 1983, the Oregon legislature mandated a Wood Stove Certification Program to assure use of wood stoves that were less polluting. By 1986, only wood stoves certified as meeting new emission standards were permitted to be sold in Oregon. The certification program required new stoves to achieve a 50% reduction in emissions by 1986, and an approximate 75% reduction by 1988. Later, the EPA adopted nationwide standards for wood stove emissions. In 1991, the sale or installation of uncertified stoves by private parties was banned in Oregon, and uncertified stoves were required to be removed upon sale of a home in a PM₁₀ non-attainment area. Few installation permits are now issued in the City of Medford for new wood stoves, and weatherization of the home is required when a new wood stove is installed. Most new fireplaces are equipped with natural gas, with more of a decorative purpose than as a heating source. Some communities, such as the City of Ashland, issue rebates for the removal of wood stoves to expedite the elimination of uncertified stoves, and provide financial incentives to low income residents.

Wood Stove Replacement Program

The Housing Authority of Jackson County administers programs for lower income households that replace wood stoves used as a sole source of home heating. Most are replaced with natural gas furnaces. The Housing Authority receives federal Community Development Block Grant (CDBG) funds through the City of Medford for such “emergency” repairs. These programs replaced 253 wood stoves in Medford since 1989, and 305 wood stoves countywide.

Liaison Activities

Medford is part of the *Interagency Air Quality Team*, consisting of representatives from Ashland, Central Point, Jackson County, ACCESS, Inc., the Housing Authority of Jackson County, Pacific Power, Avista Natural Gas, and the Oregon DEQ. The Jackson County Environmental Health Division conducts training for air quality staff to reduce duplication of services, and to provide a consistent unified approach to monitoring, surveying, and education. Medford's Air Quality Technicians operate out of the Jackson County office, and participate in joint activities. This cooperation indicates the practicality and cost-effectiveness of a regional approach to air quality issues in the Rogue Valley. Survey activities are conducted throughout the AQMA to obtain information concerning excessive wood smoke emissions. Specific areas have been surveyed

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every year since 1985. These surveys indicate a decrease in the number of households using wood as a heating source. The increased use of heat sources such as natural gas and electric heat pumps has contributed to the reduction in homes heated by wood stoves.

Wood Burning Curtailment and Enforcement Activities

The Wood Burning Advisory program is used to permit or prohibit smoke emissions in the *Critical PM₁₀ Curtailment Area*. It serves to inform the public of the status of PM₁₀ levels in the atmosphere relative to federal standards. The Jackson County Environmental Health Division staff establishes the daily advisory by 6:00 a.m. each day from November 1 through February 28. The familiar *green, yellow, or red* day status indicators are broadcast on most television and radio stations in the region, are published in local newspapers, and are available by phone. Green indicates that PM₁₀ levels are low and good air circulation is predicted. Yellow indicates that PM₁₀ levels are rising and poor air circulation is predicted, and red indicates that PM₁₀ levels are approaching an unhealthy level and stagnant air conditions are predicted.

On *yellow* and *red* days during the wood burning season, generation of smoke is restricted and enforcement monitoring takes place. Technicians are dispatched to observe smoke emissions. Violators are contacted by mail and targeted for special programs to aid in reducing or eliminating their wood smoke emissions. The winter of 97-98 marked the seventh consecutive winter with no *red* days. Like CO, PM₁₀ is considered a wintertime issue. The cold, stagnant air characteristic to the season traps pollution in the Rogue Valley, accumulating to unhealthy levels. While the Medford-Ashland AQMA once regularly violated federal standards for PM₁₀ and CO due to excessive wood smoke, the standards have not been exceeded for a number of years (See Figure 4.). A key factor, according to air quality experts, is public cooperation in pollution reduction programs.

Outdoor Burning Restrictions

Outdoor burning is not permitted within the City of Medford, and, in Jackson County, is permitted only when the *predicted afternoon ventilation index* is 400 or greater. From November 1 through February 28, all outdoor burning within the Medford-Ashland AQMA is prohibited. Special allowances have been made for agricultural burning to control diseases and pests. These allowances, mostly for orchard prunings, have been renewed annually as alternate disposal methods for pruned material are investigated. Further restrictions on outdoor burning occur during the fire season, resulting in outdoor burn “windows” in the AQMA outside of cities only in the spring and fall. The City of Medford also administers a fall leaf pick-up program throughout the city to reduce the need for fall burning.

Public Education

Educating the public about ways that individuals can help improve and maintain air quality in the Rogue Valley is one of the most effective means of improving air quality. Public education involves a mix of newspaper, radio, and television announcements and advertising, field and phone contacts, brochure distribution, and community and classroom presentations. The goal of these educational programs is to teach residents that continued compliance with air quality improvement programs is necessary, and that air quality continues to improve because of public cooperation.

Congestion Mitigation and Air Quality Improvement Program

The federal Congestion Mitigation and Air Quality Improvement (CMAQ) Program has provided

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~~considerable funding to jurisdictions within the Medford-Ashland AQMA for dust and motor vehicle emission reduction programs. More than \$4.7 million was apportioned from the CMAQ program between 1992 and 1997. The City of Medford was allocated funds to pave alleys, install curbs, gutters, sidewalks, and bicycle lanes, and enhance street sweeping. Additional funds have extended the Bear Creek Greenway multi-use path, and aided in the construction of a park n-ride lot and transit transfer station at the South Gateway Shopping Center for the Rogue Valley Transportation District (RVTD) and a compressed natural gas fueling station in Medford.~~

Traffic Signal Timing System

~~The City of Medford has implemented a computerized traffic signal control system designed to minimize overall delay for motorists. Inefficient traffic movement produces increased CO emissions from idling automobiles. As population and vehicle use increases, traffic control has become more critical in maintaining standards for CO. Main arterial streets are favored by the system, so that high traffic streets move vehicles more efficiently. Traffic studies are used to engineer changes within the system. The system has the capability of having “real time” traffic monitoring and dynamic traffic controls that change in response to demand in the future. One innovation in use in Medford, designed to minimize waiting times at signals, and, thereby, air emissions from idling vehicles, is the Protective/Permissive Left Turn Indicator. This feature allows motorists to make a *protected* left turn at intersections when the left arrow is green, and a *permissive* left turn when the light is green *and* oncoming traffic permits.~~

NATURAL RESOURCES - AIR QUALITY - CONCLUSIONS

1. Medford's location in the Rogue Valley below substantial mountain ranges (the Cascades, the Siskiyou, and the Coast Range) increases the difficulty of maintaining federal air quality standards. Medford's climate is influenced by atmospheric inversion layers in the fall and winter months which trap air emissions in the valley.
2. The City of Medford has little influence on the air pollution emissions caused by travelers and freight shippers traveling through the planning area on state highways such as Interstate 5.
3. ~~The Medford-Ashland Air Quality Maintenance Area (AQMA) is a "non-attainment area" for carbon monoxide (CO) and the Medford Urban Growth Boundary is a "non-attainment area" for particulate matter (PM₁₀).~~ Largely due to improvements in modern vehicle emission control systems, carbon monoxide (CO) level progressively improved in the years since the designation of the Medford-Ashland AQMA, and Medford has not violated the federal CO standard since 1991. As a result, Medford was re-designated an "attainment" area for CO in 2002. Similarly, Medford has been in compliance with federal particulate matter (PM₁₀) standards since 1994. Maintenance plans for the AQMA have been approved by the EPA to help ensure continued compliance with the federal standards for these two pollutants.
4. While Medford's air quality has improved due to proactive Air Quality Maintenance Area (AQMA) programs and increased public awareness, particularly relating to wood smoke, the potential to revert to previous poor air quality conditions exists. The Rogue Valley's topography, its many motor vehicles, and continued population growth have the potential to further degrade Medford's air quality in the future.
5. Pollutants of concern in the Medford-Ashland AQMA are particulate matter (PM_{2.5}), ozone, and air toxics (although the DEQ does not presently have any air toxics monitors in SW Oregon). While ozone levels have declined in Medford since 2007, there was a slight uptick measured in the 2013-2015 timeframe. Medford trends close to the PM_{2.5} standards in both daily and annual average levels. ~~The State Implementation Plan (SIP) for PM₁₀ for the Medford-Ashland Air Quality Maintenance Area (AQMA) is being revised to meet the National Ambient Air Quality Standards (NAAQS), including new, stricter standards for particulate matter (PM₁₀ and PM_{2.5}).~~

NATURAL RESOURCES - AIR QUALITY GOALS, POLICIES, AND IMPLEMENTATION MEASURES

Goal 3: *To enhance the livability of Medford by achieving and maintaining compliance with National Ambient Air Quality Standards (NAAQS).*

Policy 3-A: The City of Medford shall continue to provide leadership in developing, adopting, and implementing regional air quality improvement strategies to achieve compliance with the

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National Ambient Air Quality Standards (NAAQS).

Implementation 3-A (1): Continue to participate, along with state and local agencies involved in air quality attainment, in the preparation and implementation of the applicable *Air Quality Management Plans* (AQMP's) and *State Implementation Plans* (SIP's) for the Medford-Ashland Air Quality Maintenance Area (AQMA).

Implementation 3-A (2): Continue to participate, along with Jackson County and other affected agencies, in administering air quality public education and smoke reduction programs.

Implementation 3-A (3): Implement strategies from sources such as the *Medford Transportation System Plan*, the *State Implementation Plans* (SIPs) and the *Oregon Transportation Planning Rule* (TPR) that reduce emissions or improve air quality, such as increasing the use of alternative modes of transportation and use of alternative motor vehicle fuels, such as compressed natural gas and electricity, and propose amendments to the *Medford Land Development Code* for consideration by the City Council where necessary to assure compliance with such plans or rules.

See also the policies of the *Medford Transportation System Plan*, and Policy 9 of the "Urbanization Element."

Policy 3-B: The City of Medford shall continue to require a well-connected circulation system and promote other techniques that foster alternative modes of transportation, such as pedestrian-oriented mixed-use development and a linked bicycle transportation system.

See also Goal 1 of the *Southeast Plan* section of the "General Land Use Plan Element."

Implementation 3-B (1): Promote the use of incentives by Medford's larger employers to induce employees to use alternative modes of transportation or work at home in an effort to reduce motor vehicle emissions.

* * *

DISASTERS AND HAZARDS

This section of the "Environmental Element" discusses potential disasters and hazards in Medford, including *natural* and *human-caused*, and the city's emergency management efforts, and presents the conclusions, goals, policies, and implementation strategies pertinent to these factors.

EMERGENCY MANAGEMENT PLANNING

The City of Medford has an *Emergency Management Operations Plan* (EMOP) to guide efforts in mitigating, preparing for, responding to, and recovering from major emergencies and disasters. The EMOP is part of a *Comprehensive Emergency Management Program* that coordinates federal,

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state, and local governmental agencies in an operating partnership. The responsibility for maintaining the EMOP is borne by the city's Emergency Management Coordinator through the Emergency Management Planning Team. The Coordinator is responsible for all emergency planning activities, including periodic reviews of the Plan, planning and conducting disaster training exercises, coordinating mitigation efforts, and assisting in acquisition of state and/or federal assistance for these efforts.

All disaster mitigation and preparedness activities are coordinated by the Emergency Management Planning Team, which consists of the City Manager and various department heads, including the Fire Chief, Police Chief, Public Works Director, Building Safety Official, and the Emergency Management Coordinator. The City of Medford's primary Emergency Command Center (ECC) is located in the City Hall Lausmann Annex at 200 South Ivy Street, with a backup ECC ~~in the Jackson County Building, 10 South Oakdale Street~~ [located at the County Emergency Operations Center at 400 Pech Road](#). The city responds to disasters within the city, within Medford Rural Fire Protection District #2, and at other city-owned facilities when the response will benefit the City.

Mitigation and preparedness planning include advance preparations to minimize public risk from potential disasters, to reduce the likelihood of a major emergency or disaster, and to reduce the anticipated damage. Mitigation can reduce loss of life and property damage through land use regulations and construction practices. Identifying the types, magnitude, and probability of hazards to which an area is susceptible over a significant length of time (hazard risk analysis) is necessary, as well as assessing the degree of hazard risks that the jurisdiction finds acceptable. The cost of mitigating certain risks may be more than a community can afford. Risk standards should be formally adopted as public policy by the local legislative body through comprehensive planning, land development ordinances, permit review, and fire/building safety codes.

NATURAL DISASTERS AND HAZARDS

Goal 7 of the *Statewide Planning Goals*, "Areas Subject to Natural Disasters and Hazards," requires land use planning in Oregon to consider known areas of natural disasters and hazards. It requires plans to be based on an inventory of such natural hazard areas. Although one of the State of Oregon's main focuses is on flooding, ~~other~~ [there are a number of additional](#) natural hazards [that](#) have the potential to disrupt life and commerce in Medford, including earthquakes and wild-land urban interface fires, ~~volcanic eruptions, severe weather, emerging infectious diseases, air quality, and landslides.~~ (Air quality and ~~L~~andslides ~~and soil related problems~~ were discussed previously under "[Air Quality](#)" and "[Soils](#).")

[The natural hazards identified and summarized in this section are thoroughly inventoried and analyzed in the 2017 Medford Natural Hazards Mitigation Plan which was adopted by City Council in September 2017, and is hereby incorporated by reference into the Comprehensive Plan. The City adopted its first Natural Hazards Mitigation Plan in 2004 and updated it in 2010. The 2017 Medford Natural Hazards Mitigation Plan has been reviewed and approved by the Oregon Office of Emergency Management \(OEM\) and the Federal Emergency Management Agency \(FEMA\). As a result of those approvals the City is eligible to receive pre- and post-disaster mitigation funds from FEMA.](#)

FLOODING

Over the past 50 years, major floods occurred in the Rogue Valley in 1955, 1962, 1964, 1974, and, more recently, in 1997. These floods threatened public health, safety, and welfare by destroying or isolating structures, disrupting transportation systems, polluting water supplies, and destroying basic public facilities, such as sewerage and electric services. Recent incidences of record rainfall and flooding across Oregon have renewed concerns about the potential for flooding in the Medford UGB, and have rekindled interest in preparing for potential floods. To minimize the hazards posed by floods, the City of Medford should continue to implement the recommendations of the *Comprehensive Medford Area Drainage Master Plan* [and the 2017 Medford Natural Hazards Mitigation Plan](#) through revisions to Medford's *Comprehensive Plan* and *Land Development Code*, in addition to implementing state and federal regulations.

Floodplain Mapping

The sale of federal flood insurance in Medford, through the *National Flood Insurance Act of 1968*, was authorized in 1974. The Federal Emergency Management Agency (FEMA) developed a 100-year or *base flood* for use in mapping floodplains as part of the national flood insurance program. Federal law requires the first floor of a new building to be *at* or *above* the 100-year flood level, while Oregon law is more restrictive, requiring the first floor of a new building to be one foot *above* the line. Stricter development restrictions can be imposed by cities and counties, such as zoning restrictions that limit vulnerable land uses in floodplains, and programs developed to inform property owners of the hazards posed by waterways. Specialists in natural hazards planning note that the 100-year designation is only a tool, and does not guarantee that flooding will occur only within this floodplain designation.

Floodplains can be delineated according to topography, vegetation, soils, or the extent of past floods.⁷ When defined according to geomorphic features, the floodplain includes the low-lying land along the stream, the outer limits of which may be marked by steep slopes or valley walls. See **Figure 12** for a graphic representation of a floodplain as defined by FEMA. The *regulatory floodway* is the lowest part of the floodplain where most frequent flood flows occur. This area is not eligible for federal flood insurance. The *floodway fringe* is the area that would be lightly inundated by a 100-year flood, and is eligible for flood insurance if flood proofing has been undertaken. Of all the features of a river valley, the floodplain is the most important from a planning standpoint for three reasons. First, excluding the stream channel itself, the floodplain is the lowest part of the stream valley, and consequently, prone to flooding. Second, floodplain soils are often poorly drained because of the high water tables and saturation by flood waters. Third, floodplains are formed by incremental erosion and deposition that accompany the meandering of streams through valleys.

As a prerequisite to obtaining federal flood insurance, the City of Medford was required to identify flood hazard areas, and to control development in floodplains. In Medford, flood hazard areas are located along Bear Creek and most other waterways. Federal Insurance Rate Maps (floodplain

⁷*Landscape Planning: Environmental Applications*, William M. Marsh, 1991.

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maps) are available in the Medford ~~Building Safety~~ [Planning](#) Department. In 1974, the City Council established a review process to assure that proper construction methods and utility locations were undertaken in flood hazard areas. For example, new and replacement water and sanitary sewer systems are required to be designed to minimize or eliminate the infiltration of flood waters into the systems, and discharge from the systems into flood waters.

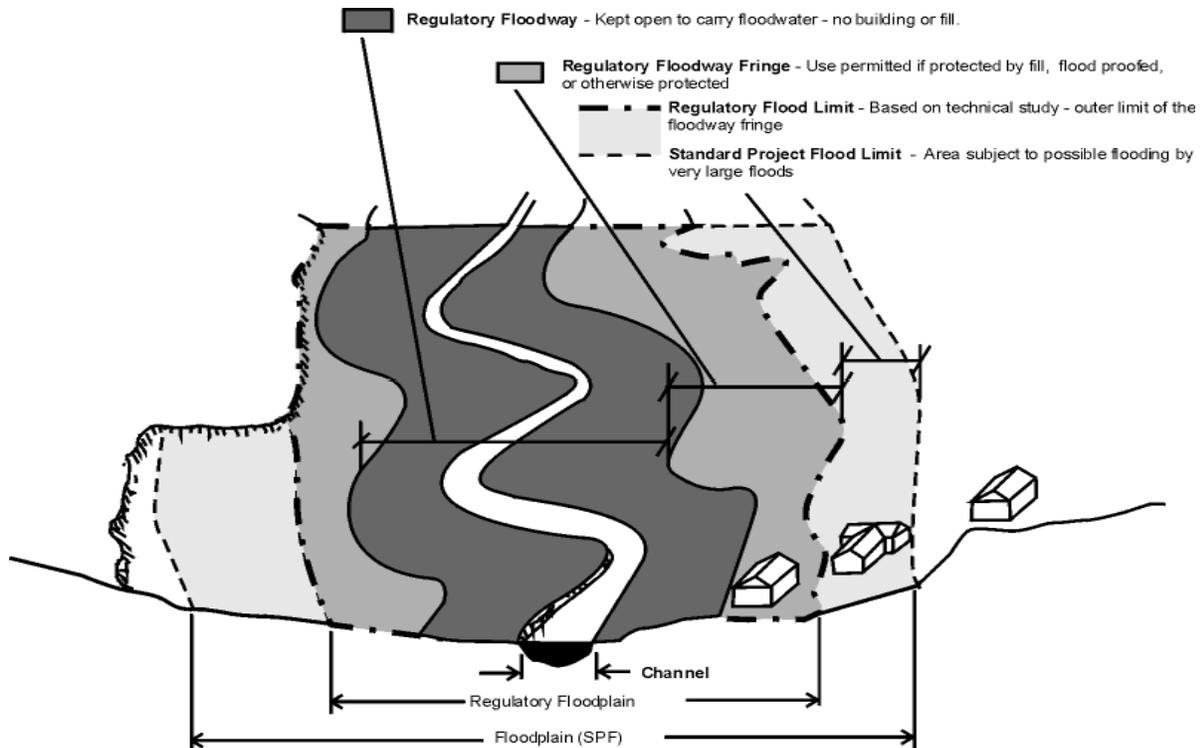


Figure 12
U.S. National Flood Insurance Program
100-Year Floodplain

Source: *Landscape Planning: Environmental Applications*, 2nd Edition, William M. Marsh, 1991.

While floodplain maps are helpful, Oregon's short recorded weather history and changing climatic conditions make flood estimating unpredictable. Additionally, the state's expanding population and fast rate of development continue to alter the landscape and natural waterways.⁸ As a result, many floodplain maps are outdated. A FEMA expert noted in a 1997 *Oregonian* article, that many watersheds in Oregon have changed since floodplains were mapped, and, that "(n)ew houses and pavement in the place of fields and woods mean quicker runoff into streams. 'We're seeing a lot more urban flooding than was occurring in past decades.'"

Medford is similar to many Northwest communities located in valleys prone to flooding that were formerly used for agriculture. As the FEMA expert noted, "Many streams in rural areas weren't seen as priorities when maps were being drawn and weren't included in the studies. Now

⁸Ibid.

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communities have sprouted on former pastures. In addition to areas that need to be restudied, there are many areas that we have not yet studied at all. So just because you don't live in an area that we say is subject to a 100-year flood, it may mean that we haven't gotten around to studying it.”⁹ The State of Oregon has requested that FEMA place a high priority on updating Oregon's floodplain maps.

Flood Damage Reduction

The City of Medford is one of the few Oregon communities to take part in the Community Rating System (CRS) program, which is intended to aid in reducing flood losses, to facilitate accurate insurance ratings, and to promote awareness of flood insurance. The program provides flood insurance premium discounts as an incentive for cities to develop extra flood protection measures beyond what the national program requires. Communities can qualify for up to a 45% discount. ~~In 1999, Medford qualified for a 5% discount in premiums.~~ The discount is based on a point system. A high number of additional points can be earned through such activities as collecting and maintain flood data, protecting open space, stormwater management, higher regulatory requirements, and acquisition/relocation or retrofitting of flood prone properties or structures. As of 2017 Medford has a Class 6 rating under the CRS program. This rating provides discounts of 20% on flood insurance to properties within the FEMA-identified Special Flood Hazard Area (SFHA), and 10% outside the SFHA.

The *Medford Municipal Code* section entitled “Flood Damage Prevention Regulations and Flood Insurance Maps” states that to accomplish its purposes it includes methods and provisions to: ~~It is the purpose of these sections to minimize public and private losses due to flood conditions in specific areas by methods and provisions designed for:~~

- ~~(1) (1)~~ Require development that is vulnerable to floods, including structures and facilities necessary for the general health, safety and welfare of citizens, to be protected against flood damage at the time of initial construction;
- ~~(2)~~ Restrict or prohibit uses which are dangerous to health, safety and property due to water or erosion hazards, or which increase flood heights, velocities, or erosion; Control filling, grading, dredging and other development which may increase flood damage or erosion; ~~Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;~~
- ~~(3)~~ Prevent or regulate the construction of flood barriers that will unnaturally divert flood waters or that may increase flood hazards to other lands;
- ~~(4)~~ Preserve and restore natural floodplains, stream channels, and natural protective barriers which carry and store floodwaters, and;
- ~~(5)~~ Coordinate with and supplement provisions of State of Oregon Specialty Codes enforced by the State of Oregon Building Codes Division.

~~(1)~~

~~(2) Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;~~

⁹Ibid.

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- ~~(3) Controlling the alteration of natural flood plains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;~~
- ~~(4) Controlling filling, grading, dredging, and other development which may increase flood damage; and~~
- ~~(5) Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or may increase flood hazards in other areas.~~

While Medford's infrastructure handled the most recent (1997) flood well, there was damage in some areas along Bear Creek and Larson Creek, emphasizing the continuing need to update and refine the city's floodplain regulations. Development and redevelopment should be highly scrutinized when located in floodplains. The ~~proposed~~ riparian corridor and wetland building setback requirement will aid in reducing future flood damages to structures and improvements. Existing and proposed requirements for on-site detention of stormwater will aid in regulating storm water flows during peak events.

Some of the recommendations of the Oregon Office of Emergency Management *Interagency Mitigation Team Report* made in response to the 1997 floods in Oregon include the following:

- ◆ Strengthen the public facility planning review process to encourage consideration of stormwater system limitations and coordinate plans with a regional perspective, including upstream and downstream communities. Systems often become inadequate because of growth beyond anticipated levels (i.e., increased amount of impervious surface increases runoff). This growth often occurs without subsequent increases to stormwater capacity or recognition of system limitations.
- ◆ Water storage through various means, such as creation of wetlands, retention areas, detention basins, and dams can assist in flood control. Encourage flood control projects and development of local flood mitigation plans. These plans should incorporate regional concerns and should consider the watershed as a whole. Encourage the establishment of drainage management plans.
- ◆ Where appropriate, allow rivers to reclaim floodplain areas, allowing waterways room to naturally meander and expand. This can be accomplished using conservation easements, land acquisition, riparian trust, and creating wetlands and retention/detention areas, especially in headwater areas.



EARTHQUAKES

While historically, California has been perceived as the most earthquake-prone state in the west, [awareness of seismic risk in Oregon has increased significantly since the 1980s](#), and ~~recently~~ seismologists and geo-scientists have recognized that [Oregon the state](#), as well as the entire Pacific Northwest, may be subject to earthquakes of substantial magnitude. Oregon had not experienced a substantial earthquake for almost a century until 1993, when the state suffered three significant quakes: the first near Salem, in [Scotts Mills](#) (magnitude 5.6 on the Richter scale), and two earthquakes later in Klamath Falls (magnitudes 5.9 and 6.0) felt in Medford. Researchers in geo-science have also become more aware of the potential for moderate earthquakes in Oregon, and, during the last decade, have noted the likelihood of an earthquake of great magnitude striking

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offshore.

Four types of earthquakes that occur in Oregon affect Medford and the surrounding region: (a) shallow ~~are typically~~ crustal events, (b) deep intra-plate events, (c) the offshore Cascadia Subduction Zone (CSZ) Fault, and (d) earthquakes associated with renewed volcanic activity ~~or great subduction earthquakes~~. Medford's risk from earthquakes is related to its location between two active fault areas as well as its regional importance as a transportation, freight distribution, communications, and service hub. To the east is the fault zone in the Klamath Falls area, and to the west is the CSZ along the coast, which is the chief earthquake hazard for Southwest Oregon. The region is particularly vulnerable due to the large area susceptible to earthquake-induced landslide, liquefaction, and ground shaking.

~~Crustal earthquakes are most common, and occur along relatively shallow faults, normally within 10 miles of the earth's surface. Intraplate earthquakes occur at greater depths, approximately 20 to 40 miles beneath the surface. Great subduction earthquakes occur along an offshore fault that parallels the Oregon and Washington coasts.~~¹⁰

The 1993 Salem and Klamath Falls earthquakes were crustal earthquakes, which occur along short, shallow faults that are commonly visible at the earth's surface. Historically, these earthquakes have ~~rarely exceeded magnitude 6.0~~ been in the Richter scale 3.0 to 5.0 range, but the historic record is too short to provide a true representation of the probable threats of crustal quakes. ~~Many geo-scientists maintain that, while rare, faults exist in Oregon that could produce earthquakes as large as magnitude 6.5 to 7.0.~~¹¹ Crustal earthquakes are relatively common in the Portland area and the northern Willamette Valley, off the southern coast of Oregon, in northeastern Oregon, and in scattered areas throughout southeastern Oregon. In areas east of the Cascades, the majority of the earthquakes originate in crustal faults.

Intraplate earthquakes occur within the remains of the ocean floor that have subducted beneath North America. ~~It is believed that this type of earthquake could occur anywhere beneath the Coast Range or the western Willamette Valley with a magnitude as large as 7.0 to 7.5.~~¹² ~~Ground shaking from such earthquakes would be very strong near the epicenter and strong ground shaking would be felt throughout Medford. In 1949, and later in 1965, intra plate earthquakes severely rocked Washington's Puget Sound region.~~

Great subduction earthquakes occur worldwide in subduction zones, where continent-sized pieces of the earth's crust are shoved deep into the earth, and are consistently the most powerful type of earthquake recorded, often registering magnitude 8.0 or 9.0. The Cascadia Subduction Zone (CSZ), a ~~750~~620-mile fault located off the West Coast, from British Columbia to Northern California, has not experienced any large earthquakes during the short 200-year recorded history of earthquakes. ~~However, a variety of studies over the past decade indicate that these earthquakes~~

¹⁰ *Earthquakes Hazard Maps for Oregon, 1996*, Oregon Department of Geology and Mineral Industries, Donald Hull, State Geologist and I. P. Madin and M.A. Mabey.

¹¹ *Ibid.*

¹² *Ibid.*

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~~occurred repeatedly in the past, every 350 to 500 years.¹³—According to available evidence, the last major subduction zone earthquake occurred off the Oregon coast approximately 300 years ago. According to seismologists, should the entire subduction zone rupture, a magnitude 9.0 earthquake would result, similar to a 1960 Chilean subduction zone earthquake that resulted in nearly 5,000 deaths. According to 2015 data from Oregon Department of Land Conservation and Development (DLCD), there were 18 magnitude 8.8-9.1 megathrust earthquakes in the last 10,000 years that affected the entire subduction zone. The return period for the largest earthquakes is 530 years, and the probability of the next such event occurring in the next 50 years ranges from 7 to 12%. An additional 10 to 20 smaller, magnitude 8.3-8.5 earthquakes affected only the southern half of Oregon and northern California. The average return period for these is about 240 years, and the probability of a small or large subduction earthquake occurring in the next 50 years is 37 to 43%. — Figure 13 indicates earthquakes 5.0 or greater on the Richter Scale felt during Oregon’s brief recorded history.~~

~~Western Oregon is the most likely region of the state to be severely affected by substantial earthquakes in the future, particularly near the southern coastal town of Brookings. State geologists maintain that “Brookings and the entire coast are the most likely to have peak ground acceleration because of the subduction zone.”¹⁴—The Cascadia Subduction Zone houses the oceanic Juan de Fuca Plate, which plunges under the continental North American Plate approximately 60 to 150 miles offshore.¹⁵—The North American and Juan de Fuca plates are in constant motion, and, if the plates lock up as they move past each other, the stored energy released could result in an earthquake of magnitude 8.0 or 9.0.¹⁶~~

~~Because the Cascadia Subduction Zone could produce a very large earthquake affecting nearly all of western Oregon, land use planning and development must incorporate principles of earthquake preparedness and up-to-date seismic construction standards. A subduction earthquake would significantly damage residences, educational buildings, and government, industrial and commercial buildings in Jackson County. In Medford, the unreinforced masonry buildings in the downtown core and other areas would be especially vulnerable.~~

~~Medford was rated by the Oregon Department of Geology and Mineral Industries at approximately 26-28 on a scale of potential damage from earthquakes, with zero being the lowest possible score and 115 being the highest. Moving westward the potential for damage increases dramatically. Grants Pass, only 29 miles northwest of Medford, received a rating of 36, and Brookings, the highest at 85.~~

¹³Ibid.

¹⁴Ibid.

¹⁵“Experts Deliver Earthshaking News”, *The Oregonian*, Richard Hill, April 23, 1996.

¹⁶“Quakes: Mapping the Hazards”, *The Oregonian*, Richard L. Hill, November 14, 1996.

Figure 13
Earthquakes Centered or Felt in Oregon
Magnitude 5.0 or Greater on the Richter Scale

Sep. 20, 1993	An earthquake of magnitude 6.0 centered about 10 miles northwest of Klamath Falls caused light damage to buildings.
Sep. 20, 1993	An earthquake of magnitude 5.9 centered 15 miles northwest of Klamath Falls closed some highways and bridges.
Mar. 25, 1993	An earthquake of magnitude 5.6 centered near Woodburn rocked most of the state, and caused damage to bridges and the State Capitol Building in Salem.
Feb. 13, 1981	An earthquake of magnitude 5.5 centered near Mount St. Helens shook the Portland area.
May 30, 1968	An earthquake of magnitude 5.1 hit the Adel-Warner Lakes area near Lakeview in south central Oregon.
Apr. 29, 1965	An earthquake of magnitude 6.5 centered between Seattle and Tacoma, Washington was felt in the Portland area.
Oct. 1, 1964	An earthquake of magnitude 5.3 hit Portland's Sauvie Island in the Columbia River.
Nov. 5, 1962	An earthquake of magnitude 5.5 centered in Vancouver, Washington, was the largest quake then recorded in the immediate vicinity of Portland.
Dec. 16, 1953	An earthquake of magnitude 5.6 hit the Portland area.
Apr. 13, 1949	An earthquake of magnitude 7.1 centered between Olympia and Tacoma, Washington caused damage in Portland.
Jul. 16, 1936	An earthquake of magnitude 6.1 was centered in the Milton-Freewater area.
May 13, 1916	An earthquake of an estimated magnitude of 5.7 was centered in Richland, Washington.
Mar. 7, 1893	An earthquake of an estimated magnitude of 5.7 was centered in Umatilla.
Feb. 4, 1892	An earthquake of an estimated magnitude of 5.6 hit the Portland area.
Oct. 12, 1897	An earthquake of an estimated magnitude of 6.7 shook the Gresham area.
Nov. 23, 1873	An earthquake of an estimated magnitude of 6.3 was centered in the Crescent City, California area.

Source: DOGAMI

Since 1993, when the Seismic Zone rating of Oregon was revised from Zone 2 to Zone 3, new buildings in Oregon have been required to meet more stringent seismic construction standards; however, local jurisdictions can designate seismic standards for existing structures. State and local government buildings and facilities are required to be inspected and meet higher standards. In 1995, the Oregon Legislature created a task force to examine and develop recommendations concerning the threat of earthquakes to structures. The task force recommendations address unreinforced masonry buildings, where the greatest amount of upgrading is required to meet current standards. Downtown Medford, like the downtowns of many Oregon cities, is especially prone to earthquake damage, due to the large number of these structures.

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WILDLAND-URBAN INTERFACE -FIRES

Nationally, more and more homes are being constructed in or adjacent to wildland areas. A desire for a rural or suburban living environment on the fringe of urban areas has increased the risks in what is termed the urban/wildland-urban interface. The interface is the area where residential development comes into contact with areas of natural vegetation that can contribute to rapid fire spread and additional fuel loading. Although Medford has few of these types of areas, the hazard will increase as the City grows farther into the eastern foothills. Some of the fire protection problems that can occur in urban/wildland-urban interface areas include use of combustible exterior construction materials, inadequate access for fire apparatus, lack of fire protection water, lack of residential sprinkler systems, inadequate fuel breaks around structures, driveways that are not clearly addressed, and lack of knowledge by property owners regarding how to act when a fire threatens.

Areas within the Medford UGB that could be susceptible to wildland fires include the far eastern section of the community on the southern and western slopes of Roxy Ann Butte, and generally in the area east of North Phoenix Road wherever steep slopes and thick natural vegetation exist. The City of Medford, Jackson County, and the Oregon Department of Forestry respond in these areas according to the location of the fire and mutual aid agreements.

Wildland fires often require special equipment, such as four-wheel drive vehicles, to reach inaccessible areas that are typical of wildland areas. The City has specialized equipment designed specifically for wildland terrain, including four and six-wheel drive vehicles; and employs a combination of standard firefighting equipment with forces of fire fighters on the ground to fight wildland fires effectively. Jackson County has identified areas outside UGB²s where the interface exists, prepared a program to inform the public of the special conditions that may threaten public safety and property, and adopted interface fire protection principles into enforceable codes.

VOLCANIC ERUPTIONS

In Oregon, awareness of the potential for volcanic eruptions greatly increased with the 1980 eruption of Mount St. Helens in Washington State which killed 57 people. The eastern boundary of Jackson County coincides with the crest of the Cascade Mountains, a volcanic range that has a number of still active volcanoes that stretch from Northern California to British Columbia. While questions remain regarding when and to what extent volcanic activity in the Cascades will occur, the 2015 Oregon Natural Hazards Mitigation Plan states that Jackson County is at some risk from volcano-associated hazards, however remote. According to the Oregon Department of Geology and Mineral Industries, Crater Lake and Mount Shasta are the two biggest volcanic hazards known for Medford, both of which are composite, active volcanoes relatively near the city; however, Mt. McLoughlin, Three Sisters, Newberry Volcano, and Mt. Lassen could also impact Medford if they were to erupt.

While there are several potential hazards associated with volcanic eruptions, the one deemed most likely to affect Medford is that of ashfall. Ashfall occurs when explosive eruptions blast rock fragments into the air. Such blasts may include solid and molten rock fragments called tephra. The largest rock fragments generally fall within two miles of the eruption event, and smaller ash fragments less than 0.1 inches typically rise into the area forming a huge eruption

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column. In very large eruptions, ashfalls may total many feet in depth near the vent and extend for hundreds or even thousands of miles downwind. Modest production of ashfall would pose chiefly non-life-threatening hazards to nearby communities, including Medford.

Hazards associated with ashfall include:

- Reduced sunlight and visibility;
- Respiratory problems for at-risk populations such as the elderly, young children, and persons with pre-existing respiratory conditions;
- Impacts on public water supplies drawn from surface waters;
- Electric power outages from ash-induced short circuits in distribution lines and substations;
- Disruptions of air traffic;
- Clogging of filters, abrasion and corrosion, and other damages to heating, ventilation, and air-conditioning systems;
- Collapse of roof and structures due to the weight of wet ash;
- Clean-up and ash removal from the transportation network.

SEVERE WEATHER

Severe weather is the most frequently occurring natural hazard in Medford. Severe weather includes winter storm events such as heavy rain, wind, snow and ice; other severe weather events are thunderstorms, hail, lightning strikes, tornadoes, and drought/heat waves. In Medford, high winds and periods of extreme cold and heat are common. Less common incidents include snow and ice storms generated in the Siskiyou Mountains which create hazardous driving conditions and may lead to power outages. Typically, storms are short-term in nature, lasting one to two days, and can be managed with local emergency response resources.

Most common from October through April, snowstorms and windstorms can disrupt the region's utilities, telecommunications and roadway systems. Damage from wind storms is typically related to the hazard of falling trees and limbs, and the consequent downing of utility infrastructure and power outages. Fallen limbs and uprooted trees can also block roadways, disrupting the transportation network. Late summer and early fall wind storms, occurring during the dry season, often increase wildfire risks, and heavy rains followed by strong winds often result in the falling of shallow-rooted trees. Jackson County also has extended hot and dry weather conditions during the summer and early fall months, and sequential years of below normal rainfall over winter months can result in severe drought conditions as seen in 1939, 1976-1981, 1987-1994, 2001, and 2013-2015.

It is important to note that severe weather events are often the result of events that affect large geographic areas in Oregon and the Pacific Northwest. As such, it is difficult to make regional severe weather probability assessments. While severe weather events have been more frequent in winter months, climate change is resulting in probabilities becoming a moving target. While history provides insight on past severe weather patterns, in reality, all persons and critical facilities are at risk from severe weather impacts, especially those that result in power outages.

EMERGING INFECTIOUS DISEASES

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Medford is home to the largest, most concentrated population in Region 4 of Oregon's NHMP Natural Hazard Regions. As a regional employment, recreational, residential, retail and health care hub, Medford draws many non-residents on a daily basis into the area, multiplying the opportunities for further disease exposure and transmission among both visitors and residents. Recognizing this expanse of exposure is important; it is possible that a disease related issue could impact a large portion of the region's population.

Disease is a sickness, illness, or loss of health, and terms such as disease outbreaks, epidemics, and pandemics are often used to describe situations where multiple cases of infection are identified and the amount of disease in a community rises above the expected level. The following definitions are from The Centers for Disease Control and Prevention (CDC):

- **Epidemic** refers to an increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area.
- **Outbreak** carries the same definition of epidemic, but is often used for a more limited geographic area.
- **Cluster** refers to an aggregation of cases grouped in place and time that are suspected to be greater than the number expected, even though the expected number may not be known.
- **Pandemic** refers, to an epidemic that has spread over several countries or continents, usually affecting a large number of people.

Diseases are identified, researched, and managed as much as possible by public health agencies. In Medford, the agency that provides surveillance, investigates reportable disease, infections or conditions, and carries out appropriate control measures is Jackson County Public Health. Oregon Health Authority may provide assistance in these investigations.

Emerging infectious diseases have been identified in the top five hazard vulnerabilities within our healthcare systems, and overall it is probable a person will have one or more during their lifetime. The diseases identified in the 2017 Medford Natural Hazards Mitigation Plan are not the only diseases that exist or could potentially impact Medford, and the vulnerabilities and impacts to people, property, and the environment vary widely. People with access and functional needs (e.g. the elderly, the very young and medically fragile persons) are more susceptible to impacts, as are critical facilities such as hospitals, airports, and fire and police forces. Furthermore, water, air, and land can be contaminated by emerging infectious diseases. When this happens in localized or broad scale situations, many people as well as plants and animals can suffer greatly. While the potential impacts are difficult to quantify in dollar amounts, it is clear that widespread illness, disability, and death impacts the economy.

* * *

DISASTERS AND HAZARDS CONCLUSIONS

1. The Medford Urban Growth Boundary contains streams and waterways that have a history of flooding occasionally.
2. The *National Flood Insurance Program* is available in communities that implement comprehensive floodplain regulations to reduce flood damage. As a participant in this

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program, Medford adopted regulatory provisions to minimize flood losses through development controls such as building codes and development regulations that place restrictions on new construction or improvements to flood-prone structures.

3. According to seismologists, the likelihood of an earthquake of serious magnitude in the Northwest is high. Medford is at risk for potential earthquake damage because many older buildings have not been built or upgraded to current earthquake standards. Medford's emergency management planning recognizes this possibility.
4. The threat of wildland-urban interface fires within the Medford Urban Growth Boundary ~~is relatively slight, but~~ will increase as development abuts or increases in areas prone to wildland fire dangers, such as steep slopes, dense natural vegetation, etc.
5. The threat of loss of life and/or property damage in areas that may be impacted by wildland-urban interface fires can be reduced through the use of ~~less-combustible-ignition-resistant~~ construction methods/materials, adequate fire response apparatus, availability of fire protection water, adequate fuel breaks surrounding structures, appropriate road widths to accommodate fire fighting vehicles, and response and evacuation plans that are understood by the residents of these areas.
6. The eastern boundary of Jackson County coincides with the crest of the Cascade Mountains, a volcanic range that has a number of still active volcanoes. According to the Oregon Department of Geology and Mineral Industries, Crater Lake and Mount Shasta are the two biggest volcanic hazards known for Medford, both of which are composite, active volcanoes relatively near the city.
7. While there are several potential hazards associated with volcanic eruptions, the one deemed most likely to affect Medford is that of ashfall. Likely hazards associated with ashfall include respiratory problems, impacts on transportation networks, power outages, and damage to building air filtration systems.
8. Severe weather is the most frequently occurring natural hazard in Medford. Typically, storms are short-term in nature, lasting one to two days, and can be managed with local emergency response resources.
9. Snowstorms and windstorms can disrupt the region's utilities, telecommunications and roadway systems. Damage from wind storms is typically related to the hazard of falling trees and limbs, and the consequent downing of utility infrastructure and power outages. Late summer and early fall wind storms, occurring during the dry season, often increase wildfire risks.
10. Climate change is resulting in severe weather event probabilities becoming a moving target. While history provides insight on past patterns, in reality, all persons and critical facilities are at risk from severe weather impacts, especially those that result in power outages.
11. Emerging infectious diseases have been identified in the top five hazard vulnerabilities within our healthcare systems, and overall it is probable a person will have one or more

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during their lifetime. People with access and functional needs (e.g. the elderly, the very young and medically fragile persons) are more susceptible to impacts, as are critical facilities such as hospitals, airports, and fire and police forces. Furthermore, water, air, and land can be contaminated by emerging infectious diseases.

12. As a regional employment, recreational, residential, retail and health care hub, Medford draws many non-residents on a daily basis into the area, multiplying the opportunities for further disease exposure and transmission among both visitors and residents.

13. The most common noise sources in Medford are transportation-related, and include automobiles, trucks, motorcycles, railroads, and aircraft. Motor vehicle noise is a pressing concern, because it often occurs in areas sensitive to noise exposure, such as residential areas, and continues to increase with urban growth and increasing numbers of motor vehicles.

~~7.~~

147. The City of Medford has adopted noise reduction strategies in the *Land Development Code* to mitigate the harmful effects of noise, including a noise ordinance, which regulates the level of commercial and industrial noise based on the proximity to noise-sensitive properties; bufferyards, which use setbacks, fencing/walls/berms, and vegetation to mitigate adverse impacts between adjacent land use types, and agricultural buffering, in which Medford and Jackson County jointly implement policies to minimize the impacts of urban development on abutting agricultural uses.

815. Airports can adversely impact residential and other sensitive development through noise and accident hazards. Future airport expansion plans could create land use conflicts as flights increase.

**DISASTERS AND HAZARDS
GOALS, POLICIES, AND IMPLEMENTATION MEASURES**

Goal 12: To protect the citizens of Medford from the potential damage caused by hazards such as flooding, earthquakes, ~~noise~~, wildland-urban interface fires, volcanic eruptions, severe weather, emerging infectious diseases, ~~and noise~~, and airport hazards.

Policy 12-A: The City of Medford shall assure that hazard mitigation standards are formally adopted as public policy through comprehensive planning, land development ordinances, permit review, and fire/building safety codes.

Implementation 12-A (1): Continue to conduct hazard risk analysis, including identifying the types, magnitude, and probability of hazards which the Medford Urban Growth Boundary is susceptible to over the long term, including assessing the degree of risk that the citizens find acceptable.

Policy 12-B: The City of Medford shall ensure that the potential impacts of flooding are adequately analyzed when considering development projects.

Implementation 12-B (1): Maintain and, when necessary, update the city’s requirements for development in floodplains, consistent with federal and state regulations, and the *Uniform Building Code* (UBC).

Implementation 12-B (2): Adhere to the policies outlined in the *Medford Comprehensive Drainage Master Plan* to minimize flood losses through development controls.

Implementation 12-B (3): Encourage the re-mapping of flood-prone areas in Medford using data from the most recent flood(s) of record.

Implementation 12-B (4): Consider flood hazards when installing public improvements such as parks and paths in flood-prone areas. Design these amenities to withstand a certain flood level.

See also the Policies of the *Storm Water Drainage* section of the “Public Facilities Element.”

Policy 12-C: The City of Medford shall continue to utilize building and development standards to mitigate the potentially damaging effects of earthquakes. New construction is required to meet the standards of seismic zone 3 of the *Uniform Building Code* (UBC).

Policy 12-D: The City of Medford shall strive to upgrade all city-owned buildings and facilities to meet earthquake standards.

Policy 12-E: The City of Medford shall continue to update and enforce noise attenuation strategies.

Implementation 12-E (1): Periodically review the city’s noise ordinances for adequacy.

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Policy 12-F: The City of Medford shall strive to minimize the loss of life and property resulting from wildland-[urban interface](#) fires within the Urban Growth Boundary.

Implementation 12-F (1): Undertake efforts to educate the public in wildland-[urban interface](#) fire safety.

Implementation 12-F (2): Develop and adopt fire safety performance standards for development in those areas identified as being at risk of wildland-[urban interface](#) fires.

Policy 12-G: The City of Medford shall designate future residential areas in coordination with the *Rogue Valley International-Medford Airport Master Plan* to minimize conflicts with flight patterns, hazard areas, and airport expansion areas.

* * *

CONCLUSIONS, GOALS, POLICIES, AND IMPLEMENTATION STRATEGIES

City of Medford
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~~Last~~ Revised by
MEDFORD CITY COUNCIL
~~January 7XXXXXXXX, 2018~~⁶
Ordinance No. 201~~68-08~~

City of Medford Comprehensive Plan

* * *

NATURAL RESOURCES—AIR QUALITY—CONCLUSIONS

1. Medford’s location in the Rogue Valley below substantial mountain ranges (the Cascades, the Siskiyou, and the Coast Range) increases the difficulty of maintaining federal air quality standards. Medford’s climate is influenced by atmospheric inversion layers in the fall and winter months which trap air emissions in the valley.
2. The City of Medford has little influence on the air pollution emissions caused by travelers and freight shippers traveling through the planning area on state highways such as Interstate 5.
3. Largely due to improvements in modern vehicle emission control systems, carbon monoxide (CO) level progressively improved in the years since the designation of the Medford-Ashland AQMA, and Medford has not violated the federal CO standard since 1991. As a result, Medford was re-designated an “attainment” area for CO in 2002. Similarly, Medford has been in compliance with federal particulate matter (PM₁₀) standards since 1994. Maintenance plans for the AQMA have been approved by the EPA to help ensure continued compliance with the federal standards for these two pollutants. ~~The Medford-Ashland Air Quality Maintenance Area (AQMA) is a “non-attainment area” for carbon monoxide (CO) and the Medford Urban Growth Boundary is a “non-attainment area” for particulate matter (PM₁₀).~~
4. While Medford’s air quality has improved due to proactive Air Quality Maintenance Area (AQMA) programs and increased public awareness, particularly relating to wood smoke, the potential to revert to previous poor air quality conditions exists. The Rogue Valley’s topography, its many motor vehicles, and continued population growth have the potential to further degrade Medford’s air quality in the future.
5. Pollutants of concern in the Medford-Ashland AQMA are particulate matter (PM_{2.5}), ozone, and air toxics (although the DEQ does not presently have any air toxics monitors in SW Oregon). While ozone levels have declined in Medford since 2007, there was a slight uptick measured in the 2013-2015 timeframe. Medford trends close to the PM_{2.5} standards in both daily and annual average levels. ~~The State Implementation Plan (SIP) for PM₁₀ for the Medford-Ashland Air Quality Maintenance Area (AQMA) is being revised to meet the National Ambient Air Quality Standards (NAAQS), including new, stricter standards for particulate matter (PM₁₀ and PM_{2.5}).~~

NATURAL RESOURCES—AIR QUALITY—GOALS, POLICIES, AND IMPLEMENTATION MEASURES

Goal 3: To enhance the livability of Medford by achieving and maintaining compliance with National Ambient Air Quality Standards (NAAQS).

City of Medford Comprehensive Plan

Policy 3-A: The City of Medford shall continue to provide leadership in developing, adopting, and implementing regional air quality improvement strategies to achieve compliance with the National Ambient Air Quality Standards (NAAQS).

Implementation 3-A(1): Continue to participate, along with state and local agencies involved in air quality attainment, in the preparation and implementation of the applicable Air Quality Management Plans (AQMP's) and State Implementation Plans (SIP's) for the Medford-Ashland Air Quality Maintenance Area (AQMA).

Implementation 3-A(2): Continue to participate, along with Jackson County and other affected agencies, in administering air quality public education and smoke reduction programs.

Implementation 3-A(3): Implement strategies from sources such as the *Medford Transportation System Plan*, the State Implementation Plans (SIPs) and the Oregon Transportation Planning Rule (TPR) that reduce emissions or improve air quality, such as increasing the use of alternative modes of transportation and use of alternative motor vehicle fuels, such as compressed natural gas and electricity, and propose amendments to the *Medford Land Development Code* for consideration by the City Council where necessary to assure compliance with such plans or rules.

See also the policies of the Medford Transportation System Plan, Policy 9 of the "Urbanization Element."

Policy 3-B: The City of Medford shall continue to require a well-connected circulation system and promote other techniques that foster alternative modes of transportation, such as pedestrian oriented mixed-use development and a linked bicycle transportation system.

See also Goal 1 of the Southeast Plan section of the "General Land Use Plan Element."

Implementation 3-B(1): Promote the use of incentives by Medford's larger employers to induce employees to use alternative modes of transportation or work at home in an effort to reduce motor vehicle emissions.

* * *

DISASTERS AND HAZARDS—CONCLUSIONS

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2. The *National Flood Insurance Program* is available in communities that implement comprehensive floodplain regulations to reduce flood damage. As a participant in this program, Medford adopted regulatory provisions to minimize flood losses through development controls such as building codes and development regulations that place restrictions on new construction or improvements to flood-prone structures.

City of Medford Comprehensive Plan

3. According to seismologists, the likelihood of an earthquake of serious magnitude in the Northwest is high. Medford is at risk for potential earthquake damage because many older buildings have not been built or upgraded to current earthquake standards. Medford's emergency management planning recognizes this possibility.
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10. Climate change is resulting in severe weather event probabilities becoming a moving target. While history provides insight on past patterns, in reality, all persons and critical facilities are at risk from severe weather impacts, especially those that result in power outages.
11. Emerging infectious diseases have been identified in the top five hazard vulnerabilities within our healthcare systems, and overall it is probable a person will have one or more during their lifetime. People with access and functional needs (e.g. the elderly, the very young and medically fragile persons) are more susceptible to impacts, as are critical facilities such as hospitals, airports, and fire and police forces. Furthermore, water, air, and land can be contaminated by emerging infectious diseases.

City of Medford Comprehensive Plan

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DISASTERS AND HAZARDS—GOALS, POLICIES, AND IMPLEMENTATION MEASURES

Goal 12: To protect the citizens of Medford from the potential damage caused by hazards such as flooding, earthquakes, ~~noise~~, wildland-urban interface fires, volcanic eruptions, severe weather, emerging infectious diseases, noise, and airport hazards.

Policy 12-A: The City of Medford shall assure that hazard mitigation standards are formally adopted as public policy through comprehensive planning, land development ordinances, permit review, and fire/building safety codes.

Implementation 12-A(1): Continue to conduct hazard risk analysis, including identifying the types, magnitude, and probability of hazards which the Medford Urban Growth Boundary is susceptible to over the long term, including assessing the degree of risk that the citizens find acceptable.

Policy 12-B: The City of Medford shall ensure that the potential impacts of flooding are adequately analyzed when considering development projects.

Implementation 12-B(1): Maintain and, when necessary, update the City's requirements for development in floodplains, consistent with federal and state regulations, and the Uniform Building Code (UBC).

City of Medford Comprehensive Plan

Implementation 12-B(2): Adhere to the policies outlined in the *Medford Comprehensive Drainage Master Plan* to minimize flood losses through development controls.

Implementation 12-B(3): Encourage the re-mapping of flood-prone areas in Medford using data from the most recent flood(s) of record.

Implementation 12-B(4): Consider flood hazards when installing public improvements such as parks and paths in flood-prone areas. Design these amenities to withstand a certain flood level.

See also the Policies of the Storm Water Drainage section of the “Public Facilities Element.”

Policy 12-C: The City of Medford shall continue to utilize building and development standards to mitigate the potentially damaging effects of earthquakes. New construction is required to meet the standards of seismic zone 3 of the *Uniform Building Code* (UBC).

Policy 12-D: The City of Medford shall strive to upgrade all city-owned buildings and facilities to meet earthquake standards.

Policy 12-E: The City of Medford shall continue to update and enforce noise attenuation strategies.

Implementation 12-E(1): Periodically review the City’s noise ordinances for adequacy.

Policy 12-F: The City of Medford shall strive to minimize the loss of life and property resulting from wildland-[urban interface](#) fires within the Urban Growth Boundary.

Implementation 12-F(1): Undertake efforts to educate the public in wildland-[urban interface](#) fire safety.

Implementation 12-F(2): Develop and adopt fire safety performance standards for development in those areas identified as being at risk of wildland-[urban interface](#) fires.

Policy 12-G: The City of Medford shall designate future residential areas in coordination with the *Rogue Valley International-Medford Airport Master Plan* to minimize conflicts with flight patterns, hazard areas, and airport expansion areas.



MEMORANDUM

Subject **Urbanization Planning:** review of a draft amendment to the Neighborhood Element and Review and Amendment Element of the Comprehensive Plan and associated development code amendments

File no. CP-16-075 & DCA-18-120

To Planning Commission *for 9/10/18 study session*

From Carla Angeli Paladino, Principal Planner

Date August 31, 2018

BACKGROUND

On June 8, 2018, the local and state process to expand the City’s Urban Growth Boundary (UGB) by 4,046 acres was finalized. The land added includes General Land Use Plan (GLUP) designations (locations of proposed residential, commercial, and industrial land uses – see map below) and extensions of higher order streets. The findings of the UGB proposal includes revisions to the annexation policy and outlines the conditions necessary to annex land from the UGB to the City limits. One of those conditions includes the submittal and adoption of an urbanization plan demonstrating compliance with the Regional Plan.

The Urbanization Plans are intended to identify how the future build out of the new expansion areas will meet the conditions of the Regional Plan. Conditions such as meeting minimum density, planning for mixed-use areas, and laying out transportation systems will be provided in more detail than what is currently approved with the UGB expansion. The Urbanization Plans are proposed to be approved and adopted as Major Comprehensive Plan amendments, with each plan being incorporated into the Neighborhood Element as its own “neighborhood plan” or “special area plan”. These plans can then be used as the foundation for future development upon annexation.

The Planning Commission reviewed and discussed the initial draft proposal for Urbanization Plans in August 2016. The proposal has since been amended based on comments received from staff and other referral agencies. Earlier this year, staff conducted a test run of the language with a willing property owner in one of the expansion areas. The test run provided an opportunity for property owners, their representatives, and staff to put the language into action and make modifications as necessary to ensure a workable product. The revised language is attached for the

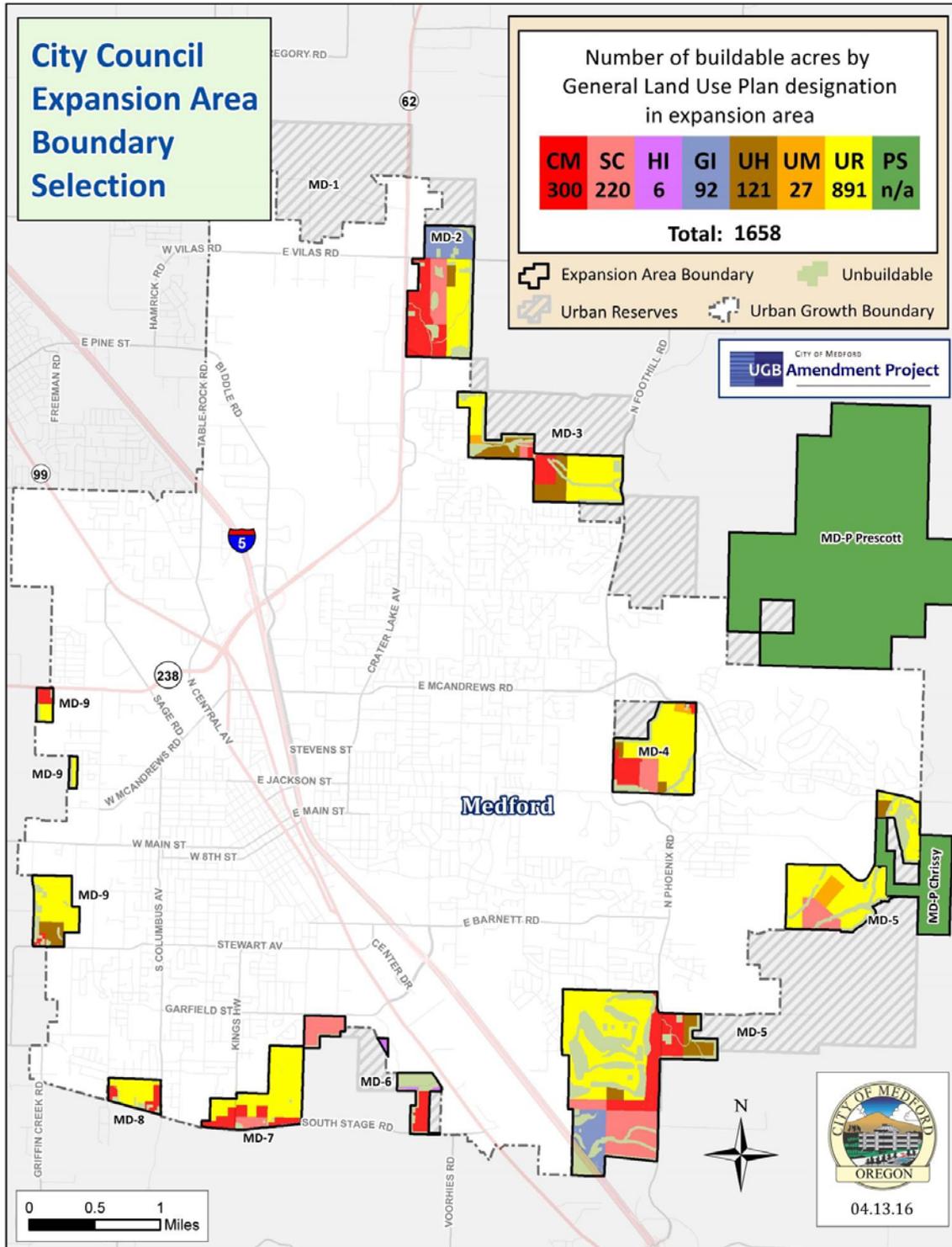
Commission's consideration. In addition, Chapter 10 of the Municipal Code has been amended to incorporate this new land use procedure, as well as minor changes to the Review and Amendment section of the Comprehensive Plan.

Staff is seeking feedback and recommended changes on the proposed language and revisions. The City Council will be presented this proposal at a study session on September 13, 2018.

The proposal is scheduled for Planning Commission hearing on October 11, 2018, and a City Council hearing on November 15, 2018.

ATTACHMENTS

- A. Planning Commission Study Session Minutes from August 8, 2016
- B. Amendments to Article I, Chapter 10 of the Municipal Code
- C. Amendments to Article II, Chapter 10 of the Municipal Code
- D. Revised Urbanization Planning amendment to Neighborhood Element
- E. Amendments to the Review and Amendment section of the Comprehensive Plan





Planning Commission

Minutes

From Study Session on **August 8, 2016**

The study session of the Medford Planning Commission was called to order at noon in the Lausmann Annex Room 151–157 on the above date with the following members and staff in attendance:

Commissioners Present

Patrick Miranda, Chair
David McFadden, Vice Chair
Tim D’Alessandro
Joe Foley
Bill Mansfield
Mark McKechnie
Jared Pulver

Commissioners Absent

David Culbertson, Excused Absence

Staff Present

Jim Huber, Planning Director
Kelly Akin, Principal Planner
Kevin McConnell, Deputy City Attorney
John Adam, Principal Planner

Guests

Clark Stevens
Joe Slaughter

Subject

1. CP-16-075 Urbanization Planning process; review of draft

John Adam, Principal Planner, stated that this is intimately related to the Urban Growth Boundary (UGB) amendment process. The Planning Commission and staff worked on the conceptual plan a few years ago and used it to develop the UGB expansion proposal. The plan was the basis for the General Land Use Plan (GLUP) designation in the expansion proposal.

The Regional Plan has a number of conditions that have to be met as the cities build out—minimum density, planning for mixed-use areas, and laying out transportation systems—that cannot be captured in a high-level conceptual plan. The way to get to those details is in a refinement plan sometimes called “special area plan” or “neighborhood plans”.

The objective is to adopt the land use and circulation maps that assure that the Regional Plan Element requirements are being met for all areas added to the urban area from the urban reserve before the land can be annexed.

The procedure is thus: prior to annexation, urbanization plans must be submitted for each cohesive planning unit added to the UGB from the urban reserve. An urbanization plan shall be submitted for, and include all of the properties in, the added portions only of the planning units within the expansion. An application must contain the signatures

of at least 50 percent of the property owners representing at least 50 percent of the total property area and at least 50 percent of the assessed land value for the unit.

The submitted plans will adequately demonstrate compliance with the minimum gross density requirement by pre-zoning areas according to GLUP designation.

The plans will also demonstrate a transportation circulation plan map showing locations of higher-order streets and a highly connected pattern of local streets and paths. Obstacles to connections will be shown and explained. Location of streets is intended to be accurate. If locations/connections have to be moved or eliminated during subsequent development, resulting connectivity must be demonstrably as good or better as determined by the approving authority for that development action.

The plans will also demonstrate compliance with the open space allocation for an urban reserve area. The plan contents have to show that they coordinated with the utilities, water, sewer, transportation and irrigation districts. They have to show extensions of the riparian corridors, wetlands protections and habitat protections. They have to show compliance with the terms of special agreements between landowners and other public entities that were part of the basis for including an area in the UGB, as detailed in the Urban Growth Management Agreement (UGMA).

In the interest of maintaining clarity and flexibility for both the City of Medford and for landowners, no urbanization plan may contain deviations from Municipal code provisions, including exceptions to Chapter 10; limitations on development due to facility capacity shortfalls; architectural details, specifics about building type and building placement; and access and internal circulation on prospective lots or development sites.

There are allowances such as rearrangement of the GLUP designations within the unit and changes within a class of GLUP designations but only from less intense to more intense.

Vice Chair McFadden asked what are the legal aspect of these plans? He does not think these should go to the City Council. He would rather have staff do a de minimus acceptance of these. Although he thinks they should come back to the Planning Commission for review.

Commissioner McKechnie asked if these are items that the planning department is going to develop or are these private people? Mr. Adam reported that the landowners would be starting the process.

Commissioner McKechnie asked if planning staff is going to enhance the GLUP map. Mr. Adam stated that staff would be working with the property owners that would enhance the GLUP map. The GLUP amendment being approved now is part of the UGB amendment. This is a refinement after the UGB amendment is finished.

Chair Miranda asked what kind of effect are we looking for with these urbanization plans. Staff wants a certain amount of flexibility. There is no ideal way to do this because ownerships change.

Commissioner Foley asked how this fits in with the UGB amendment. Mr. Adam stated that once this gets on the books and the Comprehensive Plan he would like to open the opportunity for people to make applications and start doing this even while the UGB amendment works its way through County and then the State.

Commissioner Foley said his understanding was that the City would not bring property into the City unless this process has been done on that particular parcel. Mr. Adam confirmed.

Commissioner Mansfield stated that the Regional Plan "performance indicators" require the Jackson County Board of Commissioners to appoint an Agricultural Task Force to assess the impacts on the agricultural economy of Jackson County arising from the loss of agricultural land. In his opinion, the obvious way to avoid impacts on the agricultural lands is to not expand. It appears to him that there are not many methods of mitigation of the impact on agricultural lands short of no expanding. Are there strategies that actually work? Mr. Adam responded that that performance indicator does not relate to today's subject. Vice Chair McFadden stated that the process has been aimed at avoiding agricultural properties. The properties that the Agricultural Task Force has reviewed have been assessed as valuable.

Jim Huber, Planning Director, reported that in some ways this raises a bigger issue of UGB expansions in Oregon. What Commissioner Mansfield is talking about is why it is difficult to expand an UGB. DLCD is strict about reviewing what comes through. The decision of what lands should be urbanizable went through the Regional Plan process. Additionally, there is mitigation for the edge of the future UGB abutting agricultural lands.

Commissioner Pulver has concerns with accepting the applications and then finding the UGB amendment is turned down at some point along the way. Mr. Adam said that if that were the case the City should vacate that plan. Vice Chair McFadden said that raises a concern he has about the City Council reviewing these. Mr. Adam does not agree it should be a *de minimus* acceptance. He is not sure what mechanism staff does with these special area plans having them adopted and having legal weight if it is done by the Planning Commission. He does not think it can be adopted into the Comprehensive Plan unless it is done by an ordinance.

Kevin McConnell, Deputy City Attorney, reported that City Council has to weigh in if amending the Comprehensive Plan. It does not have to be acknowledged at the State level.

Mr. Adam stated that it would go through the normal procedure where it goes before the Planning Commission for a recommendation to the City Council on adoption.

Mr. Adam asked what effect the Planning Commission wants them to have. Do they want these to be similar to conceptual plans in a Planned Unit Development, that if changed have to go through an amendment process.

Chair Miranda stated that in his opinion when one starts using the word conceptual it needs to be high level, it needs to be draft level, it cannot be detailed and cannot be precise. That is the whole point of conceptual. The process being discussed today is what it needs to be. Is staff talking about designating a new map or will this be implemented into an existing map? Mr. Adam reported that it would go on the GLUP map but only if it moves the GLUP designations that are adopted through the UGB amendment.

Commissioner McKechnie stated that if staff does not go any deeper than the level of what is being shown today with any of the plans that solves the problem about changes with ownership, market conditions and development.

Vice Chair McFadden asked if staff would be limiting the plans they receive to meet the 20-year supply? Mr. Adam reported that the land supply issue is answered in the UGB amendment. The analysis that led to the housing needs and the economic commercial land needs is before the City Council now. The presumption is the amendment meets our 20-year needs.

Commissioner Foley stated that the density standards that have to be met are in the urbanization planning process. Does each parcel coming into the City have to meet those standards? Mr. Adam stated that density is the one focus area that can be looked at and one can tell whether it is meeting the standards or not.

Commissioner Pulver encouraged Mr. Adam to reach out to the private planning community to get their input.

Commissioner Pulver struggles with the concept of an urban reserve area made up of a certain amount of parcels with the majority controlled by one party. The minority controlled is at a disadvantage.

Commissioner Pulver stated that the Regional Plan Element spoke to the various urban reserve pieces and applied residential employment percentages that was done in a blanket way. Does this allow flexibility to change between certain areas? Mr. Adam reported that some of that has been done in the conceptual plan. Distribution of land uses are according to the City's obligation under the Regional Plan. The expansion is a subset of the urban reserve. The allocation from the Regional Plan is complete for some areas.

Commissioner Pulver stated that in the urbanization planning process draft it talked about not achieving the 6.6 dwelling units per acre but if it was in the existing UGB that it was increasing the density that would be an acceptable offset. Does the language apply to both residential and employment? Mr. Adam stated that argument is still floating out there. Staff has made the argument that with the Internal Study Areas they shifted a

lot of commercial need inside. Staff did a lot of high density residential that they feel should count because they have intensified internally where it makes more sense than putting it on the outskirts. The adopted Housing Element was at 6.9 and the 6.6 is the City's obligation in the Regional Plan.

Kelly Akin, Principal Planner, asked about the triple majority to change as far as a revision goes. She assumes each of the MD areas will have a plan like this for the whole, not for a part that wants to come in, for whatever expansion area is adopted. Mr. Adam reported that is correct but he mapped units that could be separate or combined.

Ms. Akin stated that over time it will develop and 15 years down the road part of it is developed. How does the triple majority work then? Mr. Adam stated that he does not know in that particular case. Staff will have to think about that.

Vice Chair McFadden stated there are some people that will not develop but there are enough in the area to control a plan. The plan gets approved. The same people that get it approved come in for their properties based on the pre plan and they want to do a Planned Unit Development or whatever. The overall plan is riding on the 20 percent that are still there. The other properties have gone further into a subdivision or Planned Unit Development. Can there be a procedure that they can drop out because they are not a part of the overall? The overall design states there has to be a 6.6 density or whatever other conditions that were originally imposed. Mr. Adam reported that his inclination is that whenever you have a neighborhood plan and as it is built out the built areas are off the table. Whichever parts are built no longer have a say in the remainder of build-out or amendments to the urbanization plan.

Mr. Huber stated that staff does not have all the answers so staff appreciates and thanks the Planning Commissioners for their input and questions. He is impressed with the quality of the discussions they have.

The meeting was adjourned at 12:58 p.m.



Submitted by:

Terri L. Rozzana

Recording Secretary

ARTICLE I - GENERAL PROVISIONS

10.012 Definitions, Specific.

When used in this chapter, the following terms shall have the meanings as herein ascribed:

Urbanization Plan. An adopted land use and circulation plan showing compliance with the Regional Plan Element for each of the established planning units identified in the Comprehensive Plan. An urbanization plan is a “Special Area Plan” as defined in the General Land Use Plan Element, a “conversion plan” as termed in the Urban Growth Management Agreement, and a neighborhood “circulation plan” as used in this chapter of the Municipal Code. Urbanization plans are required prior to or in conjunction with annexation requests for all areas adopted as part of the 2016 Urban Growth Boundary expansion or future Urban Growth Boundary expansions.

ARTICLE II - PROCEDURAL REQUIREMENTS

10.106 Procedural Types.

(D) Type IV Legislative Procedures.

(1) Legislative decisions that involve the greatest degree of discretion as they establish by law the general policies and regulations for future land use decisions and have either widespread and significant impact beyond the immediate area or change the character of the land use, or affect large areas or many different ownerships.

(2) The Planning Commission shall review Type IV land use permit applications and forward a recommendation to City Council to approve, approve with modifications, approve with conditions, deny, or to adopt an alternative. City Council shall consider and address the recommendation, but shall not be bound by it. The City Council is the approving authority and, if it so determines that a Type IV land use permit application has satisfied the standards and criteria for approval, shall approve Type IV land use applications by ordinance.

(3) Public notice(s), public comment period(s) and public hearing(s) are required according to Section 10.124 of this Chapter

(4) Requested action may be initiated by City Council and Planning Commission (except annexations). ~~or for m~~Minor amendments or Urbanization Plans may be initiated, by an applicant(s).

(5) Appeals of Type IV decisions are made to the Land Use Board of Appeals (LUBA) per Section 10.140(I).

[Added Sec. 12, Ord. No. 2018-64, Ord. No. 2018-64, June 21, 2018 (effective July 23, 2018.)]

10.108 Land Use Review Procedure Types.

Table 10.108-1 identifies the procedural type, applicable standards, and approving authority for each type of land use review as well as whether the 120-day rule in Section 10.104(D) is applicable. Each procedural type is subject to specific due process and administrative requirements of this chapter.

Table 10.108-1. Land Use Review Procedures				
Land Use Review Type	Procedural Type	Applicable Standards	Approving Authority	Subject to 120 Day Rule (ORS 227.178)?
Minor Modification to a Site Plan & Architectural Review Approval	I	10.200(H)(2)	Planning Director	No
Major Modification to an Approved Conditional Use Permit	III	10.184(D)(1)	Planning Commission	Yes
Minor Modification to an Approved Conditional Use Permit	I	10.814(D)(2)	Planning Director	No
Nonconformities	I	10.032 – 10.036	Planning Director	No
Portable Storage Container	II	10.840(D)(6)	Planning Director	Yes
Park Development Review	III	10.185	Planning Commission	Yes
Pre-Application	I	10.156	Not Applicable	No
Preliminary PUD Plan	III	10.190 – 10.198	Planning Commission	Yes
Property Line Adjustment	I	10.158	Planning Director	No
PUD Plan Revision(s)	III	10.198	Planning Commission	Yes
PUD Plan Termination	III	10.198	Planning Commission	Yes
Riparian Corridors, Reduction or Deviation	I	10.927	Planning Director	No
Sign Permit	I	10.1000 – 10.1810	Planning Director	No
Site Plan and Architectural Review	III	10.200	SPAC	Yes
Tentative Plat, Partition	II	10.170	Planning Director	Yes
Tentative Plat, Subdivision	III	10.202	Planning Commission	Yes
Transportation Facility Development	IV	10.226	City Council	No
Urban Growth Boundary Amendment, Major	IV	Urbanization, 10.220	City Council	No
Urban Growth Boundary Amendment, Minor	IV	Urbanization, 10.222	City Council	No
Urbanization Plan	IV	10.200(B)(4)	City Council	No
Vacation of Public Right-of-Way	IV	10.226	City Council	No
Zone Change, Major	IV	Review & Amendment, 10.220	City Council	No
Zone Change, Minor	III	10.204	Planning Commission	Yes

[Added Sec. 13, Ord. No. 2018-64, June 21, 2018 (effective July 23, 2018); Amd. Sec. 1, Ord. No. 2018-86, July 19, 2018.]

10.110 Designation and Duties of Approving Authorities.

(C) City Council Authority. The City Council is hereby designated as the approving authority for all the following land use reviews:

Land Use Review

Annexation

Appeals (See Section 10.140)

Comprehensive Plan Amendment (Major or Minor)

General Land Use Plan Map Amendment (Major or Minor)

Land Development Code Amendment

Transportation Facility Development

Urban Growth Boundary Amendment (Major or Minor)

Urbanization Plan

Vacation of Public Right-of-Way

Zoning Map Amendment (Major)

10.124 Due Process Element 2: Notification

(D) Publication. Unless otherwise indicated, public hearing notices for all proposed land use actions shall be published in a newspaper of general circulation prior to the scheduled public hearing date before the approving authority. The schedule of publication for each procedure type shall be as specified in Table 10.124-1.

Procedure Type	Newspaper Publication	On-Site Public Hearing Sign	Affected Property Owners Notice
Type I	None	None	None
Type II	None	None	
Type IV: Land Development Code Amendment,	Notice shall be published no later than 10 days prior to the public hearing date before the Planning Commission		Generally not applicable to a legislative action unless it

Table 10.124-1: Notice of Public Hearing Schedule by Procedure Type			
Procedure Type	Newspaper Publication	On-Site Public Hearing Sign	Affected Property Owners Notice
Major Comprehensive Plan Amendment, Major Zone Change, Urbanization Plan	(the advisory body), AND No later than 10 days prior to the public hearing date before the City Council (the approving authority).	None	meets ORS 227.186 criteria (<i>i.e.</i> , the change effectively rezones property). For Urbanization Plans, the public hearing date notice will be sent to all property owners within the project boundaries plus all property owners within 200 feet of the project boundaries.

[Replaced Sec. 22, Ord. No. 2018-64, June 21, 2018 (effective July 23, 2018); Amd. Sec. 4, Ord. No. 2018-86, July 19, 2018.]

10.156 **Pre-application Conference.**

Prior to submitting a land use permit application, the applicant may apply for a preapplication conference with the Planning Department. [In the case of an Urbanization Plan, the applicant shall apply for a pre-application conference with the Planning Department prior to submitting a formal application.](#) Upon receipt of an application the pre-application conference shall be scheduled. At the conference there shall an exchange of information regarding procedural requirements, required land use applications, consistency with the Comprehensive Plan and this Chapter, scheduling and such other technical and design assistance as will aid the applicant in preparing a complete application. Upon conclusion of the conference the Planning Department shall provide the applicant with a written summary of the conference.

[Amd. Sec. 1, Ord. No. 5986, Oct. 1, 1987; Amd. Sec. 9, Ord. No. 7659, June 2, 1994; Amd. Sec. 4, Ord. No. 2015-90, Sept. 3, 2015; Replaced Sec. 43, Ord. No. 2018-64, June 21, 2018 (effective July 23, 2018).]

10.214 Type IV Land Use Actions.

(A) Type IV Actions.

Type IV actions comprise the following land use reviews:

- Type IV Land Use Application
- Annexation, except as provided in Section 10.216
- Land Development Code Amendment
- Major Comprehensive Plan Amendment
- Major General Land Use Plan Map Amendment
- Major Urban Growth Boundary Amendment
- Major Zoning Map Amendment
- Minor Comprehensive Plan Amendment
- Minor General Land Use Plan Map Amendment
- Minor Urban Growth Boundary Amendment
- Transportation Facility Development
- Urbanization Plan
- Vacation of Public Right-of-Way

(B) Major Type IV land use reviews including amendments to the Land Development Code are legislative actions and may only be initiated by the Planning Commission or City Council. An Urbanization Plan is a Major Comprehensive Plan Amendment that may be initiated by the property owners representing the subject area. See Review & Amendments chapter of the Comprehensive Plan for definitions of “major” and “minor.”

(C) Minor Type IV land use reviews including Annexations, Transportation Facility Developments and Vacations are quasi-judicial actions and may be initiated by the Planning Commission, City Council, or property owners representing the subject area. An exception to the preceding rule is that the Planning Commission does not initiate annexations.

(D) Type IV Approving Authorities. For Type IV actions the City Council is the approving authority and the Planning Commission acts as an advisory body to City Council. At a public hearing the Planning Commission will consider the request and make a recommendation to City Council to approve or deny the request. For annexations, the City Council makes a decision without a recommendation from the Planning Commission. Following completion of a recommendation by the Planning Commission, it shall be scheduled for a public hearing before the City Council. The decision of the City Council shall be based upon the application, the evidence, comments from referral agencies, comments from affected property owners (if any), the Planning Commission’s recommendation (if applicable), compliance with the Statewide Planning Goals and Guidelines, this code and the Comprehensive Plan.

[Add Sec. 86, Ord. No. 2018-64, June 21, 2018 (effective July 23, 2018).]

10.220 Major Type IV Amendments.

(A) Major Type IV Amendments are those land use changes that have widespread and significant impact beyond the immediate area, such as changes capable of producing large volumes of traffic, changes to the character of the land use itself, or changes that affect large areas or involve many different ownerships. Major Type IV Amendments include:

- (1) Major Comprehensive Plan, including separate plans adopted by reference;
- (2) Major General Land Use Plan Map;
- (3) Major Urban Growth Boundary;
- (4) Major Zoning Map Amendment;
- (5) Urban Reserves;
- (6) Urban Growth Management Agreement; ~~or~~
- (7) Urban Reserve Management Agreement; ~~or~~
- (8) Urbanization Plan.

(B) Major Type IV Amendment Approval Criteria.

Refer to the Review and Amendment section of the Comprehensive Plan, except in the case of the following ~~three~~ four actions:

- (1) Major Zoning Map Amendment. Refer to the approval criteria for Land Development Code Amendments in Section 10.218.
- (2) Urban Growth Boundary Amendment. Refer to Urbanization Element of the Comprehensive Plan.
- (3) Urban Reserve Adoption/Amendment. Refer to ORS 195.137–145 and OAR 660-021.
- (4) Urbanization Plan. Refer to Sections 5 and 6 in the Urbanization Planning Chapter in the Neighborhood Element

(C) Urbanization Plan Application Form.

An application for an Urbanization Plan shall contain the following items:

- (1) Written consent of owner(s) within the planning unit per the Urbanization Planning requirements in the Comprehensive Plan.
- (2) Urbanization Plan map drawn to scale (20 copies).
- (3) One reduced copy of each size plan (8.5” x 11” and 11”x 17”).
- (4) Electronic files in dwg format or shapefiles.
- (5) Vicinity map including other adjacent planning units and their General Land Use Plan designations.
- (6) Property lines for the subject planning unit and adjacent properties, particularly where new streets are proposed.
- (7) Existing easements of record, irrigation canals, and structures.
- (8) Areas designated as unbuildable per the Urban Growth Boundary hearing process and the status of those areas including agricultural buffers.
- (9) Written or graphical representation of compliance with the Plan Contents found in Section 5 in the Urbanization Planning Chapter in the Neighborhood Element.
- (10) Written findings showing compliance with the Regional Plan requirements
- (11) Contour lines and topography
- (12) Property owner's names, addresses, and map and tax lot numbers within 200 feet of the project boundaries, typed on mailing labels.

[Amd. Sec. 29, Ord. No. 7659, June 2, 1994; Amd. Sec. 11, Ord. No. 2007-100, May 17, 2007; Replaced Sec. 89, Ord. No. 2018-64, June 21, 2018 (effective July 23, 2018).]

Urbanization Planning

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1. OBJECTIVE

To adopt land use and circulation maps that assure that the Regional Plan Element (RPE) requirements under section 4.1.8 are being met for all areas added to the urban area from the urban reserve before the land can be annexed. Urbanization plans must show compliance with the minimum residential density standard of RPE 4.1.5, the requirement for mixed-use, pedestrian-friendly development of RPE 4.1.6, and compliance with the land use distribution requirements of RPE 4.1.8 (b).

Urbanization plans will encompass cohesive “planning units” within the expansion area. In this context “planning unit” means an area that is bounded by streets, natural features, and/or existing property lines in such a way that it is logical to plan as a unit. The cohesive units are mapped at the end of this division.

2. LEGAL EFFECT

An urbanization plan is a “Special Area Plan” as defined in the General Land Use Plan Element, a “conversion plan” as termed in the Urban Growth Management Agreement, and a neighborhood “circulation plan” as used in Chapter 10 of the Municipal Code. As such, an urbanization plan specifies zoning and development patterns in greater detail than the General Land Use Plan (GLUP) and Transportation System Plan maps.

Adopted urbanization plans become appendixes to this division.

3. HISTORY

The City of Medford adopted its portion of the Greater Bear Creek Valley Regional Plan as the Regional Plan Element of the Comprehensive Plan in 2012. Through this adoption the City established an urban reserve, from which land will be selected for inclusion into the UGB. The Regional Plan Element established a set of “performance indicators” (standards) that must be met as land is brought into the UGB from the urban reserve. These performance indicators played a role in determining where the UGB would be expanded to meet the City’s land need at the time of UGB expansion. However, further detail is needed in order to ensure that these areas will meet all applicable performance indicators as they are developed. The urbanization plans adopted into this division of the Neighborhood Element demonstrate that all applicable performance indicators from the Regional Plan Element will be addressed as areas develop.

4. PROCEDURE

Prior to or concurrently with annexation, urbanization plans must be submitted for each cohesive planning unit added to the UGB from the urban reserve. An urbanization plan shall be submitted for, and include all of the properties in, the added portions only of the planning units within the expansion area. Contiguous units may plan in conjunction and submit their plans together for consideration.

- 4.1 A pre-application meeting is required. The purpose of the meeting is for staff of various departments and agencies to convey objectives and warn of obstacles or concerns before applicant has begun significant work on plans. The property owners within the planning unit shall be notified of the pre-application conference date, time, and location.
- 4.2 Submittal of an urbanization plan is a Major Comprehensive Plan amendment application.
 - 4.2.1 An urbanization plan is a special area plan that refines the existing GLUP map, therefore it is not subject to the General Land Use Plan map amendment criteria in the Review & Amendments chapter. The applicable criteria are the provisions of sections 5 and 6, below.
 - 4.2.2 Application must contain the written consent of at least 50 percent of the property owners, representing at least 50 percent of the total property area, ~~and at least 50 percent of the assessed land value for the unit.~~
 - 4.2.3 The urbanization plans will be adopted as appendixes to the Neighborhood Element of the Comprehensive Plan.
- 4.3 The plans will contain sufficient detail to demonstrate compliance with the applicable portions of the Regional Plan. The adopted plans will also be limited to maps, plan policies, and standards needed to demonstrate compliance with ap-

plicable portions of the Regional Plan Element. Changes to the General Land Use Plan map, as allowed by the Annexation Policies of the Urbanization Element, and changes to the Functional Classification Map in the Transportation System Plan will be considered under the same application when the urbanization plans are submitted.

4.4 Exemptions. Areas that have only industrial or open space designations are not required to develop urbanization plans. In the 2016 expansion those areas are MD-2a, MD-5h, ~~and MD-6b~~, and Prescott and Chrissy Parks.

4.44.5 Submittal Requirements. The submittal requirements are outlined in Chapter 10 Section 10.220(C) of the Municipal Code.

5. PLAN CONTENTS

In order to adopt an urbanization plan, the City Council shall be satisfied that the submitted plan adequately demonstrates each of the following:

- 5.1 Compliance with the minimum gross density requirement by pre-zoning areas according to General Land Use Plan designation. For example, if an area contains only low-density urban residential (UR), the zoning districts must be allocated in such a way that if each area built out to the minimum allowed gross density of each district the requirement will be met. For the purposes of calculation, gross density comprises only the land for buildable lots and for public rights-of-way.
- 5.2 A transportation circulation plan map showing:
 - 5.2.1 Locations of higher-order streets.
 - 5.2.2 A highly connected pattern of ~~local residential or private~~ streets, alley-ways, and paths. Obstacles to connections will be shown and explained. A high density of intersections is desirable both for efficient utilization of land in the urban reserve and to serve the transportation needs of all modes. Off-street paths count as components of the transportation system, trails (i.e., designed only for recreation) do not. Different types of streets shall be differentiated graphically.
 - 5.2.3 Locations of streets are intended to be accurate. If locations/connections have to be moved or eliminated during subsequent development, resulting connectivity must be demonstrably as good or better as determined by the approving authority for that development action.
- 5.3 Compliance with the open space allocation for an urban reserve area (see land use distribution table in RPE). The allocation shall be proportioned to the size of

the cohesive “planning unit” with respect to the whole area¹. Units that contain only Industrial GLUP designations are exempt from this requirement. The following classifications count as open space for purposes of fulfilling the RPE requirements:

- 5.3.1 Parks, both public and private
 - 5.3.2 Agricultural buffers
 - 5.3.3 Riparian corridors
 - 5.3.4 Areas under an “open space” tax assessment
 - 5.3.5 Locally significant wetlands
 - 5.3.6 Slopes greater than 25 percent
- 5.4 Compliance with the requirements of Regional Plan Element, section 4.1.6, for mixed-use/pedestrian-friendly development. Planning units containing only one type of classification are exempt from this requirement.
- 5.5 General high-level coordination and comments with public utility providers, including water, sewer, transportation, and irrigation districts.
- 5.5.5.1 Coordination may include identifying any existing infrastructure on or adjacent to the site and whether it can be maintained or needs to be moved, and the ability or limitations to serve the site.
- 5.6 Location or extensions of riparian corridors, wetlands protections, historic buildings or resources, and habitat protections and the proposed status of these elements.
- 5.7 Compliance with applicable provisions of the Urban Growth Management Agreement.
- 5.8 Compliance with the terms of special agreements between the landowners and other public entities that were part of the basis for including an area in the urban growth boundary, as detailed in the Urban Growth Management Agreement.
- 5.8.9 Coordination with the Parks and Recreation Department for adherence to the Leisure Service Plan related to open space acquisition and proposed trail and path locations in the MD areas.
- 5.9.10 In the interest of maintaining clarity and flexibility for both the City of Medford and for landowners, **no urbanization plan may contain the following items**, which are only appropriate at the time of development:

¹ For example, if the planning unit “MD-1a” is 40 percent of area “MD-1,” then it has to contain no less than 40 percent of the open space allocation for the “MD-1” area.

- [5.9.15.10.1](#) Deviations from Municipal Code provisions, including exceptions to Chapter 10.
- [5.9.25.10.2](#) Limitations on development due to facility capacity shortfalls.
- [5.9.35.10.3](#) Architectural details.
- [5.9.45.10.4](#) Specifics about building types and building placement.
- [5.9.55.10.5](#) Access and internal circulation on prospective lots or development sites.

6. ALLOWANCES

The Regional Plan Element allocates land use categories—residential, employment, open space—in specific proportions to each area of the urban reserve. Since those RPE allocations were independent of particular determinations of land needs, there has to be some leeway for the Council and landowners in reconciling current land needs with the prescribed allocations. The following deviations may be considered by the Council when adopting an urbanization plan:

- 6.1 Rearrangement of the GLUP designations within the unit.
- 6.2 Changes within a class of GLUP designations, but only from less intense to more intense. For example, a change from low-density residential to medium-density residential is permitted, but not the reverse.

7. AMENDMENTS

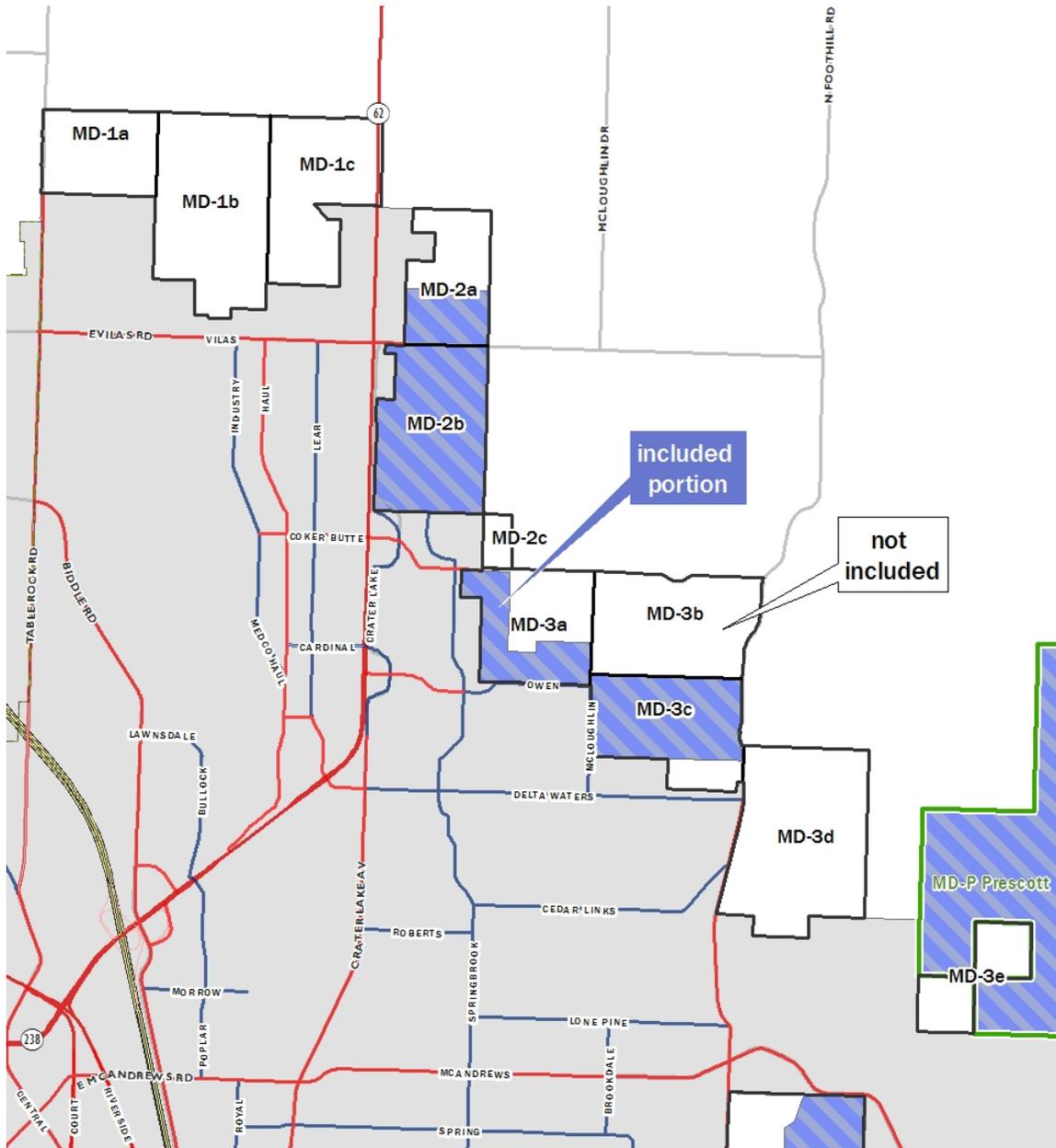
This section prescribes the process for amendments when time has passed and part of a planning unit has developed, but there is a perception that a change should be made to the remainder of the urbanization plan.

- 7.1 Follow the procedures in Sections 4–6, except that the ownership calculation for eligible applicants (see 4.2.2.) includes only the areas of the original extent that have not been developed.
- 7.2 The amended plan will replace the previously adopted plan in this chapter.

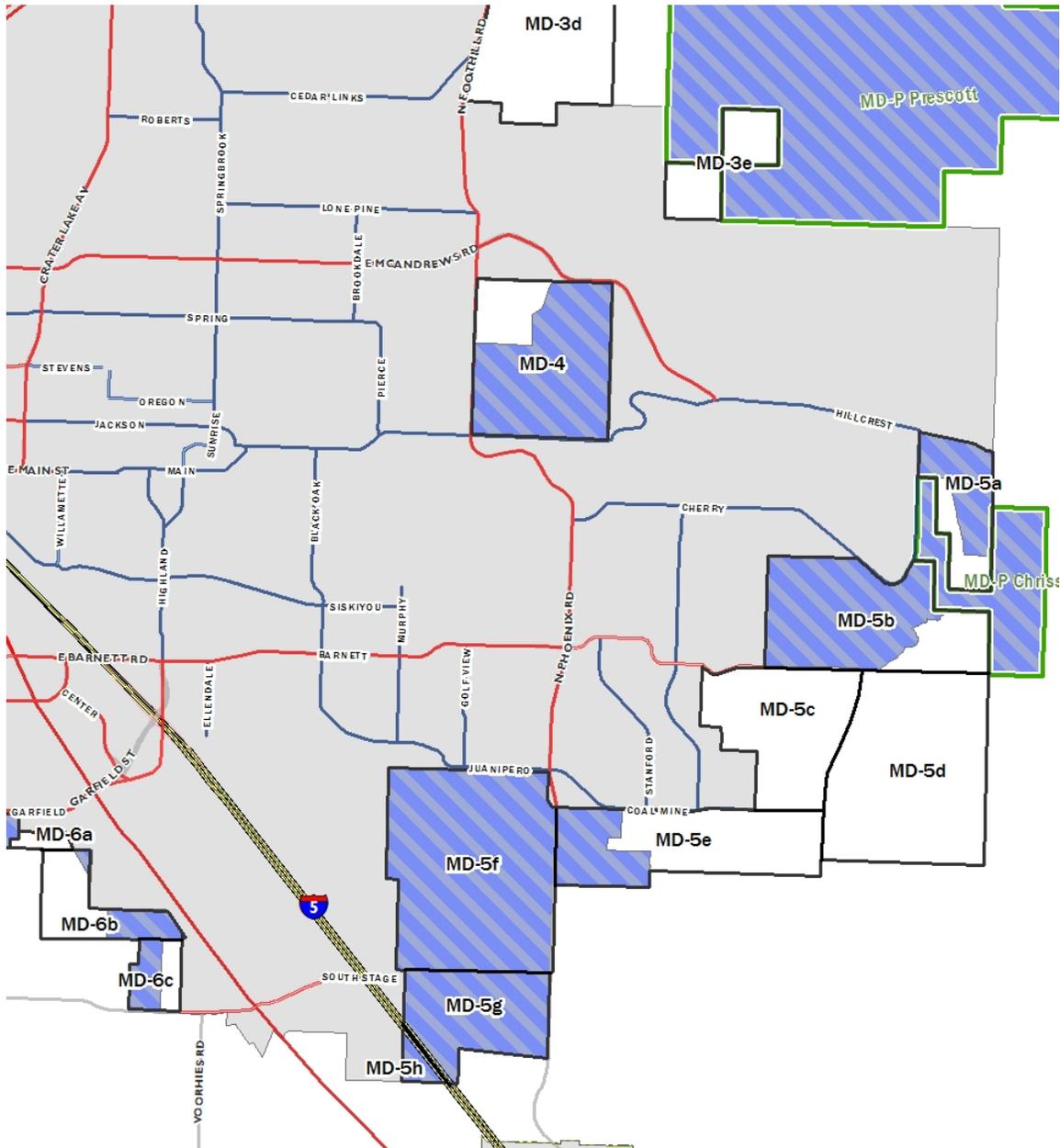
8. PLANNING UNIT MAPS

The following maps identify the cohesive planning units for the purposes of administering this chapter. The dark striped areas show the latest UGB expansion.

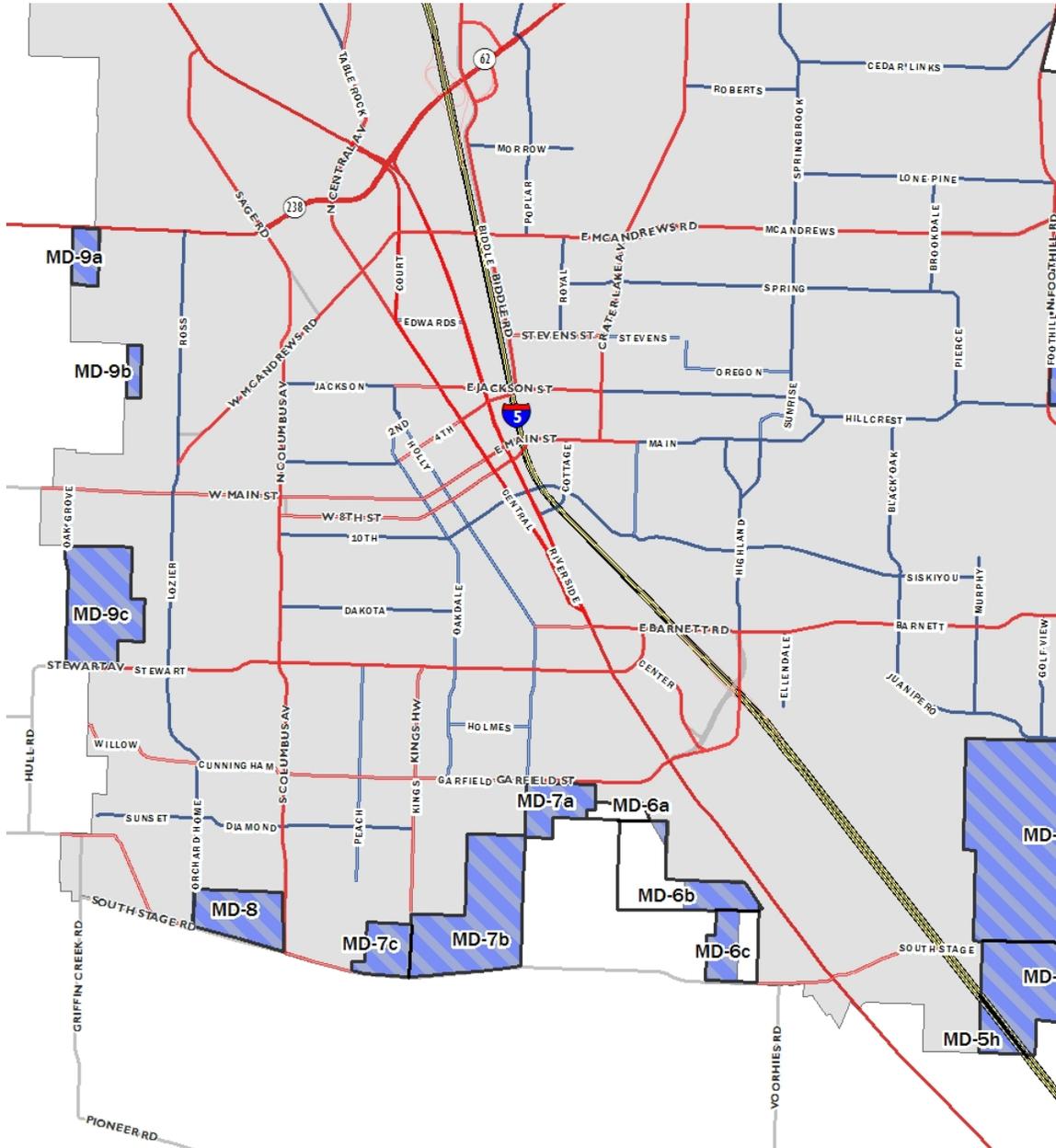
8.1 Areas MD-1 through MD-3 (north and northeast)



8.2 Areas MD-4 through MD-5 (southeast)



8.3 Areas MD-6 through MD-9 (south and southwest)



9. OPEN SPACE REQUIREMENTS BY PLANNING UNIT

The open space requirements for each of the designated MD areas is identified in the Regional Plan. The percentages have been applied to each of the planning units and the number of acres of open space required. These are baseline numbers and some planning units may exceed the number of acres based on special conditions agreed upon as part of the Urban Growth Boundary hearing process.

Planning Unit Number	Regional Plan Open Space Percentage	Required Open Space Acres Needed
MD-1 a	6%	7.44
MD-1 b		16.39
MD-1 c		11.90
MD-2 a	0%	0%
MD-2 b	11%	27.01
MD-3 a	16%	40.21
MD-3 b		33.85
MD-3 c		30.07
MD-3 d		48.23
MD-4	15%	41.13
MD-5 a		20.21
MD-5 b		52.53

MD-5 c	19%	39.88
MD-5 d		69.85
MD-5 e		44.71
MD-5 f		80.10
MD-5 g		29.64
MD-5 h	0%	0
MD-6 a		0
MD-6 b		0
MD-6 c		0
MD-7 a		0
MD-7 b	22%	31.31
MD-7 c	13%	3.92
MD-8	29%	16.03
MD-9 a	18%	3.50
MD-9 b		1.69
MD-9 c		18.50

REVIEW AND AMENDMENTS

Amended July 1, 2010, Ordinance No. 2010-159; Amended June 21, 2018, Ordinance No. 2018-77

INTRODUCTION

Planning is a process; it is naïve to assume that a single document can answer all the questions or resolve all the problems for all times. Conditions change, resources are shifted, and community goals are revised.

For these reasons it is essential that means exist to keep the Plan dynamic. Oregon's statewide planning program addresses this need in two ways. First, a *post-acknowledgement plan amendment* review process exists to assure that local amendments to a state-acknowledged Plan or its implementing codes and ordinances are consistent with the statewide planning goals and with the plans of other affected agencies. The second statewide approach to assuring the maintenance of local comprehensive plans is by means of a more thorough *periodic review* program which will occur cyclically beginning at least five years after Plan acknowledgment. The *periodic review* program emphasizes internal plan consistency as well as overall compliance with new and revised state rules and statutes.

In addition to these state-administered programs, a well-defined local process to review and revise the *Comprehensive Plan* is essential. The local Plan amendment process should reflect a balance between the desire for maintaining a dynamic and locally responsive plan and the need to provide a reasonable degree of certainty and stability in the rules and processes governing land use. Such a plan amendment process is presented below.

TYPES OF AMENDMENTS

Because of the diverse structural nature of the *Comprehensive Plan*, it is necessary to categorize plan amendments in several different ways (bearing in mind that all plan amendments are land use actions as defined by state statutes). This Plan contains a variety of components: Data; Conclusions; Goals and Policies; Implementation Strategies; a General Land Use Plan Map; a City-County adopted Urban Growth Boundary and Urbanization Policies; and several other components. Specific procedural requirements for all land use actions are codified in Article II of the *Land Development Code*. Two different procedural classifications will apply to *Comprehensive Plan* amendments as follows:

Procedural Classifications for *Comprehensive Plan* Amendments

Type IV

Conclusions	Urban Reserve
Goals and Policies	Urban Growth Management Agreement
Implementation Strategies	Urban Reserve Management Agreement
General Land Use Plan Map (minor)	Review and Amendment Procedures
General Land Use Plan Map (major)	Citizen Involvement Program
Urban Growth Boundary (minor)	Urbanization Plan
Urban Growth Boundary (major)	

The distinction between major and minor plan amendments is based on the following definitions which were derived from the Guidelines associated with Statewide Goal 2:

Major Amendments are those land use changes that have widespread and significant impact beyond the immediate area, such as quantitative changes producing large volumes of traffic; a qualitative change in the character of the land use itself, such as conversion of residential to industrial use; or a spatial change that affects large areas or many different ownerships.

Minor Amendments are those land use changes that do not have significant effect beyond the immediate area of the change and should be based on special studies or other information which will serve as the factual basis to support the change. The public need and justification for the particular change should be established.

Disputes. When there is a question or dispute over the type of amendment, the director of the Planning Department shall issue a written decision.

CRITERIA FOR PLAN AMENDMENTS

Because of the important functional differences among the various Plan components, no common set of criteria can be used to assess all proposed Plan amendments. Below are listed the criteria which must be considered when evaluating proposed amendments to each of the specified Plan components. While all of the criteria may not apply to each proposed amendment, all must be considered when developing substantive findings supporting final action on the amendment, and those criteria which are applicable must be identified and distinguished from those which are not.

Conclusions. Amendments shall be based on the following:

1. A change or addition to the text, data, inventories, or graphics which substantially affects the nature of one or more conclusions.

Goals and Policies. Amendments shall be based on the following:

1. A significant change in one or more Conclusion.
2. Information reflecting new or previously undisclosed public needs.
3. A significant change in community attitude or priorities.
4. Demonstrable inconsistency with another Plan provision.
5. Statutory changes affecting the Plan.
6. All applicable Statewide Planning Goals.

Implementation Strategies. Amendments shall be based on the following:

1. A significant change in one or more Goal or Policy.
2. Availability of new and better strategies such as may result from technological or economic changes.
3. Demonstrable ineffectiveness of present strategy(s).
4. Statutory changes affecting the Plan.
5. Demonstrable budgetary constraints in association with at least one of the above criteria.
6. All applicable Statewide Planning Goals.

Street Re-classifications, including the re-classification of a lower order street to either a collector or arterial street, or when re-classifying a collector street to an arterial street, and when the re-classification is not a part of a major (Type IV) legislative amendment. Amendments shall be based on the following:

1. A demonstrated change in need for capacity which is consistent with other plan provisions.
2. Consideration of alternatives to the proposed revision which includes alternative vehicle routes and alternative travel modes that would better preserve the livability of affected residential neighborhoods.
3. A significant change in one or more Goal or Policy.
4. Statutory changes affecting the Plan.
5. Demonstrable budgetary constraints in carrying out the existing plan.

6. All applicable Statewide Planning Goals.

Map Designations. Amendments shall be based on the following:

1. A significant change in one or more Goal, Policy, or Implementation strategy.
2. Demonstrated need for the change to accommodate unpredicted population trends, to satisfy urban housing needs, or to assure adequate employment opportunities.
3. The orderly and economic provision of key public facilities.
4. Maximum efficiency of land uses within the current urbanizable area.
5. Environmental, energy, economic and social consequences.
6. Compatibility of the proposed change with other elements of the City *Comprehensive Plan*.
7. All applicable Statewide Planning Goals.

Urban Growth Boundary. *See Urbanization Element.*

Urban Reserve. *See Urbanization Element.*

Urban Growth Management Agreement. *See Urbanization Element.*

Urban Reserve Management Agreement. *See Urbanization Element.*

Citizen Involvement Program. Amendments shall be based on recommendations from the Committee for Citizen Involvement (CCI) and on Statewide Goal 1 and any other applicable Statewide Goals.

Review and Amendment Procedure. Amendments shall be based on Statewide Goal 2 and any other applicable Statewide Goals.

[Urbanization Plan.](#) [See Urbanization Planning Chapter in the Neighborhood Element \(Sections 5 and 6\)](#)

REVISIONS OF DATA, INVENTORIES AND GRAPHICS

Revisions of those portions of the Plan document which do not affect a Plan Conclusion, Goal, Policy, Implementation Strategy, General Land Use Plan Map designation, Urban Growth Boundary, Citizen Involvement Program or Review and Amendment Procedures may be made when needed by order of the Planning Director. Such revision shall be transmitted to the Planning Commission, City Council, and all other recorded holders of the *Comprehensive Plan*.



MEMORANDUM

Subject Transportation System Plan update
File no. CP-16-036
To Planning Commission *for 9/10/2018 study session*
From Carla Angeli Paladino, Principal Planner
Date September 5, 2018

TRANSPORTATION SYSTEM PLAN UPDATE

Overview

Planning staff and the Planning Commission last discussed the progress of the Transportation System Plan project in March. At that time, staff presented the Commission with a memorandum on project prioritization. On March 29th, the Commission and City Council met during a joint study session to discuss this topic and provide direction to staff on which project scenario to include in the plan.

The scenario chosen estimated approximately 72.4 million dollars in total revenue to construct projects over the 20 year planning horizon. The list of Tier 1 projects associated with the scenario were incorporated into the draft document.

Planning and Engineering staff met with City Council in May regarding the draft document. Council selected a subcommittee of members to review the document and provide comments back to staff. Council reviewed the document and provided staff with proposed changes which staff incorporated into the plan.

In August, Council held a study session to review the changes in the draft and revisit the topic of funding and proposed projects. The Council was presented with six scenarios for consideration as outlined in the attached memorandum. It was discussed that Scenario 5 would be incorporated into the document, and the remaining scenarios would be integrated into the staff report for public review as the project enters the hearing process.

To date, staff is making final edits to the draft document per Council’s direction. Once the draft is amended, staff will provide a link to the document for the Commission’s review. Staff is seeking feedback on the attached memorandum and proposed scenarios.

ATTACHMENT: City Council Study Session Memorandum dated August 2, 2018



MEMORANDUM

Subject Transportation System Plan – Draft document
File no. CP-16-036
To Mayor and City Council
From Karl MacNair, P.E. Transportation Manager & Carla Angeli Paladino CFM,
Principal Planner
Date August 2, 2018 *for 08/09/2018 Study Session*

COUNCIL DIRECTION

Project List

- What funding scenario do you want included in the TSP?

Document Draft

- What comments or questions do you have on the draft?
- What additions or changes would you like to see incorporated?

PRESENTATION OUTLINE

Introduction and Presentation – Karl MacNair and Carla Angeli Paladino
Discussion and Direction - Mayor and City Council

OVERVIEW

Since 2010, the City has been working on updating the Transportation System Plan. The current plan was adopted in 2003. The City has grown since that time and a new plan is needed. A revised and adopted transportation plan is necessary in order to accommodate growth within the City limits as well as for development to occur within the approved Urban Growth Boundary expansion areas.

Since July 2017, staff, City Council, the advisory committees, and the public have been involved in shaping the elements of the plan. Staff and the City Council have met regularly since August 2017, to review, discuss, and provide feedback on the following topics related to the document.

- Public Participation and Outreach
- Vision, Goals, Objectives, and Action items
- Level of Service and Concurrency
- Transportation Planning Rule
- Design Guidelines and Implementation
- South Stage Overcrossing project
- Project Prioritization

The Planning Commission and advisory committees have been kept informed about these topics also. The advisory committees including the Planning Commission will be presented the draft TSP in late August.

A copy of the draft TSP was provided to Council on May 24, 2018. A brief overview of the different elements of the plan was presented during the study session. In June, a subcommittee of the Council met to discuss the Goals and Objectives of the plan and make changes. The proposed changes have been incorporated into the draft document for the Council's review and comment. The legacy street table that was inserted into the Goals and Objectives section has been reformatted and moved to Section 5 under the Legacy Street information. A new action item related to adopting legacy street standards into the Land Development Code has been added to the Goals and Objectives (Action 16-c). Codifying the changes related to the legacy street standards is also included in the list of Key Code and Policy Amendments addressed in Section 6 of the plan.

PROJECT FUNDING

Historical Grant Funding

Staff has been asked to report on the amount of funds that have been received from grants to help leverage local funds over the years. Staff was able to determine that a total of approximately \$42 million in grants have been received for street projects since 2004. A listing of the grants and their amounts is attached as **Exhibit 7**.

\$42 million over 14 years averages to \$3 million per year. However, grant funding is typically allocated through a competitive process and is only available for a specific purpose. Some of the grants received over the years have been for projects not identified in the last TSP such as paving alleys, improving railroad crossings, and bridge replacements. For this reason, staff included a conservative assumption of \$700,000 per year for the TSP 20-year Revenue Estimate. The impacts to the project list of assuming either \$3 million or \$1.5 million annually were studied and are discussed under the various scenarios.

Beginning Fund Balance

Included in the \$30,000,000 beginning fund is the Street SDC Fund (\$11,736,700), Gas Tax (\$15,606,900) and the Street Improvement Fund (\$3,029,600) and excludes the Street Utility Fund, which is for maintenance. These total \$30,373,200, which is the actual beginning fund balance for fiscal year 2018. Note that ending fund balances fluctuate in response to the types and funding sources of projects in the budget. For example, the gas tax beginning fund balance is

projected to be \$11.3M in the next budget. Beginning fund balances are also effected by grant awards. In the past few years, we have received substantial grant funds. Grants have to be spent quickly or be returned, so other projects may be deferred to focus on these requirements.

At the time the revenue estimate was initially put together, we were still using a projected balance so staff rounded to \$30,000,000. The Street SDC Fund is for collector and arterial street improvements (construction). The Gas Tax can be spent on construction, maintenance, and operations.

Currently, the following projects are obligated in the beginning fund balance and total approximately \$16.7 million:

- Columbus Ave Extension
- Delta Waters Road fill-ins
- Obligated SDC Credits for completed developer projects
- Contingency

STREET IMPROVEMENT FUND

HB2017 and Street Utility Fee Increases

Staff has been asked to answer questions about the projected revenue estimate and project funding as it relates to the Street Utility Fee increases. The projected revenue increase from the state as from HB2017 can be used to offset the proposed Street Utility Fee increases over the next three years. By the third year, the anticipated amount generated by the Street Utility Fee increases is essentially equal to the anticipated revenue from HB2017. If HB2017 is used to fund maintenance in lieu of Street Utility Fee increases, then \$36,581,000 is removed from the projected revenue estimate. Impacts to the project list are discussed below under the various scenarios.

Street Maintenance Costs

Part of what is driving the maintenance cost increases are the requirements to replace ADA ramps which are triggered by pavement maintenance activities. This requirement has led to funds being reduced for general street maintenance and are highlighted in the following paragraph.

2011 Pavement Management Analysis Report by Infrastructure Management Services, Tempe, AZ. "Steady State – identifies the annual budget to maintain the Pavement Condition Index at 75. For Medford the Steady State budget is \$2.5M/yr."

For 2015-2017 Budget:

Contract pavement maintenance was budgeted at \$3M
City forces did approximately \$1M of pavement maintenance in these two years

For fiscal year 2016 which started July 1, 2015:

2016 pavement maintenance required budget adjusted for inflation = \$2.8M
2016 pavement maintenance spent = \$1.98M
2016 ADA ramps = \$639K

For fiscal year 2017 which started July 1, 2016:

2017 pavement maintenance required budget adjusted for inflation = \$2.9M
2017 pavement maintenance spent = \$696K
2017 ADA ramps = \$696K

Note: Without ADA ramp expense pavement maintenance would equal 70% of steady state recommendation.

Project Funding Scenarios

Six project funding scenarios have been developed to show the Council how different decisions impact the proposed project list. These are explained in detail below. None of the scenarios include a projection of escalation for revenue or expenditures. This is a simplification that staff made because the estimated costs of projects are not being escalated. We do not know when the projects will be constructed. There is escalation applied to the cost of maintenance to account for the fact that gas tax revenue is expected to be flat or decrease as people buy more fuel-efficient or alternate fuel cars.

Scenario 1 is the scenario council has previously seen, assuming all the HB2017 revenue is available for projects and including a conservative estimate of grant funding (\$700,000 annually). **Exhibit 1a** is the Projected Revenue Estimate and **Exhibit 1b** is the associated TSP Tier 1 Project List.

Scenario 2 assumes HB2017 revenue is spent on maintenance and includes a conservative estimate of grant funding (\$700,000 annually), reducing projected revenue by \$36,581,000. **Exhibit 2a** is the Projected Revenue Estimate, **Exhibit 2b** is the associated TSP Tier 1 Project List, and **Exhibit 2c** is the list of projects that were moved from Tier 1 to Tier 2 to create the new project list. Fourteen (14) projects were moved to Tier 2 and the funding for the three programmatic projects was reduced.

The remaining Tier 1 projects, shown on **Exhibit 2b**, include the two remaining 17-Project List projects, all projects needed to maintain Level-of-Service targets (LOS D and E), the \$15,000,000 allocated to Foothill / N Phoenix / S Stage Rd corridor, already budgeted Spring and Springbrook intersection improvements, replacement of the signal at 12th and Riverside, and the programmatic projects for sidewalk infill, bicycle network gaps, and signal controller upgrades at a reduced funding level.

Scenario 3 assumes HB2017 revenue is spent on projects and includes the historical annual average of grant funding (\$3,000,000 annually), increasing projected revenue by \$46,000,000. **Exhibit 3a** is the Projected Revenue Estimate, **Exhibit 3b** is the associated TSP Tier 1 Project List, and **Exhibit 3c** is the list of projects that were moved from Tier 2 to Tier 1 to create the new project list. The Foothill / N Phoenix / S Stage Rd corridor funding was increased, Eleven (11) projects were moved to Tier 1, and funding for the sidewalk and bicycle network programmatic projects was increased.

Scenario 4 assumes HB2017 revenue is spent on maintenance and includes the historical annual average of grant funding (\$3,000,000 annually), increasing projected revenue by \$9,419,000. **Exhibit 4a** is the Projected Revenue Estimate, **Exhibit 4b** is the associated TSP Tier 1 Project List, and **Exhibit 4c** is the list of projects that were moved from Tier 2 to Tier 1 to create the new project list. Three (3) projects were moved to Tier 1, and funding for the sidewalk programmatic project was increased.

Scenario 5 assumes HB2017 revenue is spent on projects and includes grant funding of \$1,500,000 annually, increasing projected revenue by \$16,000,000. **Exhibit 5a** is the Projected Revenue Estimate, **Exhibit 5b** is the associated TSP Tier 1 Project List, and **Exhibit 5c** is the list of projects that were moved from Tier 2 to Tier 1 to create the new project list. Five (5) projects were moved to Tier 1 and funding for the sidewalk and signal controller upgrade programmatic projects was increased.

Scenario 6 assumes HB2017 revenue is spent on maintenance and includes grant funding of \$1,500,000 annually, reducing projected revenue by \$20,595,000. **Exhibit 6a** is the Projected Revenue Estimate, **Exhibit 6b** is the associated TSP Tier 1 Project List, and **Exhibit 6c** is the list of projects that were moved from Tier 1 to Tier 2 to create the new project list. Six (6) projects were moved to Tier 2 and the limits of the Kings Highway Urban Upgrade was reduced.

Scenario Summary:

Scenario #	HB2017	Annual Grant Funding	20-year Revenue Available for Capital Projects	Difference from Scenario 1	Exhibits
1	Projects	\$700,000	\$72,440,343	\$0	1a, 1b
2	Maintenance	\$700,000	\$35,859,063	(\$36,581,280)	2a, 2b, 2c
3	Projects	\$3,000,000	\$118,440,343	\$46,000,000	3a, 3b, 3c
4	Maintenance	\$3,000,000	\$81,859,063	\$9,418,720	4a, 4b, 4c
5	Projects	\$1,500,000	\$88,440,343	\$16,000,000	5a, 5b, 5c
6	Maintenance	\$1,500,000	\$51,859,063	(\$20,581,280)	6a, 6b, 6c

Council direction is needed on what funding scenario and project list to include in the TSP.

PLAN ELEMENTS

The plan is separated into two volumes. Volume I is the main document which is organized into six sections and an attachment. Within Volume I reside the goals and objectives, existing conditions analysis, project list, funding sources and the City’s plans for auto, bike, pedestrian, and transit travel modes. Volume II is the appendix to the main document and provides the background data, technical memoranda, and analysis for the plan. A brief description of each of the sections and what they contain is described below.

Volume I

Section 1: Introduction

The Introduction section frames the purpose of the document and how the plan can be achieved through the planning period. It sets the context for why this plan is needed, describing changes occurring with the expansion of the Urban Growth Boundary and growth in general. This section also identifies the statutory requirements found in the Oregon Revised Statute and Oregon Administrative Rules the plan must adhere to. The Introduction explains how the project was coordinated with City Council, regional partners, the advisory committees, and the public, and explains how projects are prioritized.

Section 2: Vision, Goals, Objectives, and Action Items (VGO&A)

This section outlines the Vision, Goals, Objectives and Actions that help guide the future transportation system and how it is envisioned to be implemented. The VGO&As have been updated several times throughout this process. As currently written, the VGO&As incorporate comments and revisions identified by a subcommittee of the Council who reviewed them in June 2018.

Section 3: Existing Conditions and Future Needs Assessment

The assessment portion of the plan provides a baseline of the existing infrastructure from sidewalks to the roadway Functional Classification Plan. It identifies the deficiencies and opportunities that exist within the system helping set the framework for needed projects in the next section.

In regards to intersection capacity needs (Level of Service), this section identifies existing conditions at signalized intersections and the projected traffic conditions in the future year (2038). This data informs intersection improvements needed in order to maintain Level of Service “D” into the future for all intersections with the exception of two. The Baseline Conditions Memorandum found in Volume II of the plan provides the detailed analysis of this summary. Direction on the level of service standard was provided at the March 22nd City Council study session.

Another example of information provided in this section relates to safety and the historical crash data related to automobile, pedestrian, and bicycle incidences from 2011-2015. The detailed information regarding crash rates, crash trends, as well as the intersections and roadway segments identified through ODOT’s Statewide Priority Index System (SPIS) and All Roads Traffic Safety (ARTS) program are further detailed in the Safety Memorandum included in the appendix.

Section 4: Transportation Funding and Implementation

The funding and implementation section provides the priority projects and estimated funding the City will have to spend over the life of the plan. On March 22nd and March 29th, a consensus of City Councilors endorsed a prioritized project list that included the following:

- The regionally significant Foothill/N. Phoenix corridor and South Stage overcrossing project
- Engineering staff’s recommendations for 36 other projects

At the March 22nd study session, City Council also expressed a strong desire to maintain the current level of service “D”, with the exception of two intersections located at Highland and Barnett and at South Pacific Highway and Stewart, (intersection projects I17 and I78, respectively). The City’s priority projects to be funded are identified as Tier 1 projects. The remaining unfunded projects are identified as Tier 2.

Staff was asked to evaluate changes to the project list during discussions related to the proposed utility fee increases. Staff’s analysis and revised project list is discussed under Project Funding above.

Section 5: Transportation System Plan

This section identifies the different modes served by the transportation system, including everything from cars, bicycles, walking, and the transit system, to the airport, and even pipeline distribution. Details regarding the Tier 1 and Tier 2 projects can be found in this section. The modal plans included in Section 5 provide information pertaining to Streets, Safety, Pedestrians, Bicycles, Transit and Freight. In addition, Section 5 outlines several strategies and projects needed to implement Transportation Demand Management (TDM) strategies, parking management, access management, and other items not addressed in the various modal plans.

In this section, Council can find all of the street cross sections. On January 25, 2018, City Council identified the preferred cross sections for Major and Minor Arterials that provide separated bicycle facilities as the preferred alternative. At that same study session, Council provided direction on the concept of addressing legacy streets. Legacy streets are existing, higher order roadways that do not meet the cross-section standards. Such streets may lack facilities such as vehicle lanes, center turn lanes, sidewalk/planter strips, or bicycle facilities to name a few. The legacy streets information has been updated based on discussions at the June 28th study session. This section introduces this new concept and addresses how the City will handle these streets as development occurs.

Section 6: Key Code and Policy Amendments

The plan includes follow up work that would amend Chapter 10 of the Municipal Code. Any changes within the updated TSP will need to be implemented through revised code language. Some of the amendments include revised parking standards, changes to the review of traffic impact analyses, and updates pertaining to the Transportation Planning Rule. The plan identifies several Oregon Department of Transportation (ODOT) signalized intersections that currently exceed the State's volume to capacity (v/c) ratio or will exceed the v/c in the future. Follow up work with the State and the need to establish alternate mobility standards will also be needed after the adoption of the plan.

Any future code changes will be legislative land use actions that will be reviewed by the Planning Commission and ultimately adopted by City Council. Topics that are outside of the requirements of the Transportation Planning Rule can be addressed at the discretion of the Council when deemed appropriate.

During the June study session, the topic of concurrency was raised. Council agreed with staff's recommendation to adopt the TSP first and address the topic of concurrency separately with help from a stakeholder group. The goal is to

work with the stakeholders to evaluate the current policy and determine whether it works or should be modified. If modifications are suggested, the goal is to adopt changes by the end of this year.

Volume II

Volume II is a list of technical memorandums and data that helped to guide the information in Volume I. It is the appendix and data center for the plan. The following documents are including in Volume II.

Appendix A: Plans and Policies Review	Appendix G: 2038 Future Baseline Conditions Figures and Synchro Outputs
Appendix B: Safety Memorandum	Appendix H: 2038 Future Mitigated Conditions Figures and Synchro Outputs
Appendix C: Base Year Volumes	Appendix I: TPR Checklist
Appendix D: Base Year Conditions Synchro Outputs	Appendix J: Functional Classification Memorandum
Appendix E: RVMPO Travel Demand Model Outputs	Appendix K: Operations Analysis
Appendix F: Future Volume Post Processing Worksheets	Attachment A – Bicycle and Pedestrian Toolkit

If Council is interested in reading any of the above documents, Planning staff can provide them either by e-mail or paper copies.

NEXT STEPS

Staff will present the draft TSP to the JTS/CAC, TAC, and PC at the end of August. One final outreach effort will be organized to let the public review and comment on the draft in late August or early September.

Based on Council input, staff will make final edits to the draft document, including map changes and getting the document and staff report ready to enter the hearing process.

The tentative hearing schedule is as follows:

- Planning Commission (September 27, 2018)
- City Council (October 18, 2018 or November 1, 2018)

EXHIBITS

1.
 - a. Scenario 1 Funding Forecast
 - b. Scenario 1 Project List
 2.
 - a. Scenario 2 Funding Forecast
 - b. Scenario 2 Project List
 - c. Scenario 2 List of Projects *Removed*
 3.
 - a. Scenario 3 Funding Forecast
 - b. Scenario 3 Project List
 - c. Scenario 3 List of Projects *Added*
 4.
 - a. Scenario 4 Funding Forecast
 - b. Scenario 4 Project List
 - c. Scenario 4 List of Projects *Added*
 5.
 - a. Scenario 5 Funding Forecast
 - b. Scenario 5 Project List
 - c. Scenario 5 List of Projects *Added*
 6.
 - a. Scenario 6 Funding Forecast
 - b. Scenario 6 Project List
 - c. Scenario 6 List of Projects *Added*
 7. Grant Funding History
- Volume I – Transportation System Plan 2018–2038 (paper copy)
 - Volume II – Appendix (available upon request)