



Joint City & County Planning Commission
Jefferson County Annex
66 SE "D" Street

October 22, 2015
7:00 p.m

AGENDA

- I. Call to Order

- II. Public Hearing, City of Madras and Jefferson County Comprehensive Plan Amendments (City File No. PA-15-1, County File No. 15-PA-04). (Legislative)
 - A. Declaration of Conflicts of Interest: Does any council/planning commission member have an actual economic conflict of interest to disclose? If yes, the Planning Commissioner will refrain from participating in the deliberations and voting on the issue.

 - B. Staff Report (Verbal)

Nicholas Snead, Community Development Director, City of Madras
Bill Adams, Planning Director, Jefferson County
DJ Heffernan, Consultant, Daniel Heffernan Company

 - C. Public Testimony

 - D. Staff Comments

 - E. Deliberation (*If Necessary*)

 - F. Motion to recommend approval, modification or denial of the request. (*If Necessary*)

- III. Adjourn

Pursuant to ORS 192.640, this agenda includes a list of the principal subjects anticipated to be considered at the above referenced meeting; however, the agenda does not limit the ability of the Planning Commission to consider additional subjects. Meetings are subject to cancellation without notice. This meeting is open to the public and interested citizens are invited to attend. This is an open meeting under Oregon Revised Statutes, not a community forum; audience participation is at the discretion of the City Planning Commission. **Anyone wishing to address the Commission will need to register prior to the meeting.** The meeting will be audio taped; minutes of this and all public meetings are available for review at the Madras City Hall. The meeting place is handicapped accessible; those needing assistance please contact the City of Madras Community Development prior to the meeting.

MEMORANDUM

Daniel Heffernan Company

2525 NE Halsey Street
Portland, OR 97232

DATE: October 15, 2015
TO: Nicholas Snead, Director
Madras Community Development
FROM: Daniel "DJ" Heffernan
SUBJECT: Technical Report: Joint Planning Commission Hearing - 10/22/2015

Overview

The City of Madras is proposing to adopt a series of amendments to the Madras Comprehensive Land Use Plan (Plan). These amendments are made in response to recommendations contained in *Madras 2015 Economic Opportunities Analysis (EOA)*. An EOA is a land use planning study related to Statewide Land Use Planning Goal 9 – Economic Development. The 2015 EOA found that while Madras has a sufficient inventory of land inside the existing urban growth boundary to meet forecast employment land needs for the next 20 years, the existing land inventory and related land development regulations do not provide a sufficient number of small and medium size parcels for light industrial and other traded sector uses. It also found that the City's General Industrial (I) zone was complicated and should be streamlined to be in line with industrial development zones in other communities of Madras size.

In light of the EOA findings, the City of Madras (City) has proposed amendments to the Madras Comprehensive Plan and to related City and Jefferson County (County) zoning ordinances. The specific amendments are reviewed in the next section of this memo. The Madras Comprehensive Plan requires that Plan amendments be adopted through a legislative approval process. The sequence for legislative amendments requires:

- Statewide agency notification through the Oregon Department of Land Conservation and Development (DLCD).
- Citizen involvement prior to adoption including notice of the proposed action to citizens.
- Formal public advisory hearings before the respective City and County planning commissions; these may be conducted jointly.
- Formal public adoption hearings before the City and County legislative bodies. By local rule the legislative approval sequence begins with the City and then with the County.
- Appeals: Citizens with standing may appeal the local decision to the Oregon Land Conservation and Development Commission (Commission) when the Commission considers the request from the City and County to acknowledge the amended Plan. From there appeals elevate to the Oregon Land Use Board of Appeals (LUBA), and then to higher courts.

The first two items have been addressed. The third item is the subject of this memorandum and the related advisory hearings. At the end of the advisory hearings, the planning commissions may forward the package of proposed amendments to their respective legislative bodies with a “do pass”, a “neutral”, or an “adverse” recommendation. They also may recommend specific changes to the draft amendments.

The staff will forward the recommendations and suggested changes to the City Council and County Board. It is staff’s responsibility through this process to provide professional judgment regarding the ability of the proposed text, maps, and supporting documents to meet statewide land use planning requirements, to offer suggestions to address perceived shortcomings, and to prepare staff reports that lend support to the proposed amendments.

Proposed Comprehensive Plan Amendments

Amendments to Comprehensive Plans must be based on a factual analysis of relevant land use information. The proposed Plan amendments in this case address the findings of fact and the specific recommendations in the 2015 EOA. These include:

- Adopt the 2015 EOA as a technical element of the Madras Comprehensive Land Use Plan and reference it as the factual basis for the proposed amendments.
- Update the Madras Comprehensive Plan narrative for Goal 9 – Economic Development to include information from the 2015 EOA.
- Update the Plan’s goals, policies, and implementing actions related to Goal 9 – Economic Development; the current goals and policies date to 1990.
- Amend the Madras Comprehensive Plan Map to include a new plan designation called *Mixed Use Employment (MUE)* that initially would be applied to land in the southern HWY 97 corridor (south of Fairgrounds Road) that is zoned for employment use.
- Amend the City of Madras (City) zoning code and the Jefferson County (County) zoning code to include MUE zones that supports needed economic development uses outlined in the EOA. Each jurisdiction would adopt the same zone but the development approval process and the scale of allowed development would differ in the County.
- Clarify the development review process for MUE land use applications in unincorporated areas of the UGB.
- Amend the Madras General Industrial (I) zone to streamline the approval steps and simplify development standards.

The initial draft text and maps amendments are attached in the Exhibits to this memorandum and include plan text and map amendments, zoning ordinance amendments, and an amendment to the City/County Growth Management intergovernmental agreement. Staff recommends adoption of the proposed package of amendments but wants input on the following concerns raised by Planning Commissioners in an earlier work session.

Work Session Issues

On September 24, 2015 the City and County planning commissions held a joint work session in Madras City Council Chambers. Notice of this meeting was circulated to property owners that could be directly affected by the proposed plan amendments and to the general public. A staff presentation was followed by a question and answer discussion with commissioners and with comments and questions from members of the public that attended. The following issues were raised at the work session. Staff would like feedback from commissioners regarding how they think these issues should be addressed in the proposed regulations that will be forwarded to legislators. A description of how the regulations might be altered to respond to the concern is included.

Allowed Uses –Multi-Family Housing

A member of the public who owns an apartment building in the proposed MUE District expressed a concern that the proposed zone allows mixed use commercial with residential above the second floor but does not allow stand-alone residential uses. Property owners that attended informational meetings in August and September favored restricting residential uses altogether, stating that this is an employment district. They did not favor allowing apartments above commercial development in this part of Madras.

Several approaches are possible.

A. Restrict residential development in the district per earlier public comments. Make an exception for a caretaker residence as an ancillary use but otherwise do not allow stand-alone residential development in order to reduce conflicts between uses.

Existing residential uses in the district would be allowed to continue as pre-existing non-conforming uses but they would not be allowed to expand.

B. Allow stand-alone multi-family residential uses as they are allowed in the Madras CC zone - as a conditional use. This provides the opportunity for public input to the Planning Commission and allows discretion in approving residential development with conditions of approval in order to ensure the ongoing compatibility of residential uses in a District that is predominantly envisioned for employment use. Given that the non-residential uses allowed in the zone can be developed through administrative review, the land use emphasis in the District clearly favors employment uses over other uses. Discretionary review provide the opportunity for multi-family residential development only when it is deemed compatible with existing or planned adjacent uses.

C. Remove existing multi-family residential uses from the proposed MUE district and rezone the land consistent with its current use. This needs to be done carefully, however, so as not to create a spot-zoned enclave that is out of character with its surroundings. It is preferable in these cases to take a long view and consider that zoning which encourages adaptive reuse of the property may be the better course.

Allowed Uses –Medical Marijuana

A member of the public who represents an existing medical marijuana dispensary asked that the zone not distinguish between medical and recreational dispensaries. The law is evolving and in effect the state is no longer regulating in a manner that clearly distinguishes between the two. Temporary rules grant medical dispensaries the right to sell recreational products to the public, so distinguishing between the two in the local code may put existing dispensaries at a competitive disadvantage from dispensaries located in cities whose land use ordinances do not distinguish between medical and recreational uses.

Two approaches are possible.

- A. Alter Allowed Use #5 to just say “Marijuana Dispensary”.
- B. Keep the reference to Medical Marijuana in allowed use #5, which is specifically regulated in City Code, and wait for the state to issue final rules for the sale of recreational products before deciding whether or not to regulate these uses commonly or separately.

Site Development - Landscaping

Several commissioners raised a concern that the 15% landscape requirement could be difficult for smaller developments to address or be expensive to build and maintain. They asked that staff research ways to provide flexibility on this requirement and also to research how other jurisdictions in arid parts of the Pacific Northwest address this issue.

We reviewed landscape standards for the cities of Redmond, Prineville, and The Dalles and found the following minimum landscape requirements for commercial and industrial zones.

Jurisdiction	Landscape Minimum	Incentives	Comments
Redmond, OR (RDC 8.0195; 8.0255; 8.3025; 8.3030.5)	15% for all zones except 10% in their MUE zone, which is similar to the Madras Neighborhood Commercial zone.	Landscaping on industrial properties that abut residential zones is encouraged between these uses (buffering).	Street trees/medians and parking lot landscaping/swales count toward the requirement.
Prineville, OR (PC Title XV, 153.038; 153.087)	10% minimum coverage for all commercial/industrial zones except Heavy	Existing native vegetation may be preserved and counted toward the	Emphasis placed on the use of landscaping to buffer residential uses from

	Industrial, which requires none.	landscape requirement.	commercial/industrial uses.
The Dalles, OR (LUDO 5.080; 6.010.030(B);	20% for the Commercial/Light Industrial zone.	None.	Setbacks need to be landscaped; preserve significant trees.

The proposed 15% landscape requirement in the MUE zone is squarely in the middle of the range used by these jurisdictions. Three approaches may work to address the concern raised at the work session. They would grant a reduction in the landscape requirement in limited circumstances or in exchange for making landscape choices that either use less water or that contribute funding to acquire open space land. These options are not mutually exclusive.

A. Reduce the landscaping percentage on development projects that involve smaller lots. For example, the requirement could be reduced from 15% to 10% on sites of less than ¼ acre or 10,000 sq. ft.

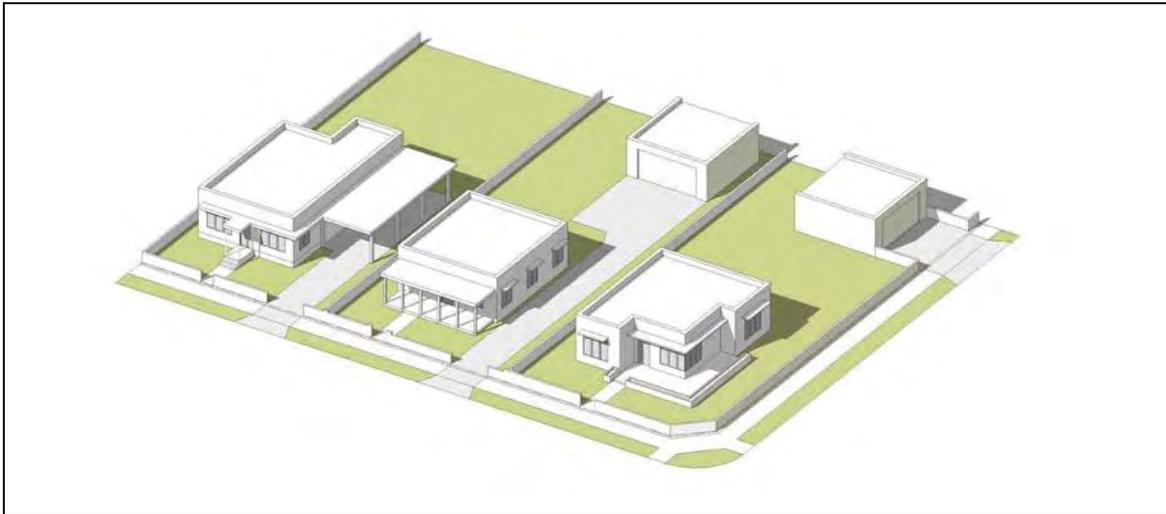
B. Reduce the landscape requirement when the applicant /preserves natural vegetation (rock outcroppings, large-diameter trees, native habitat, etc) or uses drought tolerant plantings in the landscape. The reduction in the landscape requirement could not fall below a base minimum (i.e. all sites must devote at least 10% of the site to landscaping). The *Xeriscaping Handbook for the High Desert* may be used as a guide for the types of qualifying plants.¹ A reduction of up to 5% could be offered for Xeriscaping. The amount of reduction would be less if only part of the landscape area met Xeriscaping standards. For example, the standard could provide a 2% reduction in landscape area when 50% of the landscape plan meets Xeriscape standards and an additional 3% reduction if 100% of the landscape plan meets Xeriscape requirements. The proposal would need to be refined so as not to affect requirements for planning street trees and trees in parking areas, which are desired for reasons beyond landscaping alone.

C. Offer a reduction in the landscape requirement down to a base minimum of 10% (i.e. all sites must devote at least 10% of the site to landscaping) for a fee-in-lieu payment to the City that would be dedicated to acquire and develop public open space in the MUE district. This fee would be in addition to Park SDCs. Public areas might include plazas, public parking, transit stops, walking trails, etc. The amount of the fee should roughly correspond to the cost to buy and landscape land in the district (e.g. on a cost per acre or cost per sq. ft. basis), and the fee would be calculated accordingly

¹ *Xeriscaping in the High Desert*, 2011: offer discount for using plants that meet low or very low hydrozone criteria. Lawns typically do not meet the criteria; plants typically found in rain-gardens and infiltration swales do.

based on the avoided cost. For example, assuming the basic requirement is for 15% landscaping and an applicant only programs 10% for landscaping, the fee in lieu would be applied to the avoided 5% of the land area that would have been landscaped.

Figure 1 - Landscape Examples – 50% and 15% Coverage



Site Development –Building Orientation /Parking

The MUE District presents several regulatory challenges because the zone allows uses to occur side by side that historically have been segregated. Given there is no way at the outset to know where uses might locate it is important to establish consistent development and design standards that lead to a development pattern where the uses are compatible, regardless of who occupies the buildings. One approach for doing this is to make sure that buildings are set back similarly (not necessarily identically), and that buildings are

reasonably close to the street. Bringing buildings closer to the street places greater emphasis on the appearance of buildings in the district and creates stronger connection for patrons and passersby to the buildings as destinations. Buildings that are set at the back of a parking lot are diminished from view so the appearance is not as important from the public's perspective. Placing emphasis on the buildings and on containing uses indoors makes accommodating a variety of uses easier because they are housed in a compatible urban design framework.

Several commissioners and members of the public expressed a concern about the proposed orientation of buildings and parking lots. The proposed standard would allow two bays of parking in "front" of buildings by limiting the building setbacks to a maximum of 75 feet from the primary street right of way (or primary drive aisle in the case of a business park) fronting the property. The balance of parking would be to the side or rear of the building. Two concerns were raised.

One concern was that the proposed 75' front setback is too shallow especially when it only allows a small amount of parking in front of a large store. If the main entrance needs to be in front, this would make for inconvenient access for most patrons. The other concern related to how the front street would be defined. If access to a development is not allowed from HWY 97, then would the "front" street be a local city street or could it still be HWY 97? A big parking lot or truck bays along HWY 97 would not make for a very attractive view of the building any more than having the parking lot in front of the building does.

Several options are possible to address these concerns; they are not mutually exclusive.

A. Do not stipulate the location for the Main Entrance - Require an entrance to face the "front" street but do not stipulate it must be the main entrance. This would promote building designs where activities that need short term parking and light deliveries would take access from the "front" area and the main entry serving long-term shopping, employee parking, etc. would be on the side of the building where most of the parking is located. Example: Erickson Thriftway.

B. Variable Setback – Vary the setback depending on the size of the building. Buildings less than 15,000 sq. feet could have a maximum setback of 75'. Buildings between 20,000 and 30,000 sq. feet could be allowed a 100' set back. The setback for buildings larger than 30,000 sq. ft. would be determined by the Planning Commission. For most "strip-commercial" and industrial flex buildings, two parking bays served by a single drive aisle provides sufficient parking.

C. Deepen the front setback – increase the front setback to 100' or more to allow more parking in front buildings (e.g. deep enough for two parking aisles with four bays). Note that two drive aisles with four bays of parking is the parking area that serves Ericson Thriftway. This much parking in front would in effect enable the main parking lot to front most buildings.

Site Development –Cross Access Easements

The MUE District calls for properties that develop with less than 200' of street frontage, which is roughly 2/3s of a block long, to provide cross-access easements for cars, bikes, and pedestrians with adjacent lots. The intent is to reduce the number of access points into employment sites, especially strip developments with front-loaded parking bays. A question was asked about how this would be designed and regulated. The question raises a timing issue.

The requirement is consistent with existing policies in the Transportation System Plan (TSP) but a regulatory framework to effectively implement the policy is not in place. The City and County are in the process of updating the TSP and this issue will be one of the regulatory items that emerges from that effort. For now, the MUE zone requirement is setting the stage for regulatory amendments that will emerge from the TSP process that likely will affect future development in all employment zones. The design guidance for this concept would need to be included in the TSP and detailed in public works standards for ingress/egress points between adjoining properties and public rights of way.

Site Development –Sewer Connection

Commissioners generally favored the idea to allow development in the County MUE zone on a septic system as a way to regulate the scale of that development. One commissioner raised a concern about how long developed properties in the county with a functioning septic system may have to connect to City sewers after they annex. Typically this is not regulated as a land use issue. This question needs to be raised with Public Works and the County Sanitarian. The City may not be able to affect the timing if state rules regulate the time allowed for connecting to sewer service inside Urban Growth Boundaries. There is a DEQ rule that requires connection to municipal sewers inside a UGB when a property is within 300' of a sewer line.

Buildings - Design Standards

Some commissioners expressed a concern that the building design standards could limit investment in Madras if the cost to comply with the development standards exceeds the rent income that is necessary to capitalize development projects. There was some discussion about the possibility of having different design standards for commercial and light industrial uses. This approach, however, defeats the purpose of allowing a mix of uses in the zone and would create potential for non-conforming designs in the future when tenancy in a building approved under the industrial design standards changes to another allowed use.

Two solutions are possible.

- A. Adopt the proposed design standards on an interim basis and establish a joint city/county taskforce to monitor their affect over time. If the standards appear to be a deterrent to new development and lost development opportunities to other markets in Central Oregon, modifications to the standards can be made. This approach should include pro-forma analysis for the types of projects that house the kind of targeted

trade-sector uses that the new MUE zone is trying to enable. The pro-forma analysis would be used to establish if the development costs imposed by the design regulations is in fact an unreasonable financial constraint compared with other Central Oregon markets.

B. Modify the standards to match perceived cost limitations for commercial/light industrial buildings in Madras. This could be done by altering the quality limitations on exterior materials, glazing requirements, and other factors that may contribute significantly to construction costs. It is not clear to staff what those alteration would be at this time. Our review of the design standards in Redmond, The Dalles and Prineville imply that the proposed standards are in line with building standards in these communities.

Example images of the effect of the proposed design standards will be presented at the hearing.

Evolution of Design Standards and Non-conforming Designs

Two commissioners expressed a concern about the temporal problem that could occur as development standards in the City evolve over time. They want assurance that in circumstances where development in the County that is approved soon after the new districts are created will not be required to upgrade site and building improvements to meet current City standards when it comes time to annex to the City. At present, the criteria for approving annexation of property to the City does not include requirements that properties conform to current site design or building standards. The owner could face added costs to alter access and other site design features if they apply for a building permit to modify the site or use, but annexation alone would not trigger the need for site improvements.

Exhibits

- A. Underline/Strikethrough Plan Amendments
 - 1. Goal 2 Amendments;
 - 2. Goal 9 amendments
 - 3. UGMA Amendments
 - 4. EOA Document (include reference in Plan)
- B. City Zone Amendments
- C. County Zone Amendments
- D. Compliance Findings

Madras Comprehensive Plan Text Amendments (underline/strikethrough)

The following text amendments are recommended to the Madras Comprehensive Land Use Plan. Page references are based on the Madras Comprehensive Plan version that was amended by Ordinance 797 in December, 2011.

(From Social Characteristics, Page 20)

Economics:

The City of Madras serves as the regional shopping and employment center for all of Jefferson County. ~~Commercial~~ Economic activity is conducted both within the existing city limits and in the surrounding lands adjacent to the city limits. The main commercial activity is conducted along the two main streets of the City, which stretch out over two miles. There are various types of commercial and industrial activity carried on within these boundaries. In ~~2005~~ 2007 the City undertook a comprehensive look at ~~the different characteristics of land needs both for housing and employment uses, with an emphasis on~~ commercial areas within the City. This planning process resulted in new commercial standards for three distinct commercial districts: Downtown Commercial, Neighborhood Commercial, and General Commercial.

[The last two sentences of this paragraph were added by Ordinance No. 770, Passed by Council on July 25, 2006]

~~Specific economic data concerning the City is not available, however, data for all of Jefferson County is. Because of the economic interrelationship of the jurisdiction, this data is presented to give an overview of the economic conditions of the City.~~

~~In 1976, a committee was formed to develop an Overall Economic Development Plan. The project was finalized and formally adopted on June 29, 1977, by the Jefferson County Court. The following economic information was taken from that report.~~

In 2015, the City commissioned the preparation of *Madras Economic Opportunities Analysis -2015-2035 (EOA)*, including updates to its employment forecasts, buildable lands inventory, land needs analysis, and other essential parts of its Goal 9 – Economic Development factual basis. The EOA is included by reference as a technical element of the *Madras Comprehensive Land Use Plan*.

The updated EOA provides current information about Madras' economy and commercial and industrial land base. This report's findings and recommendations were used to revise Madras' land use policies related to economic development and to guide amendments to City and County zoning and growth management procedures. The following summary information was extracted from the EOA.

Table S-1 summarizes population and employment forecasts for Madras. The population forecast is the official, adopted forecast for the City. The employment forecast shows Madras growth at 3.35% per year between 2015-2035.

Madras has about 1,073 acres of employment within the current Urban Growth Boundary (UGB). The City has about 444 acres of buildable commercial and industrial, land within its UGB. The majority of

land (384 acres) is vacant, with 14% of employment land categorized as partially vacant. Two-thirds of Madras' vacant and partially vacant land is in the Industrial zone (182 acres) or in the Airport Development zone (119 acres).

Table S-1. Employment forecast, Madras 2015-2035

Year	Total Employment
2015	4,808
2035	9,292
2057	16,205
Change 2015 to 2035	
Employees	4,484
Percent	93%
AAGR	3.35%

Table S-2. Net acres of vacant and partially vacant land by generalized zoning, Madras UGB, 2015

Development Status/Zone	Number of Tax Lots	Total Acres	Vacant, %		Percent Vacant, %
			Unsuitable Acres	Suitable Acres	
Partially Vacant					
AD	1	60	23	37	8%
C1	2	7	2	5	1%
CC	2	5	3	3	1%
I	1	22	7	15	3%
Subtotal	6	94	34	60	14%
Vacant					
AD	15	82	0	82	18%
C1	54	86	4	82	19%
C2	16	5	2	3	1%
C3	11	3	0	3	1%
CC	14	44	0	44	10%
I	24	167	0	167	38%
NC	1	3	0	3	1%
Subtotal	135	390	6	384	86%
All Land					
AD	16	142	23	119	27%
C1	56	93	5	87	20%
C2	16	5	2	3	1%
C3	11	3	0	3	1%
CC	16	49	3	47	11%
I	25	189	7	182	41%
NC	1	3	0	3	1%
Total	141	484	40	444	100%

Source: Jefferson County GIS data; analysis by ECONorthwest

Employment forecasts indicate that Madras will add 3,543 jobs between 2015 and 2035, excluding land for government employment.¹ The EOA identifies opportunities to accommodate about 477 employees on land with existing development, through redevelopment and filling of vacant built spaces.

Table S-4 shows that Madras will grow by 3,066 jobs, requiring 258 gross acres of land for the 2015-2035 period. Table S5 indicates that the City has enough land to accommodate expected growth over the 2015-2035 period within the UGB.

Table S-4 Forecast of land needed for employment, Madras UGB, 2015-2035

Land Use Type	Emp. on Vacant Land	EPA (Net Acres)	Land Demand (Net Acres)	Land Demand (Gross Acres)
Employment Growth 2015-2035				
General Industrial	963	10	96	113
Airport-Related Industrial	235	10	24	28
Retail Commercial	496	20	25	31
Non-Retail Commercial	1,372	20	69	86
Total	3,066		214	258

Source: ECONorthwest

Table S-5 Forecast of land needed for all types of uses, Madras UGB, 2015-2035

Land Use Type	Land Supply (Gross Acres)	Employment Growth 2015-2035	
		Land Demand (Gross Acres)	Land Surplus (Deficit)
General Industrial	182	113	69
Airport-Related Industrial	119	28	91
Commercial and Retail	143	117	26
Total	444	258	

Source: ECONorthwest

The key findings of the EOA are that:

- Madras has a surplus of land for commercial and retail uses. Madras' commercial land surplus to accommodate growth for the 20-year planning period is about 28 gross acres. The majority of Madras' vacant commercial land is in the C-1 and CC zones, with concentrations of vacant land in the southern section of Madras along Highways 97 and 26 and the middle part of Madras along Highway 97.

¹ In the 2007 Madras Urbanization Report, land needed for government employment was accommodated through an analysis of land needed for public and semi-public lands, including uses such as government offices and schools. This analysis excludes government employment to avoid double counting land need for public uses.

- Madras has a surplus of general industrial land. The surplus of Industrial (I) land is about 69 gross acres. All of Madras' vacant industrial land is located at in the northern part of Madras, near the Madras Airport and along Highway 26. Two-thirds of Madras' vacant Industrial land is in two sites, one with 42 acres of vacant suitable land and the other with 75 suitable acres of vacant.
- Madras has a limited number of smaller general industrial sites. General industrial businesses in Madras will need sites on a variety of sizes, including sites smaller than 5-acres, sites 5 to 20 acres, and sites larger than 20 acres. Madras' supply of general industrial sites are all near the Airport, with five vacant suitable sites smaller than one acre, 10 sites between 1 to 2 acres, and seven sites between 2 and 5 acres.
- Madras has a surplus of airport-related industrial land. The surplus of Airport Development (AD) land is 91 gross acres, all of which is located at the Madras Airport. AD land is in a range of site sizes from one acre parcels to a 27 acre parcel.

Based on these findings and the analysis in the EOA, we provide the following recommendations:

- Madras should provide a variety of types of sites for employment. Not all traded-sector employment is industrial or will locate in industrial areas. Traded-sector businesses are businesses that produce goods or services that are exported out of the community, bringing money into the community. Some examples of traded-sector businesses in office settings include software development, professional and technical services that provide services outside of the community, or finance and insurance businesses that provide services outside of the community.
- These types of traded-sector employment may locate in a variety of locations and building types, such as in an office building in downtown or in an office park. By implication, Madras will need to provide a variety of opportunities for employment growth in industrial areas, in commercial areas, and in mixed-use areas like downtown. Madras should evaluate opportunities for developing a zone that will allow a mixture of industrial and non-residential commercial employment. The best area for this type of zone would be along a State highway, in an area with vacant land in sizes ranging from smaller than an acre up to 10 acre sites.
- Madras should evaluate whether the existing industrial land supply meets the City's economic development goals. All of the land is located near the airport, along Highway 26 and two-thirds of the land is concentrated in two larger sites. Discussions with City staff and EDCO staff indicate that the owner of the larger site is unwilling to sell or lease the land and has no apparent intention of doing so in the foreseeable future.
- In addition, Madras has 24 Industrial sites smaller than five acres (about 50 acres of land), all of which are located near the Madras Airport. More than 90% of existing employment in Madras is located on sites smaller than five acres, with nearly all of Madras' employment on Industrial zoned sites located on sites smaller than five acres.
- The site needs of the target general industrial industries suggest that these industries will need sites in a variety of sizes, including small sizes, in a variety of locations throughout the city, with access to state highway, as well as some with access to rail. The City should evaluate opportunities to rezone land within Madras in areas that meet the need for smaller sites.
- Madras should revise its land development policies to meet the needs identified in the EOA. Madras may need to update its Comprehensive Plan policies to align with the City's economic development goals. In addition, the City may need to redesignate or rezone land to meet the needs identified in the EOA, especially for small to mid-sized industrial sites in areas away from

the Madras Airport. The surplus of commercial land in the southern portion of the Madras UGB, along Highways 97 and 26, provide an opportunity for rezoning land from commercial uses to employment uses in a new zone that allows both commercial and light industrial employment, focusing on traded-sector employment.

- Madras should continue to coordinate economic development opportunities at the Madras Airport to further the community's economic development goals. Although land at the Madras Airport is not within the UGB, this land is a key economic development asset. Much of the recent economic growth in Madras is focused on city-owned land at the Airport, with the planned expansion of a business involved in vehicle testing. Land at the Madras Airport is city-owned, which gives the City opportunities to focus on development of businesses that meet the City's economic development objectives, especially with attracting family-wage jobs.
- Encourage redevelopment of existing commercial areas. The City has a substantial supply of commercial land, some of which may have redevelopment potential over the next 20 years. However, as the City develops new residential areas, these areas may need commercial development to provide commercial retail nodes in new neighborhoods. The City should encourage redevelopment of underutilized commercial areas in places with demand for new commercial development. The City has policies to facilitate redevelopment of employment areas, such as designating areas as urban renewal areas.
- Madras should monitor and report on industrial and commercial land development. The City should monitor and report on development and redevelopment of employment land. Monitoring can help the City understand where there is employment land pressure, allowing the City to better respond to the market. Monitoring also allows the City to track land development, as a means to ensure a long-term supply of industrial land.

...

Labor:

~~The City of Madras is experiencing a period of growth and economic prosperity unparalleled since the construction of the Pelton and Roundbutte dams in the early 1950s. The City serves as the regional center and County seat of Jefferson County. Almost all of the commercial, industrial, and governmental activity in the County takes place within the City and its Urban Growth Boundary. Jefferson County has been recognized as one of the fastest growing counties in the State, and in turn, Madras is the focal point for most of that growth. Recent developments in the City (1998) includes the development of a Bi-Mart retail complex, continued expansion of the Brightwood Enterprise operation and the Keith Foster Manufacturing operations, expansion of the Deschutes Valley Water District office/warehouse complex, and numerous residential subdivisions are currently either under construction or in the review/approval process.~~

~~The projected nonagricultural employment forecast shown above are county wide and includes the City of Madras. In order to develop a realistic number of jobs in the Madras City Limits and Urban Growth Boundary, it is necessary to refine the information further. The Oregon Employment Department, in its Regional Economic profile dated 1998 provides a reasonable~~

means of accomplishing this. The report shows in 1996 a total non farm payroll for the county that was estimated at 6,000 jobs. Of those 27 percent were involved in manufacturing, 21 percent were involved in government related jobs, and 52 percent are involved in commercial retail and related activities. By projecting those percentages forward to 1998 a reasonable breakdown of the types of jobs available in the County can be determined. The estimated nonagricultural jobs for Jefferson County, taken from the Office of Economic Analysis table, is 6,843. Of those, 27 percent or 1,848 would be considered manufacturing, 52 percent of that total or 3,558 would be considered commercial retail jobs, and the remainder 21 percent or 1,437 jobs would be considered governmental type employment. The following table summarizes the estimated employment figures for Jefferson County.

EMPLOYMENT TYPE	JOBS
Manufacturing	1,848
Non-manufacturing	3,558
Governmental	1,437
TOTAL	6,843

The two figures that are important are the manufacturing (industrial) and non-manufacturing (commercial) employment totals. From this information, a realistic estimate of job numbers for the City of Madras and its Urban Growth Boundary are developed. It can reasonably be determined that there are over 2,800 (of these, 800 is within the public service employment) jobs in the commercial retail sector, and 1,848 manufacturing jobs in the Madras Urban Growth Boundary.

The following tables summarize labor conditions in Madras. They are from *Madras Economic Opportunities Analysis 2015 – 2035*.

Madras is relying on the safe harbor at OAR 660-024-0040(9)(a)(B), which allows Madras to assume that the current number of jobs in the Madras urban area will grow during the 20-year planning period at a rate equal to “the population growth rate for the urban area in the appropriate 20-year coordinated population forecast”.

Madras is using the same growth rate used for its population forecast to project its employment growth. The average annual growth rate of population growth in the adopted forecast is 3.35% between 2015 and 2035; between 2035 to 2057 the average annual growth rate is 2.56%.

Estimated total employment in the Madras UGB by sector, 2013

Sector	Covered Employment		Estimated Total Employment
	Number	% of Total Emp.	
Natural Resources and Mining	90	3%	111
Construction	24	1%	59
Manufacturing	823	24%	909
Wholesale	76	2%	88
Retail	444	13%	571
Transportation, Warehousing, & Utilities	20	1%	44
Information	22	1%	37
Finance & Insurance	69	2%	131
Real Estate Rental & Leasing	28	1%	156
Professional and Technical Services & Management of Companies	44	1%	54
Admin. Support & Cleaning Srv.	76	2%	149
Health Care & Social Assistance and Private Education	502	15%	679
Arts, Entertainment & Recreation	41	1%	77
Accommodations & Food Services	355	10%	392
Other Services (except Public Admin.)	111	3%	324
Government	712	21%	720
Total	3,437	100%	4,501

Source: 2013 covered employment from confidential Quarterly Census of Employment and Wage (QCEW) data provided by the Oregon Employment Department. Covered employment as a percent of total employment calculated by ECONorthwest using data for Jefferson County employment from the U.S. Department of Commerce, Bureau of Economic Analysis (total) and the Oregon Employment Department (covered).

Employment growth in Madras UGB, 2015-2035; and 2035-2057

Year	Total Employment
2015	4,808
2035	9,292
2057	16,205
Change 2015 to 2035	
Employees	4,484
Percent	93%
AAGR	3.35%
Change 2035 to 2057	
Employees	6,913
Percent	74%
AAGR	2.56%

Source: ECONorthwest

Forecast of employment growth in by land use type, Madras UGB, 2015-2035 and 2035-2057

Land Use Type	2015		2035		2057		Change 2015 to 2035	Change 2035 to 2057
	Emp.	% of Total	Emp	% of Total	Emp	% of Total		
General Industrial	1,346	28%	2,416	26%	4,213	26%	1,070	1,797
Airport-Related Industrial	96	2%	372	4%	648	4%	276	276
Retail Commercial	625	13%	1,208	13%	2,107	13%	583	899
Non-Retail Commercial	1,731	36%	3,345	36%	5,834	36%	1,614	2,489
Government	1,010	21%	1,951	21%	3,403	21%	941	1,452
Total	4,808	100%	9,292	100%	16,205	100%	4,484	6,913

Source: ECONorthwest

Note: Green shading denotes an assumption by ECONorthwest

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Agriculture:

Agriculture is the most important part of the economy of Jefferson County. A total of 356 farms reported by the 1969 agricultural census have a total area of 502,727 acres, about 44 percent of the County's total area.

About 16 percent of the farms are under 50 acres in size while another 28 percent have between 50 and 180 acres. About 16 percent of the farms have more than 1,000 acres. The average is above 1,400 acres, due to the presence of large livestock raising operations.

The main farms, by type, are field crop or livestock raising. About 20 percent of the farms are unclassified by type. The main crop in 1976 was peppermint, with \$12.7 million in gross income.

Crops:

Wheat, \$4.1 million; feed grains, \$123,000; hay and silage, \$1.4 million; grass and legume seed, \$1.7 million; potatoes, \$0.85 million; specialty crops, \$0.6 million. Total crop income was \$21,677,000.

Livestock:

Cattle, \$3.8 million; hogs, \$0.2 million; sheep and lambs, \$0.36 million, miscellaneous animals and products, \$0.12 million. Total livestock income was \$4,462,000.

Total agricultural income in 1976 was \$26,139,000, basing the estimate on average crop yields and projected market prices, assuming all crops will be sold within the normal market year.

Manufacturing:

An analysis of the manufacturing firms of Jefferson County by industrial classification code, in terms of the number of people employed in each classification, indicates which industries are the major employers. The lumber and wood products industry employs 82 percent of the manufacturing-related labor force. Of the employees remaining, 30 percent are employed by the manufacturers of agricultural related machinery, 39 percent by manufacturers of leisure-oriented products (Bramco Boats and Tote-Pac Company), and 31 percent miscellaneous manufacturing.

This analysis indicates the dependency of Jefferson County on the economic climate of a few industries. The lumber and wood products industry, the agricultural industry, and tourism and recreation vitally affect the majority of the labor force. Industrial diversification may be a partial solution to this problem.

MANUFACTURING FIRMS IN

JEFFERSON COUNTY

NAME OF FIRM (by City)	NUMBER OF EMPLOYEES	STANDARD INDUSTRIAL CLASSIFICATION CODE
CULVER		
Bramco, Inc.	45	3,732***
MADRAS		
Bright Wood Corporation	85	2,431*
Deschutes Ready-Mix	4	3,295
Evergreen Forest Products	6	2,875
Foster Manufacturing Co., Inc.	24	3,523**
Full Circle, Inc.	20	2,875

H & S Custom Cabinets	2	2,434*
Keith Manufacturing Company	10	3,523**
Madras Pioneer, The	8	2,711
Madras Sash and Door	3	2,431*
Meuret Pump and Plow Works	6	3,561
Modoc Leather Manufacturing Co.	5	2,386
Pum Brik Tile	N/A	3,271
Sun Ray Plastics, Inc.	1	3,079
Tompsett-Hogam Manufacturing Co.	15	3,523**
Tote Pak Company	18	3,949***
Warm Springs Forest Products	250	2,436*

WARM SPRINGS

Brunoe Logging, Bruce	7	2,411*
Smith Logging Company, Russell	25	2,411*
Warm Springs Forest Products	380	2,421*

Source: Directory of Oregon Manufacturers, 1976, State Department of Economic Development.

* Lumber and Wood Products Industries

** The Manufacturing of Agricultural Related Machinery

*** Manufacturers of Leisure-Oriented Products

CROPS HARVESTED - ACRES

1959, 1965, AND 1969

JEFFERSON COUNTY

Crops Harvested	1959	1965	1969
All Corn	262	93	172
Small Grains:			
Winter Wheat	13,071	17,175	14,637
Spring Wheat	7,995	5,218	4,816

Oats	1,355	269	405
Barley	9,561	6,527	4,788
Rye	127	50	245

Hay Crops:

Alfalfa and Alfalfa Mixtures	11,486	9,694	5,964
Clover and Clover/Grass Mixture	727	715	476
Small Grains for Hay	1,983	1,639	1,550
Wild Hay, Cut	2,087	705	--
Other Hay, Cut	790	679	357
Silage - All Kinds	189	1,262	576

Field Seed Crops:

Red Clover	--	--	115
Alfalfa Hay	--	--	6
Other Vetch	5	--	--

Other Field Crops 5,742 7,850 --

Vegetables for Sale: 1 105 8,091

Sweet Corn	1	63	--
Snap Beans	0/1	--	--
Dry Onions	--	--	--
Potatoes	--	--	8,091

Berries for Sale:

Strawberries	0/1	5	--
Blackberries	--	--	--
Raspberries, Red and Black	N/A	0/1	--

Tree Fruits, Nuts and Grapes 4 0/1 --

Nursery Products 0/1 0/1 --

/1 Reported in small fractions.

N/A — Not Available

Source: U.S. Bureau of the Census, Census of Agriculture, 1969, Vol.1, Area Reports, Part 47, Oregon, U.S. Government Printing Office, Washington, D.C., 1972.

UNRELATED INDIVIDUALS

INCOME BY INCOME RANGES

JEFFERSON COUNTY — 1969

Income Range	Jefferson County
Under \$ 1,000	75
\$ 1,000 - 1,999	74
2,000 - 2,999	66
3,000 - 3,999	83
4,000 - 5,999	62
6,000 - 7,999	65
8,000 - 9,999	23
10,000 - 14,999	6
15,000 - 24,999	17
25,000 - 49,999	0
50,000 and Over	0
All Unrelated Individuals	471
Mean Unrelated Individuals Income	3,965
Median Unrelated Individuals Income	3,247

Source: Bureau of Governmental Research and Service, School of Community Service and Public Affairs, Income and Poverty Data, Cities and Counties of Oregon, 1969, University of Oregon, 1972.

FAMILY GROUPS, MEDIAN FAMILY INCOME

AND FAMILY INCOMES

JEFFERSON COUNTY 1970

Income Under \$3,000	Number	Median Number		
of Family Group	Families	Income	Families	Percent
Total All Families	1,796	\$ 8,528	203	11.3
Rural Families	1,796	8,528	203	11.3
Rural Farm Families	374	8,633	53	14.2

Source: Bureau of Census, Census of Population: 1970 General Social and Economic Characteristics, Final Report PC (1)-C39 Oregon, U.S. Government Printing Office, Washington, D.C., 1972.

MEDIAN EARNINGS OF SELECTED

OCCUPATION GROUPS

JEFFERSON COUNTY 1960 AND 1970

Occupation Group	1960	1970
------------------	------	------

MALE:

Total employed 16 years and older	4,341	6,532
Professional, managerial and kindred workers	\$5,784	\$10,174
Farmers and farm managers	4,368	5,594
Craftsmen, foremen, and kindred workers	4,777	7,246
Operatives and kindred workers	4,394	7,084
Farm laborers	2,702	3,467
Laborers, excluding farm and mine	4,250	3,955

FEMALE:

Total employed 16 years and older	1,250	2,889
Clerical and kindred workers	--	\$4,275
Operatives and kindred workers		1,773

Source: U.S. Bureau of the Census, Census of Population: 1970 General and Economic Characteristics, Final Report PC (1) - C39, U.S. Government Printing Office, Washington, D.C., 1972.

MAJOR OCCUPATION GROUP OF EMPLOYED

JEFFERSON COUNTY - 1970

Occupational Group	Male	Female
Professional technician and kindred workers	318	160
Managers and administrator, excluding farm	341	57
Sales workers	187	112
Clerical and kindred workers	376	312
Craftsmen, foremen and kindred workers	407	22
Operatives, excluding transport	357	186
Transport equipment operatives	164	25
Laborers, excluding farm	192	24
Farmers and farm management	299	18
Farm laborers and foremen	250	20
Service workers	440	271
Private household worker	22	22

Source: U.S. Bureau of the Census, Census of Population: 1970 General and Economic Characteristics, Final Report PC (1) - C39 Oregon, U.S. Government Printing Office, Washington, D.C., 1972.

ECONOMIC GROWTH INDICATORS

TOURISM:

Recreation Facilities	Visitors in 1976
Forest Service Parks	318,337
Youth Camps	14,900

Cove Palisades	478,114 (Day)
	809,324 (Overnight)
Haystack Campgrounds	42,700

TOTAL EMPLOYMENT:

Year	Employment
1956	2,300
1966	3,540
1976	4,130

MANUFACTURING INCOME GROWTH:

Year	M. I. G.
1966	\$ 2,000,000
1976	\$ 8,200,000

RETAIL GROWTH:

Year	Sales (in thousands)
1958	9,594
1963	16,582
1967	16,611
1974	21,110
1976	28,096

CENTRAL ELECTRIC CO-OP:

Year	Customers
1948	172
1977	1,280

Most growth has occurred in the past five years due to irrigation pumps.

CASCADE NATURAL GAS:

Year	Customers
1962	171
1977	609

DESCHUTES VALLEY WATER:

Year	Customers
1948	300
1977	2,000

Deschutes Valley Water has water rights to Opal Springs water.

MADRAS CITY WATER: (Supply from two wells)

Year	Customers
1960	528
1977	679

ROWANS TV CABLE:

Year	Customers
1977	1,442

In the past two years, sewer systems have been installed in Madras, Culver, and Metolius. Other utility companies include Pacific Power and Light, Pacific Northwest Bell, United Telephone, and North Unit Irrigation District.

Tourism:

Tourism is also an important part of the economy. All travel from Portland to skiing areas around Bend comes through Madras. The area draws traffic on the Dalles-California Highway and, particularly in the late Spring, Summer, and Fall months through the general deer season, there is a continual stream of

recreationists coming to the area to utilize recreational facilities at Lake Simtustus behind Pelton Dam, Lake Billy Chinook behind Round Butte Dam, Haystack Reservoir, etc.

The Camp Sherman area, located on the Southwest corner of the county at the headwaters of the Metolius River, is a rapidly developing summer home area. The year around population of the Camp Sherman area is also on a steady rise.

The average daily traffic (ADT) on Highway 97 is above the safe capacity of the highway, as determined by the Oregon Highway Division. Capacity of the highway is rated at 6,400 ADT but during July the count is past 9,000 ADT. Highway 26 traffic during the same period is estimated at 4,200 ADT. These figures emphasize the number of people who pass through Jefferson County annually.

Rockhounding is an important part of the tourist industry in Jefferson County. Hobbyists by the tens of thousands come to the county, beginning with good weather in the Spring and continuing until late in the Fall, to dig for semi precious stones, agates, jasper, thundereggs, etc. There are public "digs" located on public lands and many ranchers have opened deposits of desirable rock, managing their holdings on a fee basis.

Tourism is one of the most important facets in Oregon's economy, accounting for an estimated \$789,000,000 in spending from out of state travelers and recreationists in 1975, according to the Division of Motor Vehicles. During the same period, out of state tourists spending in Jefferson County was estimated at \$8,130,000. Total tourist spending was \$20 million.

Recreation:

In addition to the usual recreational opportunities offered by the school districts, the area is a bonanza for those who prefer outdoor activities. Hunting, fishing, camping, hiking, boating all are readily available on the thousands of acres of public land in the county.

Desert Peaks Golf Course at Madras (9 holes) offers public golfing facilities and annual memberships. Kah-Nee-Ta Resort has a championship caliber 18 hole golf course. Madras desires to add a new 18 hole public golf course to the City's inventory of recreational opportunities.

[Paragraph amended by Ordinance No. 781, Passed by Council on December 12, 2006]

Cultural activities are understandably limited because of the size of the population but there is an active Community Concert Association and Central Oregon Community College brings many cultural offerings to the area high schools.

Services available in the City of Madras include banking and savings and loan associations, medical facilities including a new hospital with five physicians in residence, and a weekly newspaper.

For some time, Madras has been trying to attract additional industrial development utilizing the underdeveloped industrial park lying to the North of the existing City. The site contains approximately 300 acres. It lies adjacent to the Madras Airport, U.S. Highway 26, and is served by a spur from the Oregon Trunk Railroad. The major problem with any future expansion of the industrial park is the

~~development of adequate water supply for fire protection. Development of such a system is the number one priority of the Overall Economic Development Plan for Jefferson County, adopted in 1977.~~

~~In reviewing the existing commercial and industrial land use in the Madras area, there are approximately fifty three (53) acres within the existing city limits currently zoned for commercial use. The amount of commercial activity would indicate a much larger population than currently exists. It is assumed the regional nature of the City within Jefferson County is the primary reason.~~

~~Designation of additional commercial land use areas poses difficult problems due to the linear nature of the existing development. The county and the City must work together closely to insure adequate commercial area is available.~~

~~The City would also encourage no further commercial activities be allowed outside the adopted Urban Growth Boundary.~~

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SECTION III

GOALS AND POLICIES

GOAL 2 – Land Use Planning To establish a land use planning process and policy framework as a basis for all decisions and actions related to the use of the land and to insure an adequate factual base for such decisions and actions.

POLICIES

- A. The City and County shall insure that the Comprehensive Plan serves as a basis for future land use decision.
- B. The City and County shall be responsive to the changes in needs and conditions over time and amend the plan accordingly. The amendment process is discussed in the Land Use element.
- C. The land use plan map and zoning maps for properties within in the Madras Urban Growth Boundary are the same. The City and County will work to adopt common zones for land in the UGB to provide certainty for property owners regarding their intended future urban use for all land in the boundary.

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Goal 9 - Economic Development

Vision Statement

Madras, Oregon is a healthy community with a diverse economy that focuses on traded-sector (export) industries. The City strives to promote “family-wage” job growth and provide opportunities for economic development in a business-friendly environment. Madras supports the growth and expansion

of existing businesses, especially businesses that provide jobs in core economic sectors, which include agricultural products and support services, manufacturing, aviation/aeronautics, trucking services and testing, and wood product manufacturing. Madras supports investment in community and higher education and training to ensure we have the skilled labor force needed to support our economy.

Goals

1. Madras seeks opportunity for economic expansion in many economic sectors including new businesses that expand Madras Traded Sector economy, and that make use of existing economic development assets. Examples include but are not limited to:

- Agricultural and Mining Industries (National)
- Aviation and Aerospace Development Services (National)
- Health Care and Community Services (Regional)
- Manufacturing – material handling, wood products, high tech (Regional/National/International)
- Tourism and Recreational Services (Regional)
- Transportation testing (National/International)
- Warehousing and Distribution Facilities (Regional)

2. Madras will take steps to facilitate economic growth and development by:

- a. Investing in basic transportation infrastructure that supports economic development, including roads, rail access, and aviation facilities.
- b. Ensuring the availability of public water and sanitary sewer service to land designated for employment uses.
- c. Supporting community investment in essential “high-speed” communication and information exchange infrastructure that supports education, commerce, and institutional land uses.
- d. Maintaining enough developable land to support economic development, including at the Madras Airport for air-side support services and business aviation.
- e. Pursuing the designation of a regional large-lot industrial site.
- f. Enacting programs that take advantage of the State of Oregon Enterprise Zone and other tax-incentive programs for new and existing businesses.

3. Madras is committed to balancing economic development goals with long-term preservation of the environment, including the area’s surface and ground water resources, air quality, and high-value farmland, which sustain the local economy.

Policies

Madras will work to achieve these economic development goals using the following policies, which are number for reference purposes. All policies have equal standing and need to be balanced when applied to land-use planning decisions.

1. Provide an adequate supply of employment land in a variety of site sizes and locations, to meet employment growth forecasts.
2. Provide capacity and maintain the public infrastructure necessary to support local businesses and their employees, including roads, aviation and rail facilities, drinking water supply, and sanitary sewers.
3. Actively support investment in essential high-speed communications infrastructure to support the emerging information-economy, and seek ways to reduce communication tariffs on existing businesses and incubator sites.
4. Take steps to encourage investment downtown by adopting incentive programs that encourage redevelopment of property within the Willow Creek floodplain.
5. Encourage redevelopment of vacant and underutilized downtown commercial properties through fiscal policy, zoning regulations, and streamlined permitting.
6. Support businesses expansion and recruitment through local and regional economic development incentive programs.
7. Actively participate in regional economic development and recruitment efforts through Economic Development Central Oregon (EDCO).
8. Support planning and development of intermodal rail access through a rail siding and/or intermodal reload facility accessible to all employers in Jefferson County.
9. Promote economic development at the airport consistent with the Airport Master Plan.
10. Support workforce development and re-education efforts by the Jefferson County School District and the Madras campus of the Central Oregon Community College (COCC).

Implementation

Madras will take steps to achieve these economic development objectives using the following program and regulatory measures:

- a. Facilitate formation of an Ad Hoc economic development committee to identify and remove barriers to economic development in Madras and Jefferson County.

- b. Work with EDCO and local property owners to identify and designate a Regional Large-lot Industrial Development Site in or near Madras.
- c. Lead a rail access economic feasibility study that examines ways to improve intermodal freight accessibility in Madras and Jefferson County, including facilities that support basalt mining and other commodity exports.
- d. Make public improvements in downtown and commercial corridors that reduce flood hazards and enhance development opportunities using urban renewal, ODOT highway enhancement, and local improvement financing tools.
- e. Pursue Oregon Enterprise Zone designations and other tax incentive programs for industrial development sites.
- f. Review the city's development application fees and look for ways to streamline development review with a "fast track" approval process for targeted reinvestment areas, including downtown Madras.
- g. Investigate regulatory and policy approaches to preserve the irrigated agricultural land base in the county that may be impacted by urban development.
- h. Work with Jefferson County and local property owners to expand the inventory of for small to medium sized development parcels suitable for employment use.
- i. Review noise regulations and zoning in the vicinity of the Madras Airport to reduce future conflicts between uses.
- j. Review and update the Madras Enterprise Zone every other year to ensure consistency with state law.

~~GOAL 9 ——— To diversify and improve the economy of the City.~~

~~An overall Economic Development Plan was developed by residents of Madras and Jefferson County and adopted on June 29, 1977. Portions of the Plan were reproduced in the inventory section of the Comprehensive Plan. Not all goals and objectives of the OEDP are applicable to the City of Madras; therefore, only those, which are applicable to the City are reprinted here. However, the City of Madras does recognize the importance of the OEDP to the entire Jefferson County area. The City incorporates by reference the 1977 OEDP.~~

~~POLICIES ——— The City shall seek opportunities to:~~

- ~~A. ——— Develop a source of water supply for fire protection of the Madras industrial site.~~
- ~~B. ——— Develop and construct a multi-purpose civic auditorium.~~

~~C. Identify types of industries, which could be suitably located in the Madras area and promote the advantage of the Madras industrial site to those types of industries.~~

~~D. Expand wholesale and retail trade industries.~~

~~E. Expand tourism and recreation industries.~~

~~F. Expand airport facilities.~~

~~IMPLEMENTATION MEASURES – The City shall:~~

~~A. Seek opportunities for funding to finance water system for the industrial site.~~

~~B. Concentrate commercial activity in or near the Madras Central Business District.~~

~~C. Continue to coordinate economic development efforts with Jefferson County and the Central Oregon Intergovernmental Council.~~

SECTION IV

LAND USE ELEMENT

The Land Use element designates ~~ten~~ eleven basic land use categories and four overlay designations. The intent is to simplify administration and implementation of the Plan. The land use categories are:

...

- C-1 Corridor Commercial
- C-2 Downtown Commercial
- C-3 Community Commercial
- NC Neighborhood Commercial
- MUE Mixed Use Employment
- I Industrial

...

A. A general requirement for all ...

8. MUE “Mixed Use Employment”

A zoning district that is intended to provide opportunities for the development of a variety of employment uses including business and office parks, light manufacturing / assembly, wholesale trade and show rooms, warehouse / distribution, retail goods and services, and other commercial and light industrial uses that are common in mixed-use employment districts.

~~8.9. I “Industrial”~~

...

~~9.~~ 10 O/S "Open Space"

...

~~10.~~ 11. A/D "Airport Development"

...

~~11.~~ 12. MPC "Master Planned Community" Overlay

...

~~12.~~ 13. FH "Floodplain"

...

~~13.~~ 14 MO "Medical Overlay"

...

~~14.~~ 15. AO "Airport Overlay"

...

Proposed Amendments to Madras Zoning Ordinance 864

The amendments would result in the addition of a new base-zone called the *Mixed-Use Employment Zone*. The following changes are proposed to the city zoning ordinance. Amendments also are proposed to the Madras Industrial Zone. Those amendments are tracking through city review separately. Additions are shown underlined; deletions are shown with a ~~striketrough~~.

Article 1 – Introductory Provisions

Section 1.3 DEFINITIONS

...

AISLE - The traveled way by which vehicles enter, circulate, and depart development sites.

-- Primary Aisle – a travel way used within development sites primarily for vehicle circulation;

-- Parking Aisle – a travel way used within development sites primarily to access parking spaces.

...

MIXED USE EMPLOYMENT (MUE). A zoning district that is intended to provide opportunities for the development of a variety of employment uses including business and office parks, light manufacturing / assembly, wholesale trade and show rooms, warehouse / distribution, retail goods and services, and other commercial and light industrial uses that are common in mixed-use employment districts.

Article 2 – Basic Provisions

Section 2.4 ESTABLISHMENT OF ZONES

ZONE	DESIGNATION
...	
Neighborhood Commercial	NC
<u>Mixed Use Employment</u>	<u>MUE</u>
Industrial	I

...

Article 3 – Land Use Zones

Section 3.15 MIXED-USE EMPLOYMENT (MUE)

A. PURPOSE

The purpose of the Mixed Use Employment zone is to provide land for the development of a variety of employment uses including business and office parks.

office buildings, service outlets, light manufacturing / assembly, wholesale trade and show rooms, warehouse / distribution, storage, trade schools, retail goods and services, and other commercial and light industrial uses that are commonly found in mixed-use employment districts. Housing is not permitted as a stand-alone use but may be approved as an ancillary use. Given the potential within the district for diverse uses to be constructed in close proximity to each other, design standards in the district are intended to limit activities within buildings and design finishes that are consistent for the range of allowed uses.

B. USES

1. Permitted Uses – uses permitted in the MUE zone are listed in Table 3.15.1. The table is divided into uses permitted outright (P), uses permitted conditionally (C) and uses permitted as accessory to another allowed use (A). The Planning Commission may approve uses not listed as allowed in the zone in accordance with Section 9.28 of this ordinance.

Table 3.15.1 – Allowed Uses

<u>Use Categories and Uses</u>	<u>Review</u>
<u>A. Commercial</u>	
<u>1. Day Care Facilities – establishments that provide for the daily care of children and adults with special needs, including before and after school care, child development facilities, adult activity centers that do not include lodging.</u>	<u>C</u>
<u>2. Drive-through Facilities – when developed in conjunction with an allowed use. Examples include a coffee kiosk, food cart, bank drive-through, food take-out window, etc.</u>	<u>P</u>
<u>3. Eating and Drinking Establishments – businesses primarily involved in the preparation and sale of food and beverages for on-site consumption or take-away, including bakeries, restaurants, coffee shop, brewpub, tavern, sandwich shop, etc.</u>	<u>P</u>
<u>4. General Office – professional and administrative service uses, including banks, financial services, insurance, real estate, medical and dental clinics, professional services, call centers, and other employment uses that typically operate in an office setting.</u>	<u>P</u>
<u>5. Medical Facility – allowed subject to the conditions in Section 3-11.</u>	<u>P</u>
<u>6. Medical Marijuana Dispensary – allowed subject to the conditions in Section 3-14.</u>	<u>P</u>
<u>7. Personal and Contract Services – uses oriented toward the sale and delivery of personal services, including day spas, hair care, pet grooming, laundry and dry cleaning, printing, etc.</u>	<u>P</u>
<u>8. Hotel / Motel – commercial lodging where tenancy is typically less than one-month, including hotels, motels, bed and breakfast, and truck-stops. Does not include senior and retirement housing.</u>	<u>P</u>

<u>9. Recreation and Fitness – uses oriented to delivering youth and adult recreation activities, including dance and yoga studios, fitness centers, climbing gyms, martial arts centers, bowling alleys, soccer centers, movie theaters, skating rinks, etc.</u>	<u>P</u>
<u>10. Repair-oriented – establishments engaged in the maintenance and repair of consumer and business goods, including electronics, automotive, bicycles, jewelry, cobblers, office equipment, tailor and seamstress, upholsters, automotive, aviation and marine equipment, etc.</u>	<u>P</u>
<u>11. Retail Sales and Services – Sales oriented establishments involved in the sale, leasing, or rental of new or used products and services to the public, including car sales, home and business goods and services, pharmaceuticals, jewelry, hardware, household supplies and furnishings, electronics, clothing, dry goods, pet supplies and pets, office and art supplies, etc.</u>	<u>P</u>
<u>12. Schools – including trade schools, public education facilities, nursery schools etc.</u>	<u>C</u>
<u>B. Manufacturing and Production</u>	
<u>1. Manufacturing and production – uses engaged in the fabrication, manufacture, assembly, packaging of goods for resale. Natural and man-made materials in raw and partly assembled condition may be used. Examples include food products, catering services, breweries, distilleries and wineries, woodworking and cabinet makers, motor machinery, electronics, marine and aviation products, etc. Excludes live animal processing.</u>	<u>P</u>
<u>2. Trade services and Storage – uses engaged in the storage, distribution and resale of wholesale goods and bulk items, including warehousing and distribution, and commercial storage facility.</u>	<u>C</u>
<u>3. Research and Development – uses engaged in product or service research, including laboratories, testing facilities, design studios and other research-oriented activities.</u>	<u>P</u>
<u>C. Institutional</u>	
<u>1. Utilities – public facilities and utility uses, such as utility substations, pump stations, data storage, etc.</u>	<u>C</u>
<u>2. Communication Facility – allowed subject to standards in Section 3.6.1.</u>	<u>P</u>
<u>D. Residential</u>	
<u>1. Caretaker residence or apartment</u>	<u>A</u>
<u>E. Other</u>	
<u>1. Temporary uses subject to MMC 3.5.1.C</u>	<u>P</u>

<u>2. Public Parking Lots</u>	<u>P</u>
<u>3. Churches and places of worship.</u>	<u>P</u>

2. Prohibited Uses

a. Motor sports training and competitive venues, bulk fuel storage, wrecking yards, solid waste handling, animal processing, chemical and petroleum processing, explosives manufacturing, asphalt/cement/rock crushing operations, commercial composting.

b. Outdoor fabrication, assembly, or processing of materials and goods other than for the movement of inventory that is stored outside (e.g. garden supplies and nursery stock).

C. DEVELOPMENT STANDARDS

The allowed mix of uses in the zone require that new development be appropriately sited and operated in terms of building location, orientation to the street, vehicular access, the orientation of parking and loading docks, storage areas and lighting so that uses remain compatible over time. Uses in the MUE zone are subject to the following development standards.

Table 3.15.2 summarizes development standards that apply in the MUE zone. Standards are explained in detail below the table.

Table 3.15.2 – Development Standards

<u>Standard</u>	<u>Unit</u>	<u>Cross Reference</u>
<u>1. Lot Standards</u>		
<u>a. Minimum Size</u>	<u>5000 sq. ft.</u>	
<u>b. Maximum Size</u>	<u>None</u>	
<u>c. Street Frontage</u>	<u>50 ft. minimum</u>	
<u>2. Site Development</u>		
<u>a. Setbacks</u>		
<u>1. Front Minimum</u>	<u>10'</u>	
<u>2. Front Maximum</u>	<u>75'</u>	
<u>3. Side *</u>	<u>None</u>	
<u>4. Rear *</u>	<u>None</u>	
<u>b. Lot Coverage</u>		
<u>1. Maximum</u>	<u>85%</u>	
<u>2. Landscaping</u>	<u>15% minimum; drainage swales and landscaped medians may be included in the calculation.</u>	

<u>c. Parking</u>		<u>MMC 4.5</u>
<u>1. Required spaces</u>	<u>Varies by use</u>	
<u>2. Location</u>	<u>Two parking bays with a drive aisle are allowed in front of the building. Other parking must be located to the side or behind the building.</u>	
<u>3. On-street</u>	<u>On-street parking may be counted toward meeting required minimum parking.</u>	
<u>4. Parking lots</u>	<u>Landscaped buffers are required between parking aisles. 7% of a parking lot area must be landscaped.</u>	
<u>5. Loading docks</u>	<u>Must be located to the side/rear buildings.</u>	
<u>d. Access and Circulation</u>	<u>Site access and local circulation are subject to Madras Public Works Street Design Standards.</u>	<u>Also see Madras Transportation System Plan, Chapter 6 and MMC 2.1</u>
<u>1. Building orientation</u>	<u>Main entrance oriented to the street or primary drive aisle.</u>	
<u>2. Cross-access</u>	<u>Easements are required between adjacent properties with less than 200' of street frontage for auto, bikes, and pedestrian use.</u>	
<u>3. Local Circulation</u>	<u>Development on parcels greater than 3-acres must include a local street circulation plan.</u>	<u>MMC 2.1</u>
<u>e. Environment</u>		
<u>1. Lighting</u>	<u>See below.</u>	<u>MMC 3.5.1(H)</u>
<u>2. Air and Noise</u>	<u>See below</u>	
<u>3. Storage</u>	<u>Outdoor storage areas must be screened from public view.</u>	

* - when properties abut residential uses, a landscaped side-yard/rear-yard and a minimum 15' setback is required.

1. Lot Development

Lot size: 5000 sq. ft. minimum.

Coverage: 85% maximum coverage by buildings and impervious surfaces.

2. Site Development

a. Floor Area Ratio – the maximum FAR is 0.3:1

b. Building Setback:

Front Minimum: 15'

Front Maximum: 75'

Side: none except 15' minimum when abutting a residential use.

Rear: 10' except 15' when abutting a residential use.

c. Landscaping - A landscaping plan shall be prepared. All unused portions of the property shall be maintained with landscaping consisting of ground cover, or planted grass, shrubs, trees, flower beds, or other suitable landscaping. At least 15% of the lot area shall be landscaped. The use of native plants and xerophyte species in landscaping is desirable. Landscape features may include:

1. Drainage swales, parking medians, landscape buffers adjacent to pedestrian ways, and landscaping that abuts buildings.

i. At least seven percent (7%) of parking lot areas shall be landscaped. Trees shall be planted at a ratio of one tree per ten (10) parking spaces to achieve a canopy effect over the lot area.

ii. Landscape buffers of three feet (3') width are required between parking aisles and between parking lot areas and streets/drive aisle.

iii. There shall be a minimum landscaped buffer of fifteen feet (15') between MUE buildings and parking areas and adjacent residential lots.

iv. Landscape buffers shall consist of evergreens ground cover and shrubs mixed with a variety of flowering and deciduous plant species of trees and shrubs.

v. Required landscaping shall be continuously maintained. Landscaped areas shall be irrigated, except for plantings in xerophytic drainage infiltration swales.

2. Public gathering areas, such as plazas, atriums, and courtyards when at least 15% of the design is devoted to plantings, water features, public art, and other amenities.
3. Rock outcroppings and native vegetation when incorporated into the landscape design.
4. Lawns, planted beds, and vegetated berms and buffers.

d. Parking and Loading

1. Minimum parking requirements are detailed in MDC Article 4, Section 4.5.
2. Two parking bays with a drive aisle may be located in front of a building. All other parking areas must be located to the side or behind buildings.
3. At a minimum, 7% of parking areas shall be landscaped.
4. Parking areas must include sidewalks or pedestrian walkways that provide safe pedestrians access to buildings.
5. Loading docks – In the MUE zone, loading docks must be located to the side or rear of buildings. Loading docks must be recessed far enough that trucks using them do not obstruct public roadways or drive aisles.

e. Access and Circulation

1. Building access shall be oriented toward the primary public street or drive aisle.
2. Vehicular and bicycle/pedestrian cross-access – Properties with less than 200' of street frontage shall provide cross access easements for pedestrians and vehicles to adjoining properties. The City Engineer may require consolidation of access to a common shared location.
3. Local Circulation – Development plans that involve more than 3-acres must include a local street circulation plan that details how the development will be served by and facilitate the development of a local street circulation in a manner that is consistent with the Madras Transportation System Plan. Where the TSP includes a local network plan, the Local Circulation Plan must conform to it. When the TSP does not include a local circulation plan for the project vicinity, the Local Circulation Plan needs to be developed consistent with the TSP's block standards and street classification guidelines.

f. Environmental

1. Lighting. The reasonable use of outdoor-lighting is required for nighttime safety and security in public use areas. Lighting shall minimize glare and

obtrusive exfiltration to adjoining uses by using directional or shielded outdoor lighting fixtures. Lighting that is misdirected, excessive, or unnecessary is not permitted. The use of energy-efficient lighting is required to conserve energy and views of the night sky.

- i. Outdoor lighting shall not project directly into an abutting lot. See Outdoor Lighting Standards in MDC 3.5.1(H).
 - ii. Illumination for pedestrian areas, drive aisles, entryways and directional signs may be LED or utility-approved high and low pressure sodium fixtures that focus light within public access areas.
 - iii. Blinking, strobe, or rotating light(s) are not permitted unless required by FAA.
 - iv. Light stanchions for drive aisles and parking shall not exceed twenty feet (20') in height. Support stanchions for lighting pedestrian walkways may not exceed 12".
2. Air and Noise – All uses shall comply with applicable air and noise quality standards established by the Oregon Department of Environmental Quality or city standards, whichever is more restrictive.
3. Outdoor Storage – Outdoor storage areas shall be screened from public view. This standard applies to solid waste refuse bins, bulk materials, heavy equipment, finished inventory, etc. Outdoor storage areas may not be used for manufacturing, assembling, or fabricating goods and materials.

D. BUILDING STANDARDS

Buildings in the MUE zone shall meet the design standards outline below. Variations from these standards are permissible subject to design review approval.

Table 3.15.3 – Building Design Standards

<u>Element</u>	<u>Standard</u>	<u>Exceptions</u>
<u>Height Limit</u>	<u>45'</u>	<u>Roof mounted equipment may exceed the height limit by 10'. Except for communication equipment and solar collectors, roof-mounted equipment shall be screened.</u>

<u>Element</u>	<u>Standard</u>	<u>Exceptions</u>
<u>Size Limit</u>	<u>Minimum: none</u>	
	<u>Maximum: 100,000 sq. ft.</u>	
<u>Exterior Materials</u>	<u>Brick, concrete panel, smooth-finished concrete block, stucco, and stone may be used as primary materials.</u>	<u>Accent materials, not exceeding 20% of the front façade, may include pre-fabricated metal and wood.</u>
<u>Glazing</u>	<u>The front façade shall include 30% glazing for the first 15' of the building height.</u>	
<u>Roofs</u>	<u>Roof designs may be flat, gabled, arched, or other designs with coverings that complement the building design. Sloped roofs shall incorporate eaves that extend over the exterior walls a minimum of 2 feet beyond the wall.</u>	<u>Buildings with flat roofs shall incorporate exterior wall features that extend a foot or more above the roof elevation.</u>
<u>Entryways</u>	<u>Each building shall have a primary entry facing the primary public street or drive aisle. All public entries shall include weather-protection features.</u>	
<u>Landscape Buffer</u>	<u>The front façade shall include a 3' landscape perimeter at the base of the exterior wall.</u>	
<u>Walkways</u>	<u>The front façade shall include a 6' walkway between the landscape buffer and front parking. The walkway shall connect pedestrian access ways from parking areas to entryways.</u>	

E. DESIGN REVIEW

All development applications in the MUE zone are subject to design review. The purpose of design review is to ensure that the public health, safety and general welfare are protected and the general interest of the public is served. The standards provide for originality, flexibility and innovation in site planning and development in order to enhance the special characteristics that make Madras a unique place to live.

1. Applicability. Except as exempted by subsection 2 below, the provisions of this section shall apply to the following activities:

- a. All new building construction. Design review for buildings greater than 30,000 square feet must approved by the Planning Commission through Conditional Use review.
- b. Exterior modifications to existing buildings.
- c. All new parking lots.
- d. All outdoor storage and display areas.
- e. All new signs.
- f. All building expansions greater than 10,000 square feet.
- g. Structures shall be painted or repainted as described in Section 3.6(E)(5)(f) of the Zoning Ordinance.

2. Exemptions. This Ordinance section does not apply to the following activities:

- a. Maintenance of the exterior of an existing structure such as re-roofing or residing.
- b. Interior remodeling.
- c. Building expansions not exceeding 25% of the gross square footage of the original building, or 10,000 square feet, whichever is less.
- d. Parking lot expansions not exceeding 25% of the gross square footage of the original lot.

3. Review Process. The Community Development Director shall approve, approve with conditions or deny an application based upon compliance with the site plan criteria, and design review standards. Approval shall be obtained from the review authority prior to the issuance of all building permits for any of the activities described in Paragraph (1) of this section.

4. Application Requirements. All applicants shall attend a pre-application conference prior to filing an application for Design Review with the Community Development Department. After attending the pre-application conference the applicant shall file an application for Design Review along with other applicable applications (site plan and/or conditional use) with the Community Development Department.

5. Standards for Approvals.

a. Natural Features - Buildings shall be sited to protect areas of special interest and significant natural features such as natural grade, trees, vegetation and rock outcroppings. These resources are encouraged to be incorporated into the overall site plan and may be calculated as part of the landscaping requirement. They are to be protected during construction.

b. Building, location and orientation - New buildings shall have at least one principal building entrance oriented toward the primary front property line.

c. Pedestrian Walkways

i. Walkways from the sidewalk to building entrances. A continuous pedestrian walkway shall be provided from the primary frontage sidewalk for pedestrians to access building entrances. This internal walkway shall incorporate a mix of landscaping, benches, drop-off bays for at least 50% of the length of the walkway. Walkways shall be connected to adjacent sites wherever practicable.

ii. Walkways from parking pods (areas) to building entrances. Internal pedestrian walkways shall be developed for persons who need access to the building(s) from the parking pods. The walkways shall be located within the pods and shall be designed to provide access from the pods to the entrances of the building(s). The walkways shall be designed to separate people from moving vehicles as much as possible. These walkways shall have a minimum width of 5 feet with no car overhang or other obstruction. The walkways must also be designed for disabled access according to the Uniform Building Code. This may require the walkways to be widened or modified. The walkways shall be distinguished from the parking and driving areas by use of any of the following materials: special pavers, bricks, raised elevation or scored concrete. Other materials may be used if they are appropriate to the overall design of the site and building and acceptable to the review authority.

d. Mechanical equipment and service areas shall be screened with visual barriers from adjacent properties, public streets, parks, or other public areas. The architectural design of the building shall incorporate design features that

screen and conceal all heating, ventilation, air conditioning units, trash enclosures, dumpsters, loading docks and service yards.

e. Exterior Building design

1. Exterior walls of buildings that are greater than 50 feet in horizontal length shall be constructed using a combination of architectural features and a variety of building materials and landscaping near the walls. Walls that can be viewed from public streets shall be designed using architectural features and landscaping (abutting the building) for at least 50% of the wall length. Other walls shall incorporate architectural features and landscaping for at least 30% of the wall length.
2. Architectural features include, but are not limited to the following: recesses, projections, wall insets, arcades, window display areas, awning, balconies, window projections, landscape structures or other features that complement the design intent of the structure and are acceptable to the review authority.
3. A portion of the on-site landscaping shall abut the walls so that the vegetation combined with the architectural features significantly reduces the visual impact of the building mass as viewed from the street.
4. Building materials. The predominant building materials should be characteristic of Central Oregon such as brick, wood, native stone and tinted/textured concrete masonry units and/or glass products.

Other materials such as smooth-faced concrete block, undecorated tilt-up concrete panels, or pre-fabricated steel panels should only be used as accents and not dominate the building exterior of the structure. Metal roofs may be allowed if compatible with the overall architectural design of the building.
5. Roof Design. Roofs shall be designed to reduce the apparent exterior mass of a building, add visual interest and be appropriate to the architectural style of the building. Variations within one architectural style are highly encouraged. Visible roof lines and roofs that project out over the exterior wall of a building enough to cast a shadow on the ground are highly encouraged. Architectural methods shall be used to conceal flat roof tops. Overhanging eaves, sloped roofs and multiple roof elements are highly encouraged.
6. Customer Entrances. Clearly defined, highly visible customer entrances using features such as canopies, porticos, arcades, arches, wing walls, and integral planters are highly encouraged. Inclement weather protection is required.

7. Community Amenities, such as patio/seating areas, water features, art work or sculpture, clock towers, pedestrian plazas with park benches or other features located adjacent to the primary entrance to the building(s) are highly encouraged and may be calculated as part of the landscaping requirement.
8. Building and Sign Colors: Exterior colors shall be low reflectance, subtle, and neutral. The use of high intensity colors such as black, neon, metallic or florescent for the facade and/or roof of the building are prohibited except as approved for building trim. The use of Trademark colors requires city approval.

F. EXCEPTION TO DESIGN STANDARDS

An exception to the MUE Design Standards may be approved by the Madras Planning Commission as provided by Section 9.3(A) of this Ordinance. The Planning Commission shall conduct a quasi-judicial hearing in accordance with the provisions of Article 9 of this Ordinance. The Planning Commission's decision may be appealed to the City Council in accordance with Section 9.22 of this Ordinance.

1. Approval Criteria: The Planning Commission shall grant an exception to the Design Standards based on the following criteria:
 - a. Consistent with the purpose of the intent of the MUE Design Standards.
 - b. The location, size, design characteristics of the proposed design shall have minimal adverse impact on the compatibility of the permitted development in the surrounding area.
 - c. The proposed design is aesthetically pleasing and functional and relates harmoniously to the natural environment and existing development.
 - d. The proposed design minimizes visual impacts and preserves natural features to the greatest extent practical.
 - e. The requested design exception is the minimum deviation necessary.

G. NON-CONFORMING STRUCTURES

An existing attached or detached single family dwelling that is incorporated into a development may be permitted to remain, at the discretion of the Hearings Body, as a nonconforming residence subject to all non-conforming structure requirements within the MDC.

Proposed Amendments to Jefferson County Zoning Ordinance, Chapter 3 – Land Use Zones

The amendments would result in the addition of a new base-zone called the *Mixed-Use Employment Zone* into the ordinance as Chapter 3.110. The following additions are proposed. Revisions to the existing ordinance they are shown in underline/~~strikethrough~~ format.

Section 310 - **MIXED USE EMPLOYMENT (MUE)**

Purpose: A zoning district intended to provide future opportunities for the development of a variety of urban employment uses including business parks, office, service outlet, light manufacturing / assembly, wholesale trade and show rooms, warehouse / distribution, storage, trade schools, retail goods and services, and other retail commercial and light industrial uses that are commonly found in mixed-use employment districts. Housing is not permitted as a stand-alone use but may be approved as an ancillary use. Annexation to the City of Madras is required prior to development approval for employment uses.

A. Uses

Uses permitted in the MUE zone are listed in Table 310.1. Uses not listed in the table are not permitted in the zone. The Madras Planning Director has discretion through an Administrative review to determine if a proposed use is similar to other allowed uses in the zone and, therefore, would be allowed subject to the development standards for the zone.

Table 310.1 – Mixed Use Zone Allowed Uses

<u>Use Categories and Uses</u>
<u>A. Commercial</u>
<u>1. Day Care Facilities – establishments that provide for the daily care of children and adults with special needs, including before and after school care, child development facilities, adult activity centers that do not include lodging.</u>
<u>2. Drive-through Facilities – when developed in conjunction with an allowed use. Examples include a coffee kiosk, food cart, bank drive-through, food take-out window, etc.</u>
<u>3. Eating and Drinking Establishments – businesses primarily involved in the preparation and sale of food and beverages for on-site consumption or take-away, including bakeries, restaurants, coffee shop, brewpub, tavern, sandwich shop, etc.</u>

<u>4. General Office – professional and administrative service uses, including banks, financial services, insurance, real estate, medical and dental clinics, professional services, call centers, and other employment uses that typically operate in an office setting.</u>
<u>5. Residential Uses – multi-family above a ground-floor employment use, single-family dwelling for a caretaker residence that is ancillary to the primary use.</u>
<u>5. Medical Facility – allowed subject to the conditions in Section 3-11.</u>
<u>6. Medical Marijuana Dispensary – allowed subject to the conditions in Section 3-14.</u>
<u>7. Personal and Contract Services – uses oriented toward the sale and delivery of personal services, including day spas, hair care, pet grooming, laundry and dry cleaning, printing, etc.</u>
<u>8. Public Lodging – commercial lodging where tenancy is typically less than one-month, including hotels, motels, bed and breakfast, and truck-stops. Does not include senior and retirement housing.</u>
<u>9. Recreation and Fitness – uses oriented to delivering youth and adult recreation activities, including dance and yoga studios, fitness and aquatic centers, climbing gyms, martial arts centers, bowling alleys, soccer centers, shooting ranges, movie theaters, skating rinks, etc.</u>
<u>10. Repair-oriented – establishments engaged in the maintenance and repair of consumer and business goods, including electronics, automotive, bicycles, jewelry, cobblers, office equipment, tailor and seamstress, upholsters, automotive, aviation and marine equipment, etc.</u>
<u>11. Retail Sales and Services – Sales oriented establishments involved in the sale, leasing, or rental of new or used products and services to the public, including care sales, home and business goods and services, pharmaceuticals, jewelry, hardware, household supplies and furnishings, electronics, clothing, dry goods, pet supplies and pets, office and art supplies, etc.</u>
<u>12. Schools – including trade schools, public education facilities, nursery schools etc.</u>
<u>B. Manufacturing and Production</u>
<u>1. Manufacturing and production – uses engaged in the fabrication, manufacture, assembly, packaging of goods for resale. Natural and man-made materials in raw and partly assembled condition may be used. Examples include food products, catering services, breweries, distilleries, and wineries, woodworking, cabinet makers, motors and machinery, electronics, marine and aviation products, etc.</u>
<u>2. Trade services and Storage – uses engaged in the storage, distribution and resale of wholesale goods and bulk items, including warehousing and distribution, and temporary storage.</u>
<u>3. Research and Development – uses engaged in product or service research, including laboratories, testing facilities, design studios and other research-oriented activities.</u>

<u>C. Institutional</u>
<u>1. Community service uses – public facilities and utility uses, such as utility substations, pump stations, data storage, etc.</u>
<u>2. Communication Installations – allowed subject to standards in Section 3.6.1.</u>

B. Development Standards

Uses in the MUE zone are subject to City of Madras site development and design standards per Madras Ordinance 864 and Madras Development Code, Section 16, Article 3.15. Development in the County may only be approved when the proposed development can be served by an on-site septic system or other on-site sanitary sewer disposal system approved by the County Sanitarian. Minimum lot dimensions established for the Madras MUE zone may be adjusted in the County in order to meet requirements for on-side sewage disposal.

The approval of MUE development is subject to City of Madras Design Review and non-revocable agreement to future city annexation and connection to Madras sewer service when that becomes feasible.

C. Existing Non-Conforming Structures.

At the discretion of the Hearings Body, an existing single family dwelling that is incorporated into a development plan may remain as a nonconforming residence subject to requirements for non-conforming structures.

CITY OF MADRAS

Compliance Findings related to Goal 9 - Economic Development Comprehensive Plan Amendments

Section A – Findings related to Statewide Land Use Planning Requirements, including the preparation and adoption of legislative plan amendments, the updated Economic Opportunities Analysis (EOA), and amendments to Madras and Jefferson County implementing ordinances.

Statewide Land Use Planning Goals

Goal 1 – Citizen Involvement
Response: The Madras Comprehensive Land Use Plan (Plan) includes acknowledged procedures for involving citizens in land use planning decisions. Madras and Jefferson followed those procedures in developing the proposed amendments to the Plan. Detailed findings regarding local requirements and the process followed are provided in Section B below.
Goal 2 – Land Use Planning
Response: The Madras Comprehensive Land Use Plan (Plan) includes acknowledged procedures for amending the Plan. Madras and Jefferson followed those procedures in developing the proposed amendments to the Plan. Detailed findings regarding local requirements and the process followed are provided in Section B below. Findings related to compliance with requirements for a Post Acknowledgement Plan Amendment (PAPA) per OAR 660-018-0000 are presented below.
Goals 3, 4, 5, 6, 7, 8
Response: The proposed amendments are unrelated to Agriculture, Forest Land, Open Space and Natural Areas, Air and Water Resources, Natural Hazards, or Recreation. These goals are addressed in other acknowledged elements of the Plan and are unaffected by the proposed amendments.
Goal 9 – Economy of the State
Response: Detailed responses to OAR 660-009-0000 are presented below.
Goal 10 - Housing
Response: The proposed amendments have no effect on Madras acknowledged plan elements related to housing. The plan does not alter the inventory of land that is relied on by the City to meet its demonstrated housing needs. The new Mixed Use Employment (MUE) zone does not permit housing per se although it may be approved as a

conditional use. As such, the MUE zone, like the land in the City Corridor Commercial and County Commercial zones that it applies to is not relied on to meet housing needs.
Goal 11 – Public Facilities
Response: The proposed amendments have no effect on the City’s acknowledged public facility plan or its ability to serve land inside the Urban Growth Boundary (UGB). The proposed MUE zone is being applied to land south of Fairgrounds Road that currently is planned for employment use. This area has previously been analyzed for its impact on demand for municipal water and sewer, storm drainage, utilities, and other public institutional services. The change in allowed use for these employment lands has no effect on municipal service demand in this part of the UGB.
Goal 12 - Transportation
Response: Detailed responses to relevant sections of OAR 660-012-0000 are presented below.
Goal 13 - Energy
Response: The proposed amendments have no significant effect on the acknowledged Plan’s Energy element. The energy use characteristics for the expanded uses allowed in the MUE zone south of Fairgrounds Road is not significantly different than the land uses allowed by current zoning. The inventory of non-residential land inside the UGB is not altered by the proposed amendments.
Goal 14 - Urbanization
Response: The proposed amendments have no significant effect on the acknowledged Plan’s UGB or urban development pattern. The land use characteristics for the MUE zone south of Fairgrounds Road are not significantly different from the land uses allowed by current zoning. The inventory and distribution of residential and non-residential land inside the UGB is not altered by the proposed amendments. No expansion of the UGB is proposed. Madras and Jefferson County have an intergovernmental Urban Growth Management Agreement that addresses the development of and jurisdictional transfer of land in the Madras UGB and in the surrounding Urban Reserve Area (URA). An amendment is proposed to this agreement to provide a framework for coordinating development in the County’s MUE zone. See responses to local Urbanization requirements in Section B below.

OAR 660-009-0000

<i>0010 - Application</i>
(3) Cities and counties may rely on their existing plans to meet the requirements of

this division if they conclude:

(a) There are not significant changes in economic development opportunities (e.g., a need for sites not presently provided for in the plan) based on a review of new information about national, state, regional, county and local trends; and

(b) That existing inventories, policies, and implementing measures meet the requirements in OAR 660-009-0015 to 660-009-0030.

Response:

The *Madras 2015 Economic Opportunities Analysis* (EOA) analyzed and found significant changes in conditions within the Madras Urban Growth Boundary (UGB) from the EOA prepared in 2007, especially with respect to the inventory and distribution of employment sites within the UGB. Existing inventories, policies, and implementing measures do not meet the requirements in 660-009-0015 to 0030 to ensure a sufficient supply of land to meet forecast needs. Amendments to plan inventories, policies and implementing measures are necessary. Amendments are proposed that address these needs by altering zoning for some employment uses and by increasing the amount of land designated for certain employment uses. See responses below, which explain the need for the changes. These changes, however, do not alter the existing UGB nor do they significantly increase the overall supply of land planned and zoned for employment uses.

(4) For a post-acknowledgement plan amendment under OAR chapter 660, division 18, that changes the plan designation of land in excess of two acres within an existing urban growth boundary from an industrial use designation to a non-industrial use designation, or an other employment use designation to any other use designation, a city or county must address all applicable planning requirements, and:

(a) Demonstrate that the proposed amendment is consistent with its most recent economic opportunities analysis and the parts of its acknowledged comprehensive plan which address the requirements of this division; or

(b) Amend its comprehensive plan to incorporate the proposed amendment, consistent with the requirements of this division; or

(c) Adopt a combination of the above, consistent with the requirements of this division.

Response:

These criteria are not applicable. The proposed changes to the City and County development do not change the amount of land designated for employment use. They expand allowed uses in certain city and county zones consistent with recommendations in the updated EOA, per requirements of Division 660-009.

<p>(5) The effort necessary to comply with OAR 660-009-0015 through 660-009-0030 will vary depending upon the size of the jurisdiction, the detail of previous economic development planning efforts, and the extent of new information on national, state, regional, county, and local economic trends. A jurisdiction's planning effort is adequate if it uses the best available or readily collectable information to respond to the requirements of this division.</p>
<p>Response: The 2015 EOA includes forecast land needs based on the best available national, state, regional, county, and local economic trends. The information sources relied on are summarized in Chapter 3 of the analysis, pages 14 – 21.</p>
<p><i>0015 – Economic Opportunities Analysis: Cities and counties must review and, as necessary, amend their comprehensive plans to provide economic opportunities analyses containing the information described in sections (1) to (4) of this rule. This analysis will compare the demand for land for industrial and other employment uses to the existing supply of such land.</i></p>
<p>(1) Review of National, State, Regional, County and Local Trends. The economic opportunities analysis must identify the major categories of industrial or other employment uses that could reasonably be expected to locate or expand in the planning area based on information about national, state, regional, county or local trends. This review of trends is the principal basis for estimating future industrial and other employment uses as described in section (4) of this rule. A use or category of use could reasonably be expected to expand or locate in the planning area if the area possesses the appropriate locational factors for the use or category of use. Cities and counties are strongly encouraged to analyze trends and establish employment projections in a geographic area larger than the planning area and to determine the percentage of employment growth reasonably expected to be captured for the planning area based on the assessment of community economic development potential pursuant to section (4) of this rule.</p>
<p>Response: Information on employment trends are included in EOA Chapter 3. The data analyzed were used to forecast employment in the Madras urban area by traded sector and service sectors of the local economy. The employment forecast methodology is presented in Chapter 4. The total employment forecast for Madras is projected based on population forecast trends, which correspond with state approved forecasts for Madras and Jefferson County. See EOA page 22-29. Total employment forecasts were subdivided into forecasts for individual economic sectors based on local trends. See EOA page 30-36. Future employment projections for the geographic area mirror current patters with the exception of aviation, which is expected to expand its share of total employment because of specific</p>

<p>opportunities related to the designation of the Warm Springs Unmanned Aerial Vehicle (UAV) Test Site, and growth trends in the aviation sector in Madras.</p>
<p>(2) Identification of Required Site Types. The economic opportunities analysis must identify the number of sites by type reasonably expected to be needed to accommodate the expected employment growth based on the site characteristics typical of expected uses. Cities and counties are encouraged to examine existing firms in the planning area to identify the types of sites that may be needed for expansion. Industrial or other employment uses with compatible site characteristics may be grouped together into common site categories.</p>
<p>Response: An analysis of site needs by type is presented in EOA Chapter 5, pages 37 – 62. The analysis examined needs for traded sector and service sector employment categories. A specific need was identified to increase the number of small and medium sized parcels for locating light industrial and wholesale trade uses. Data cited in support of this finding includes an analysis of existing employer site characteristics in these economic sectors compared to available sites. The comparison noted a significant gap in available parcels. This empirical finding is consistent with the observations of economic recruitment officers in Madras that have repeatedly found difficulty finding suitable sites for development of non-commercial employment opportunities.</p>
<p>(3) Inventory of Industrial and Other Employment Lands. Comprehensive plans for all areas within urban growth boundaries must include an inventory of vacant and developed lands within the planning area designated for industrial or other employment use.</p> <p>(a) For sites inventoried under this section, plans must provide the following information:</p> <p>(A) The description, including site characteristics, of vacant or developed sites within each plan or zoning district;</p>
<p>Response: See EOA Chapter 2, page 7.</p>
<p>(B) A description of any development constraints or infrastructure needs that affect the buildable area of sites in the inventory; and</p>
<p>Response: See EOA Chapter 2, Table 3. Development constraints for vacant and partly vacant</p>

land generally included two categories: land subject to site constraints, including steep slopes and natural hazards, and land that is not “improved” but is used for economic activities related an existing business, such as material and equipment storage. All vacant and partly vacant tax lots examined were deemed serviceable (i.e. no infrastructure constraints were identified).
(C) For cities and counties within a Metropolitan Planning Organization, the inventory must also include the approximate total acreage and percentage of sites within each plan or zoning district that comprise the short-term supply of land.
Response: This criterion is not applicable to Madras.
(b) When comparing current land supply to the projected demand, cities and counties may inventory contiguous lots or parcels together that are within a discrete plan or zoning district.
Response: Chapter 2, Table 4 summarizes vacant and partly vacant sites by zoning district. The inventory includes the vacant portions of partly vacant tax lots; this acreage is considered developable unless physically constrained.
(c) Cities and counties that adopt objectives or policies providing for prime industrial land pursuant to OAR 660-009-0020(6) and 660-009-0025(8) must identify and inventory any vacant or developed prime industrial land according to section (3)(a) of this rule.
Response: Madras does not have land in its UGB that qualifies as prime industrial land per this rule.
(4) Assessment of Community Economic Development Potential. The economic opportunities analysis must estimate the types and amounts of industrial and other employment uses likely to occur in the planning area. The estimate must be based on information generated in response to sections (1) to (3) of this rule and must consider the planning area's economic advantages and disadvantages. Relevant economic advantages and disadvantages to be considered may include but are not limited to: (a) Location, size and buying power of markets;
Response: See EOA Chapter 3, Table 6. Also the analysis of Madras competitive advantages in subsection 3.2, pages 20-21.

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(b) Availability of transportation facilities for access and freight mobility;
Response: See EOA Chapter 3, Table 6. Also the analysis of Madras competitive advantages in subsection 3.2, pages 20-21.
(c) Public facilities and public services;
Response: See EOA Chapter 3, Table 6. Also the analysis of Madras competitive advantages in subsection 3.2, pages 20-21.
(d) Labor market factors;
Response: See EOA Chapter 3, Table 6. Also the analysis of Madras competitive advantages in subsection 3.2, pages 20-21.
(e) Access to suppliers and utilities;
Response: See EOA Chapter 3, Table 6. Also the analysis of Madras competitive advantages in subsection 3.2, pages 20-21.
(f) Necessary support services;
Response: See EOA Chapter 3, Table 6. Also the analysis of Madras competitive advantages in subsection 3.2, pages 20-21.
(g) Limits on development due to federal and state environmental protection laws; and
Response: See EOA Chapter 3, Table 6. Also the analysis of Madras competitive advantages in subsection 3.2, pages 20-21. There are no federal lands in the vicinity that constrain urban expansion at this time based on foreseeable development trends. City and County development regulations address state and federal environmental regulations under Goals 5, 6, and 7.

<p>(h) Educational and technical training programs.</p>
<p>Response: See EOA Chapter 3, Table 6. Also the analysis of Madras competitive advantages in subsection 3.2, pages 20-21.</p>
<p>(5) Cities and counties are strongly encouraged to assess community economic development potential through a visioning or some other public input based process in conjunction with state agencies. Cities and counties are strongly encouraged to use the assessment of community economic development potential to form the community economic development objectives pursuant to OAR 660-009-0020(1)(a).</p>
<p>Response: Madras and Jefferson County formed an advisory task force to review and participate in the update of the Goal 9 – Economic Development element of the Comprehensive and to provide oversight and review of the EOA. A summary of the process is included in Exhibit E, which addresses Goal 1 – Citizen Involvement requirements associated with a land use plan amendment. The Community/ Technical Advisory Committee (CAC/TAC) met four times during the planning process. Members included state and local agencies, including ODOT and DLCDC, as well as local and regional economic development professional and property owners. This group was directly involved in revising economic development goals, policies and action items. Goal 2, d-f and Policies 1 – 7, which promote management of a competitive short-term land supply to meet economic development needs.</p>
<p><i>0020 – Industrial and Other Employment Development Policies</i></p>
<p>(1) Comprehensive plans subject to this division must include policies stating the economic development objectives for the planning area. These policies must be based on the community economic opportunities analysis prepared pursuant to OAR 660-009-0015 and must provide the following:</p> <p>(a) Community Economic Development Objectives. The plan must state the overall objectives for economic development in the planning area and identify categories or particular types of industrial and other employment uses desired by the community. Policy objectives may identify the level of short-term supply of land the planning area needs. Cities and counties are strongly encouraged to select a competitive short-term supply of land as a policy objective.</p>
<p>Response: The Goal 9 element of the <i>Madras Comprehensive Land Use Plan (Plan)</i> have not been updated since the 1990s. The proposed Plan amendments include replacement</p>

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<p>goals and policies that have been crafted in response to findings in the EOA and recommendations of the PAC/TAC. See proposed comprehensive plan text amendments that replace existing goals, policies, action items, and the description of the Madras economy in Exhibit A.</p>
<p>(b) Commitment to Provide a Competitive Short-Term Supply. Cities and counties within a Metropolitan Planning Organization must adopt a policy stating that a competitive short-term supply of land as a community economic development objective for the industrial and other employment uses selected through the economic opportunities analysis pursuant to OAR 660-009-0015.</p>
<p>Response: Madras is not located in an MPO area. Madras has adopted policies that provide a competitive short-term supply of land for economic development purposes. See response to 660-009-0015(5) above.</p>
<p>(c) Commitment to Provide Adequate Sites and Facilities. The plan must include policies committing the city or county to designate an adequate number of sites of suitable sizes, types and locations. The plan must also include policies, through public facilities planning and transportation system planning, to provide necessary public facilities and transportation facilities for the planning area.</p>
<p>Response: The updated Goal 9 element of the Plan include policies that meet this requirement. See Exhibit A, Plan Policy 1 – 3 that specifically address the City and County intent to provide an adequate supply of sites with infrastructure to support economic development. The Plan’s Goal 11 – Public Facilities and Goal 12 – Transportation elements also include policies that detail planned infrastructure investment to support economic development. See Public Facility, Policy 1 (Plan Public Facilities section, page 62).</p>
<p>(2) Plans for cities and counties within a Metropolitan Planning Organization or that adopt policies relating to the short-term supply of land, must include detailed strategies for preparing the total land supply for development and for replacing the short-term supply of land as it is developed. These policies must describe dates, events or both, that trigger local review of the short-term supply of land.</p>
<p>Response: This criterion is not applicable to Madras.</p>
<p>(3) Plans may include policies to maintain existing categories or levels of industrial and other employment uses including maintaining downtowns or central business</p>

districts.
Response: See the proposed Goal 9 Policy #4 that relates to downtown economic development.
(4) Plan policies may emphasize the expansion of and increased productivity from existing industries and firms as a means to facilitate local economic development.
Response: See the proposed economic development goal 2 that supports overall expansion of the Madras Economy with an emphasis on trade sector business development.
(5) Cities and counties are strongly encouraged to adopt plan policies that include brownfield redevelopment strategies for retaining land in industrial use and for qualifying them as part of the local short-term supply of land.
Response: Madras does not have sites that qualify as “brownfields” per se.
(6) Cities and counties are strongly encouraged to adopt plan policies pertaining to prime industrial land pursuant to OAR 660-009-0025(8).
Response: Madras does not have land that would qualify as “prime industrial” sites. Madras has industrial sites in designated “Enterprise Zone” areas, is pursuing designation of a “Regional Large Lot” industrial site, and “Certified Industrial sites” ...
(7) Cities and counties are strongly encouraged to adopt plan policies that include additional approaches to implement this division including, but not limited to: (a) Tax incentives and disincentives;
Response: Madras has designated Enterprise Zone areas and is an active member in Economic Development of Central Oregon (EDCO) ...
(b) Land use controls and ordinances;
Response: The Plan includes an Implementation item that is focused on finding ways to

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<p>streamline development review in economic development areas, especially downtown. The EOA included a recommendation that the City simplify its General Industrial (I) zone development requirements to bring them in line with other cities Madras like Madras. Those amendments are part of the package of zoning amendments associated with the Plan amendment process.</p>
<p>(c) Preferential tax assessments;</p>
<p>Response: The Plan includes a new policy supporting efforts of EDCO to provide tax incentives for business development in Madras and a policy to maintain the city’s “Enterprise Zone” ordinance to be consistent with state law.</p>
<p>(d) Capital improvement programming;</p>
<p>Response: Madras Plan Goal 11 – Public Facilities includes a CIP program. The City uses its annual budget to program capital projects.</p>
<p>(e) Property acquisition techniques;</p>
<p>Response: Madras has an urban renewal district that it is using to program capital investment in infrastructure and public improvements to encourage economic development in the Downtown and in the south part of the city. The city has and will continue to make use of TIF financing for property acquisition in strategic locations that facilitate economic development.</p>
<p>(f) Public/private partnerships; and</p>
<p>Response: Madras is an active supporter of EDCO and promotes public private partnership investments, especially at the Madras Airport. The Ericson Air Museum is an example of a successful public-private partnership.</p>
<p>(g) Intergovernmental agreements.</p>
<p>Response: Madras is an active supporter and participant of EDCO through an intergovernmental agreement. The Madras Airport was conveyed to the City</p>

<p>through an intergovernmental agreement.</p>
<p><i>0025 - Designation of Lands for Industrial and Other Employment Uses: Cities and counties must adopt measures adequate to implement policies adopted pursuant to OAR 660-009-0020. Appropriate implementing measures include amendments to plan and zone map designations, land use regulations, public facility plans, and transportation system plans.</i></p>
<p>(1) Identification of Needed Sites. The plan must identify the approximate number, acreage and site characteristics of sites needed to accommodate industrial and other employment uses to implement plan policies. Plans do not need to provide a different type of site for each industrial or other employment use. Compatible uses with similar site characteristics may be combined into broad site categories. Several broad site categories will provide for industrial and other employment uses likely to occur in most planning areas. Cities and counties may also designate mixed-use zones to meet multiple needs in a given location.</p>
<p>Response: The EOA identified a need for various sites of different acreage. See EOA Table _____. The EOA concluded that Madras did not have a sufficient inventory of small and medium size sites from between 1 to 10 acres in size to meet the projected need. It also concluded that the current ownership pattern and size of holdings in the City’s General Industrial (I) and Airport Development (AD) zones made it unlikely this need would be addressed by that inventory. The EOA recommended that the city expand allowed uses in the southern part of the UGB where the existing ownership and parcelization pattern would be more likely to address the need for these sites.</p>
<p>(2) Total Land Supply. Plans must designate serviceable land suitable to meet the site needs identified in section (1) of this rule. Except as provided for in section (5) of this rule, the total acreage of land designated must at least equal the total projected land needs for each industrial or other employment use category identified in the plan during the 20-year planning period.</p>
<p>Response: The 2015 EOA found that Madras has an adequate supply of land designate and zoned for employment uses to meet land needs for the 20 year planning horizon.</p>
<p>(3) Short-Term Supply of Land. Plans for cities and counties within a Metropolitan Planning Organization or cities and counties that adopt policies relating to the short-term supply of land must designate suitable land to respond to economic development opportunities as they arise. Cities and counties may maintain the short-term supply of land according to the strategies adopted pursuant to OAR 660-009-0020(2).</p>

<p>(a) Except as provided for in subsections (b) and (c), cities and counties subject to this section must provide at least 25 percent of the total land supply within the urban growth boundary designated for industrial and other employment uses as short-term supply.</p>
<p>Response: Madras is not located in an MPO area. This requirement does not apply to Madras.</p>
<p>(b) Affected cities and counties that are unable to achieve the target in subsection (a) above may set an alternative target based on their economic opportunities analysis.</p>
<p>Response: Madras is not located in an MPO area. This requirement does not apply to Madras.</p>
<p>(c) A planning area with 10 percent or more of the total land supply enrolled in Oregon's industrial site certification program pursuant to ORS 284.565 satisfies the requirements of this section.</p>
<p>Response: Madras is not located in an MPO area. This requirement does not apply to Madras.</p>
<p>(4) If cities and counties are required to prepare a public facility plan or transportation system plan by OAR chapter 660, division 011 or division 012, the city or county must complete subsections (a) to (c) of this section at the time of periodic review. Requirements of this rule apply only to city and county decisions made at the time of periodic review. Subsequent implementation of or amendments to the comprehensive plan or the public facility plan that change the supply of serviceable land are not subject to the requirements of this section. Cities and counties must:</p> <p>(a) Identify serviceable industrial and other employment sites. The affected city or county in consultation with the local service provider, if applicable, must make decisions about whether a site is serviceable. Cities and counties are encouraged to develop specific criteria for deciding whether or not a site is serviceable. Cities and counties are strongly encouraged to also consider whether or not extension of facilities is reasonably likely to occur considering the size and type of uses likely to occur and the cost or distance of facility extension;</p>
<p>Response: This planning process is not the subject of a Periodic Review work program so these</p>

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<p>rule requirements are not applicable. Madras, however, is in the process of updating its Transportation System Plan (TSP) per OAR 660-012 and will be updating transportation plans, policies, and implementing measures accordingly. The City recently updated its Public Facility Plan per OAR 660-011.</p>
<p>(b) Estimate the amount of serviceable industrial and other employment land likely to be needed during the planning period for the public facilities plan. Appropriate techniques for estimating land needs include but are not limited to the following:</p>
<p>Response: This planning process is not the subject of a Periodic Review work program.</p>
<p>(A) Projections or forecasts based on development trends in the area over previous years; and</p>
<p>Response: This planning process is not the subject of a Periodic Review work program.</p>
<p>(B) Deriving a proportionate share of the anticipated 20-year need specified in the comprehensive plan.</p>
<p>Response: This planning process is not the subject of a Periodic Review work program.</p>
<p>(c) Review and, if necessary, amend the comprehensive plan and the public facilities plan to maintain a short-term supply of land. Amendments to implement this requirement include but are not limited to the following:</p>
<p>(A) Changes to the public facilities plan to add or reschedule projects to make more land serviceable;</p>
<p>Response: This planning process is not the subject of a Periodic Review work program.</p>
<p>(B) Amendments to the comprehensive plan that re-designate additional serviceable land for industrial or other employment use; and</p>
<p>Response: This planning process is not the subject of a Periodic Review work program. The City has elected to re-designate serviceable employment land in the UGB to allow</p>

<p>light industrial, wholesale trade, and other trade-sector development to occur on land previously devoted exclusively to commercial uses. The impact of this action on the Transportation System has been considered and found to be insignificant relative to the commercial uses already allowed by the Plan.</p>
<p>(C) Reconsideration of the planning area's economic development objectives and amendment of plan objectives and policies based on public facility limitations.</p>
<p>Response: Public Facilities do not pose a limitation on the city's economic development land inventory or policy objectives.</p>
<p>(d) If a city or county is unable to meet the requirements of this section, it must identify the specific steps needed to provide expanded public facilities at the earliest possible time.</p>
<p>Response: Not applicable.</p>
<p>(5) Institutional Uses. Cities and counties are not required to designate institutional uses on privately owned land when implementing section (2) of this rule. Cities and counties may designate land in an industrial or other employment land category to compensate for any institutional land demand that is not designated under this section.</p>
<p>Response: Madras and Jefferson County zoning ordinances allow institutional uses to locate in areas designated for employment use. This includes allowing transportation facilities identified in the adopted TSP or PFP as an outright use in these zones. Other institutional uses are allowed on a conditional use basis, including public health, recreational, and educational facilities.</p>
<p>(6) Compatibility. Cities and counties are strongly encouraged to manage encroachment and intrusion of uses incompatible with industrial and other employment uses. Strategies for managing encroachment and intrusion of incompatible uses include, but are not limited to, transition areas around uses having negative impacts on surrounding areas, design criteria, district designation, and limiting non-essential uses within districts.</p>
<p>Response: City and county development standards for employment uses require site development improvements to buffer adverse impacts associated with the</p>

development of employment uses, especially when employment uses abut residential uses. Regulations require mitigation of air and noise impacts consistent with DEQ rules. Outdoor lighting may not be directed toward and must be shielded to prevent “leakage” onto adjoining uses. In commercial and mixed use zones, outdoor storage and activities are restricted to protect adjacent uses from adverse impacts. See proposed zoning code amendments for the new Mixed Use Employment (MUE) zone and for the Madras Industrial zone.

(7) Availability. Cities and counties may consider land availability when designating the short-term supply of land. Available land is vacant or developed land likely to be on the market for sale or lease at prices consistent with the local real estate market. Methods for determining lack of availability include, but are not limited to:

(a) Bona fide offers for purchase or purchase options in excess of real market value have been rejected in the last 24 months;

Response:

Madras considered using these criteria as a way to respond to a well-documented supply problem for traded sector business development opportunities but chose instead to rezone City and County commercial land south of Fairgrounds Road to MUE. This new Plan designation/zone allows a broader range of employment uses while preserving opportunities for developing existing uses allowed in the new zone. The action expands the number of small and medium size parcels available for development by traded sector uses, including light industrial, wholesale trade, business park, and other non-commercial employment uses.

There is no guarantee that this approach will resolve the identified supply problem. The City and County will monitor the problem of inventory supply, which is exacerbated by the concentration of available industrial land in the hands of few owners whom have demonstrated that they are not interested in making their land available for sale. Should this problem persist in restricting the supply of available sites to meet identified economic development needs, the City and County will revisit the applicability of this section of the rule to address local needs.

In anticipated effect of the MUE rezone on the inventory of available small and medium size sites for non-commercial employment uses is displayed in the following table.

Insert Table

(b) A site is listed for sale at more than 150 percent of real market values;

Response:

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Not Applicable.
(c) An owner has not made timely response to inquiries from local or state economic development officials; or
Response: Not applicable.
(d) Sites in an industrial or other employment land category lack diversity of ownership within a planning area when a single owner or entity controls more than 51 percent of those sites.
Response: Not applicable.
(8) Uses with Special Siting Characteristics. Cities and counties that adopt objectives or policies providing for uses with special site needs must adopt policies and land use regulations providing for those special site needs. Special site needs include, but are not limited to large acreage sites, special site configurations, direct access to transportation facilities, prime industrial lands, sensitivity to adjacent land uses, or coastal shoreland sites designated as suited for water-dependent use under Goal 17. Policies and land use regulations for these uses must: (a) Identify sites suitable for the proposed use;
Response: Not applicable.
(b) Protect sites suitable for the proposed use by limiting land divisions and permissible uses and activities that interfere with development of the site for the intended use; and
Response: Not applicable.
(c) Where necessary, protect a site for the intended use by including measures that either prevent or appropriately restrict incompatible uses on adjacent and nearby lands.
Response: Not applicable.

<i>660-009-0030 - Multi-Jurisdiction Coordination</i>
(1) Cities and counties are strongly encouraged to coordinate when implementing OAR 660-009-0015 to 660-009-0025.
<p>Response:</p> <p>Madras and Jefferson County carefully coordinated the update to the Goal 9 element of the Plan. The CAC/TAC membership included city and county representation from planning commissioners, city staff, legislators, and property owners. Both jurisdictions conducted work sessions and initial advisory and legislative hearings in a coordinated manner using joint hearings for at least part of their advisory and legislative hearings. The City conducted informational meetings and provided direct notice about these events to property owners in incorporated and unincorporated areas of the UGB that could be affected by the proposed land use planning amendments.</p> <p>The City and County coordinated the development and adoption of the new MUE zone to ensure development standards and approval procedures were coordinated between both jurisdictions. The major difference in the County version of the zone is that interim development without sewer service is permitted provided the use is allowed and the project can be served using an on-site sanitary sewer system. The Urban Growth Management Agreement (UGMA) between the City and County, however, requires that when sewer service becomes available to developed properties in the County, the owner is obligated by agreement with the City to annex and connect to the municipal sewer system.</p>
(2) Jurisdictions that coordinate under this rule may:
(a) Conduct a single coordinated economic opportunities analysis; and
<p>Response:</p> <p>The EOA covers anticipated economic expansion for the entire UGB and the Madras urban reserve area (URA).</p>
(b) Designate lands among the coordinating jurisdictions in a mutually agreed proportion.
<p>Response:</p> <p>Employment growth was forecast for the UGB and URA. No expansion in the UGB was deemed necessary. However, the City and County coordinated development of a new Mixed Use Employment zone that both jurisdictions adopted in order to provide certainty to property owners about the anticipated future urban use for their land regardless of its current jurisdictional status. Proportional distribution</p>

was not necessary. It is anticipated that over time all urbanized land in the Madras UGB will annex to the City in order to obtain sewer service.

OAR 660-12-000 (TPR)

Findings related to applicable parts of the TPR related to land use plan and zoning amendments inside the UGB, including the rezone of land in South Madras from commercial zones to the new MUE zone. Note: These findings will need to be amended pending completion of technical studies related to the rezone of land in the southern part of the UGB.

660-012-0060: Plan and Land Use Regulation Amendments

(1) If an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation (including a zoning map) would significantly affect an existing or planned transportation facility, then the local government must put in place measures as provided in section (2) of this rule, unless the amendment is allowed under section (3), (9) or (10) of this rule. A plan or land use regulation amendment significantly affects a transportation facility if it would:

(a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);

Response:

No change is proposed in the functional classification of local or state roads.

(b) Change standards implementing a functional classification system; or

(c) Result in any of the effects listed in paragraphs (A) through (C) of this subsection based on projected conditions measured at the end of the planning period identified in the adopted TSP. As part of evaluating projected conditions, the amount of traffic projected to be generated within the area of the amendment may be reduced if the amendment includes an enforceable, ongoing requirement that would demonstrably limit traffic generation, including, but not limited to, transportation demand management. This reduction may diminish or completely eliminate the significant effect of the amendment.

Response:

No change is proposed in the standards implementing the functional classification of local or state roads. The overall volume of traffic generated by the properties subject to the MUE rezone is forecast to decrease. This occurs as a result of adding allowed uses in the new MUE zone that tend to generate less overall traffic than allowed uses in the previously exclusive Corridor Commercial and County Commercial zones. The

<p>effect is to reduce the average amount of traffic generated on a unit basis and the zone, which in turn reduces the overall demand on existing and planned transportation facilities. The proposed zone change, therefore, has no significant effect on the Madras transportation system or TSP.</p>
<p>(2) If a local government determines that there would be a significant effect, then the local government must ensure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility measured at the end of the planning period identified in the adopted TSP through one or a combination of the remedies listed in (a) through (e) below, unless the amendment meets the balancing test in subsection (2)(e) of this section or qualifies for partial mitigation in section (11) of this rule. A local government using subsection (2)(e), section (3), section (10) or section (11) to approve an amendment recognizes that additional motor vehicle traffic congestion may result and that other facility providers would not be expected to provide additional capacity for motor vehicles in response to this congestion.</p>
<p>Response: This requirement is not applicable. No significant effect is proposed. Sub-items (a) - (e) are not relevant.</p>
<p>(3) Notwithstanding sections (1) and (2) of this rule, a local government may approve an amendment that would significantly affect an existing transportation facility without assuring that the allowed land uses are consistent with the function, capacity and performance standards of the facility where: ...</p>
<p>Response: This element of the rule is not applicable.</p>
<p>(4) Determinations under sections (1)–(3) of this rule shall be coordinated with affected transportation facility and service providers and other affected local governments.</p> <p>(a) In determining whether an amendment has a significant effect on an existing or planned transportation facility under subsection (1)(c) of this rule, local governments shall rely on existing transportation facilities and services and on the planned transportation facilities, improvements and services set forth in subsections (b) and (c) below.</p> <p>(b) Outside of interstate interchange areas, the following are considered planned facilities, improvements and services:</p> <p>(A) Transportation facilities, improvements or services that are funded for construction or implementation in the Statewide Transportation Improvement</p>

<p>Program (STIP) or a locally or regionally adopted transportation improvement program or capital improvement plan or program of a transportation service provider.</p>
<p>Response: The City of Madras and Jefferson County coordinated the review of the proposed zoning amendment with the Oregon Department of Transportation (ODOT) and with each other. The proposed zone change would have no effect on the STIP approved realignment project at US 97 and "J" Street in Madras. The proposal would have no effect on planned local system improvements in the southern part of the Madras UGB.</p>
<p>(B) Transportation facilities, improvements or services that are authorized in a local transportation system plan and for which a funding plan or mechanism is in place or approved. These include, but are not limited to, transportation facilities, improvements or services for which: transportation systems development charge revenues are being collected; a local improvement district or reimbursement district has been established or will be established prior to development; a development agreement has been adopted; or conditions of approval to fund the improvement have been adopted.</p>
<p>Response: The proposed rezone will have no effect on funding mechanisms related to implementation of the Madrasa TSP. The primary funding mechanism that could be effected is the City's SDC fee program. The anticipated reduction in average trip generation rates in the MUE zone vs the previous CC zones has no impact on overall revenues generated by the program, which are based on a rate analysis for the total increase in trips in the Madras plan area rather than zone specific trip-rates. Allowing development in the south part of Madras that may generate less traffic will not affect the overall revenue generation that is expected to occur system-wide under the SDC program. There are not improvement districts or reimbursement districts in the affected area that would be effected by the proposed change.</p>
<p>(C) Transportation facilities, improvements or services in a metropolitan planning organization (MPO) area that are part of the area's federally-approved, financially constrained regional transportation system plan.</p> <p>(D) Improvements to state highways that are included as planned improvements in a regional or local transportation system plan or comprehensive plan when ODOT provides a written statement that the improvements are reasonably likely to be provided by the end of the planning period.</p>
<p>Response: These criteria are not applicable.</p>

<p>(E) Improvements to regional and local roads, streets or other transportation facilities or services that are included as planned improvements in a regional or local transportation system plan or comprehensive plan when the local government(s) or transportation service provider(s) responsible for the facility, improvement or service provides a written statement that the facility, improvement or service is reasonably likely to be provided by the end of the planning period.</p>
<p>Response: There are not planned transportation system improvements in the vicinity of the proposed zone change outside of projects that are necessary to support planned growth and development. Those projects are unchanged by the proposed action.</p>
<p>(c) Within interstate interchange areas, the improvements included in (b)(A)–(C) are considered planned facilities, improvements and services, except where: ... (d) As used in this section and section (3): ... (e) For purposes of this section, a written statement provided pursuant to paragraphs (b)(D), (b)(E) or (c)(A) provided by ODOT, a local government or transportation facility provider, as appropriate, shall be conclusive in determining whether a transportation facility, improvement or service is a planned transportation facility, improvement or service. In the absence of a written statement, a local government can only rely upon planned transportation facilities, improvements and services identified in paragraphs (b)(A)-(C) to determine whether there is a significant effect that requires application of the remedies in section (2).</p>
<p>Response: These criteria are not applicable.</p>
<p>(5) The presence of a transportation facility or improvement shall not be a basis for an exception to allow residential, commercial, institutional or industrial development on rural lands under this division or OAR 660-004-0022 and 660-004-0028.</p>
<p>Response: This criterion is not applicable.</p>
<p>(6) In determining whether proposed land uses would affect or be consistent with planned transportation facilities as provided in sections (1) and (2), local governments shall give full credit for potential reduction in vehicle trips for uses located in mixed-use, pedestrian-friendly centers, and neighborhoods as provided in subsections (a)–(d) below;</p>

<p>Response: Under review. IT is not anticipated that a claim in trip reduction will be made related to the criteria in (a) – (d). Trip generation reductions are only anticipated because of the mix of allowed uses in the zone, not as a result of urban-design factors.</p>
<p>(7) Amendments to acknowledged comprehensive plans and land use regulations which meet all of the criteria listed in subsections (a)–(c) below shall include an amendment to the comprehensive plan, transportation system plan the adoption of a local street plan, access management plan, future street plan or other binding local transportation plan to provide for on-site alignment of streets or accessways with existing and planned arterial, collector, and local streets surrounding the site as necessary to implement the requirements in OAR 660-012-0020(2)(b) and 660-012-0045(3): (a) The plan or land use regulation amendment results in designation of two or more acres of land for commercial use;</p>
<p>Response: The proposed change does not in effect the inventory of commercial land in the Madras UGB. It would only expand the list of allowed uses for land that already is zoned for commercial use. The City and County have included requirements in the new zone that will have a beneficial effect on local street network connectivity and access by requiring all projects in excess of three acres (about 1 city block) to prepare a local street connectivity plan and by requiring that all development with less than 200 linear feet of street frontage of provide cross-access easements with adjoining properties that are designed to accommodate pedestrians and vehicles. The existing TSP and local development regulations control access spacing in a manner consistent with OAR 660-012-0045(2)(a). These local regulations address requirements in OAR 660-012-0045(3).</p>
<p>(b) The local government has not adopted a TSP or local street plan which complies with OAR 660-012-0020(2)(b) or, in the Portland Metropolitan Area, has not complied with Metro's requirement for street connectivity as contained in Title 6, Section 3 of the Urban Growth Management Functional Plan; and</p>
<p>Response: Madras has adopted a TSP that complies with OAR 660-12-0020(2)(b).</p>
<p>(c) The proposed amendment would significantly affect a transportation facility as provided in section (1).</p>
<p>Response: The proposed change would not significantly affect a transportation facility as</p>

defined in section (1) above.
(8) A "mixed-use, pedestrian-friendly center or neighborhood" for the purposes of this rule, means: ...
Response: The proposed MUE zone is not intended to be a mixed use districts as defined in this section of the TPR, although the district does incorporate many of the elements outlined in the rule, including a mix of employment uses, an allowance for civic and cultural uses, public/private open space, multi-story buildings, an interconnected street grid and accessways, with street trees and landscaping.
(9) Notwithstanding section (1) of this rule, a local government may find that an amendment to a zoning map does not significantly affect an existing or planned transportation facility if all of the following requirements are met. (a) The proposed zoning is consistent with the existing comprehensive plan map designation and the amendment does not change the comprehensive plan map;
Response: Under review.
(b) The local government has an acknowledged TSP and the proposed zoning is consistent with the TSP; and (c) The area subject to the zoning map amendment was not exempted from this rule at the time of an urban growth boundary amendment as permitted in OAR 660-024-0020(1)(d), or the area was exempted from this rule but the local government has a subsequently acknowledged TSP amendment that accounted for urbanization of the area.
Response: Under review.
(10) Notwithstanding sections (1) and (2) of this rule, a local government may amend a functional plan, a comprehensive plan or a land use regulation without applying performance standards related to motor vehicle traffic congestion (e.g. volume to capacity ratio or V/C), delay or travel time if the amendment meets the requirements of subsection (a) of this section. This section does not exempt a proposed amendment from other transportation performance standards or policies that may apply including, but not limited to, safety for all modes, network connectivity for all modes (e.g. sidewalks, bicycle lanes) and accessibility for freight vehicles of a size and frequency required by the development.

<p>(a) A proposed amendment qualifies for this section if it:</p> <p>(A) Is a map or text amendment affecting only land entirely within a multimodal mixed-use area (MMA); and</p>
<p>Response: Under review.</p>
<p>(B) Is consistent with the definition of an MMA and consistent with the function of the MMA as described in the findings designating the MMA.</p>
<p>Response: Under review.</p>
<p>(b) For the purpose of this rule, “multimodal mixed-use area” or “MMA” means an area:</p> <p>(A) With a boundary adopted by a local government as provided in subsection (d) or (e) of this section and that has been acknowledged;</p> <p>(B) Entirely within an urban growth boundary;</p> <p>(C) With adopted plans and development regulations that allow the uses listed in paragraphs (8)(b)(A) through (C) of this rule and that require new development to be consistent with the characteristics listed in paragraphs (8)(b)(D) through (H) of this rule;</p> <p>(D) With land use regulations that do not require the provision of off-street parking, or regulations that require lower levels of off-street parking than required in other areas and allow flexibility to meet the parking requirements (e.g. count on-street parking, allow long-term leases, allow shared parking); and</p> <p>(E) Located in one or more of the categories below:</p> <p>(i) At least one-quarter mile from any ramp terminal intersection of existing or planned interchanges;</p> <p>(ii) Within the area of an adopted Interchange Area Management Plan (IAMP) and consistent with the IAMP; or</p> <p>(iii) Within one-quarter mile of a ramp terminal intersection of an existing or planned interchange if the mainline facility provider has provided written concurrence with the MMA designation as provided in subsection (c) of this section.</p> <p>(c) When a mainline facility provider reviews an MMA designation as provided in</p>

subparagraph (b)(E)(iii) of this section, the provider must consider the factors listed in paragraph (A) of this subsection.

(A) The potential for operational or safety effects to the interchange area and the mainline highway, specifically considering:

(i) Whether the interchange area has a crash rate that is higher than the statewide crash rate for similar facilities;

(ii) Whether the interchange area is in the top ten percent of locations identified by the safety priority index system (SPIS) developed by ODOT; and

(iii) Whether existing or potential future traffic queues on the interchange exit ramps extend onto the mainline highway or the portion of the ramp needed to safely accommodate deceleration.

(B) If there are operational or safety effects as described in paragraph (A) of this subsection, the effects may be addressed by an agreement between the local government and the facility provider regarding traffic management plans favoring traffic movements away from the interchange, particularly those facilitating clearing traffic queues on the interchange exit ramps.

(d) A local government may designate an MMA by adopting an amendment to the comprehensive plan or land use regulations to delineate the boundary following an existing zone, multiple existing zones, an urban renewal area, other existing boundary, or establishing a new boundary. The designation must be accompanied by findings showing how the area meets the definition of an MMA. Designation of an MMA is not subject to the requirements in sections (1) and (2) of this rule.

(e) A local government may designate an MMA on an area where comprehensive plan map designations or land use regulations do not meet the definition, if all of the other elements meet the definition, by concurrently adopting comprehensive plan or land use regulation amendments necessary to meet the definition. Such amendments are not subject to performance standards related to motor vehicle traffic congestion, delay or travel time.

Response:

Under review.

(11) A local government may approve an amendment with partial mitigation as provided in section (2) of this rule if the amendment complies with subsection (a) of this section, the amendment meets the balancing test in subsection (b) of this section, and the local government coordinates as provided in subsection (c) of this section.

(a) The amendment must meet paragraphs (A) and (B) of this subsection or meet paragraph (D) of this subsection.

(A) Create direct benefits in terms of industrial or traded-sector jobs created or retained by limiting uses to industrial or traded-sector industries.

(B) Not allow retail uses, except limited retail incidental to industrial or traded sector development, not to exceed five percent of the net developable area.

(C) For the purpose of this section:

(i) "Industrial" means employment activities generating income from the production, handling or distribution of goods including, but not limited to, manufacturing, assembly, fabrication, processing, storage, logistics, warehousing, importation, distribution and transshipment and research and development.

(ii) "Traded-sector" means industries in which member firms sell their goods or services into markets for which national or international competition exists.

(D) Notwithstanding paragraphs (A) and (B) of this subsection, an amendment complies with subsection (a) if all of the following conditions are met:

(i) The amendment is within a city with a population less than 10,000 and outside of a Metropolitan Planning Organization.

(ii) The amendment would provide land for "Other Employment Use" or "Prime Industrial Land" as those terms are defined in OAR 660-009-0005.

(iii) The amendment is located outside of the Willamette Valley as defined in ORS 215.010.

(E) The provisions of paragraph (D) of this subsection are repealed on January 1, 2017.

(b) A local government may accept partial mitigation only if the local government determines that the benefits outweigh the negative effects on local transportation facilities and the local government receives from the provider of any transportation facility that would be significantly affected written concurrence that the benefits outweigh the negative effects on their transportation facilities. If the amendment significantly affects a state highway, then ODOT must coordinate with the Oregon Business Development Department regarding the economic and job creation benefits of the proposed amendment as defined in subsection (a) of this section. The requirement to obtain concurrence from a provider is satisfied if the local government provides notice as required by subsection (c) of this section and the

provider does not respond in writing (either concurring or non-concurring) within forty-five days.

(c) A local government that proposes to use this section must coordinate with Oregon Business Development Department, Department of Land Conservation and Development, area commission on transportation, metropolitan planning organization, and transportation providers and local governments directly impacted by the proposal to allow opportunities for comments on whether the proposed amendment meets the definition of economic development, how it would affect transportation facilities and the adequacy of proposed mitigation. Informal consultation is encouraged throughout the process starting with pre-application meetings. Coordination has the meaning given in ORS 197.015 and Goal 2 and must include notice at least 45 days before the first evidentiary hearing. Notice must include the following:

(A) Proposed amendment.

(B) Proposed mitigating actions from section (2) of this rule.

(C) Analysis and projections of the extent to which the proposed amendment in combination with proposed mitigating actions would fall short of being consistent with the function, capacity, and performance standards of transportation facilities.

(D) Findings showing how the proposed amendment meets the requirements of subsection (a) of this section.

(E) Findings showing that the benefits of the proposed amendment outweigh the negative effects on transportation facilities.

Response:

Under review.

OAR 660-018-000 Post Acknowledgement Plan Amendments

660-0018-0020 Notice of a Proposed Plan or Land Use Regulation

(1) Before a local government adopts a change to an acknowledged comprehensive plan or a land use regulation, unless circumstances described in OAR 6600180022 apply, the local government shall submit the proposed change to the department, including the information described in section (2) of this rule. The local government must submit the proposed change to the director at the department's Salem office at least 35 days before holding the first evidentiary hearing on adoption of the proposed change.

Response:

<p>Notice was provided to DLCD on (date). The materials submitted with the notice included draft text amendments, draft zoning ordinances, and the draft EOA report.</p>
<p>(2) The submittal must include applicable forms provided by the department, be in a format acceptable to the department, and include all of the following materials:</p> <ul style="list-style-type: none"> (a) The text of the proposed change to the comprehensive plan or land use regulation implementing the plan, as provided in section (3) of this rule; (b) If a comprehensive plan map or zoning map is created or altered by the proposed change, a copy of the relevant portion of the map that is created or altered; (c) A brief narrative summary of the proposed change and any supplemental information that the local government believes may be useful to inform the director and members of the public of the effect of the proposed change; (d) The date set for the first evidentiary hearing; (e) The notice or a draft of the notice required under ORS 197.763 regarding a quasijudicial land use hearing, if applicable; and (f) Any staff report on the proposed change or information that describes when the staff report will be available and how a copy may be obtained.
<p>Response: Madras provided draft copies of the proposed plan and zoning changes, a draft map of the area affected by the proposed new zone, a copy of the draft EOA that explains the reason for the proposed changes, the expected first evidentiary hearing date (September 24, 2015), and the week prior to that meeting for the date when a staff report would be available. Madras continues to provide information to the DLCD Field Representative to keep the Department apprised on the status of the proceedings.</p>
<p>(3) The proposed text submitted to comply with subsection (2)(a) of this rule must include all of the proposed wording to be added to or deleted from the acknowledged plan or land use regulations. A general description of the proposal or its purpose, by itself, is not sufficient. For map changes, the material submitted to comply with Subsection (2)(b) must include a graphic depiction of the change; a legal description, tax account number, address or similar general description, by itself, is not sufficient. If a goal exception is proposed, the submittal must include the proposed wording of the exception.</p>
<p>Response: The materials submitted to the Department included draft plan and zoning code amendments. Subsequent submissions to the Department include <u>underline</u>/strikethrough language for the proposed amendments. No goal exception is proposed.</p>
<p>(4) If a local government proposes a change to an acknowledged comprehensive plan or a land use regulation solely for the purpose of conforming the plan and</p>

regulations to new requirements in a land use statute, statewide land use planning goal, or a rule implementing the statutes or goals, the local government may adopt such a change without holding a public hearing, notwithstanding contrary provisions of state and local law, provided:

(a) The local government provides notice to the department of the proposed change identifying it as a change described under this section, and includes the materials described in section (2) of this rule, 35 days before the proposed change is adopted by the local government, and

(b) The department confirms in writing prior to the adoption of the change that the only effect of the proposed change is to conform the comprehensive plan or the land use regulations to the new requirements.

(5) For purposes of computation of time for the 35 day notice under this rule and OAR 6600180035(1)(c), the proposed change is considered to have been “submitted” on the day that paper copies or an electronic file of the applicable notice forms and other documents required by section (2) this rule are received or, if mailed, on the date of mailing. The materials must be mailed to or received by the department at its Salem office.

Response:

The materials were submitted electronically and hard copies delivered to the Salem office prior to the 35-day limitation.

660-18-0021 Joint Submittal of Notices and Changes

(1) Where two or more local governments are required by plan provisions, coordination agreements, statutes or goals to agree on and mutually adopt a change to a comprehensive plan agreements, statutes or goals to agree on and mutually adopt a change to a comprehensive plan or land use regulation, the local governments shall jointly submit the notice required in OAR 660-018-0020 and, if the change is adopted, the decision and materials required by OAR 660-018-0040. Notice of such proposed changes must be jointly submitted at least 35 days prior to the first evidentiary hearing. For purposes of notice and appeal, the date of the decision is the date of the last local government’s adoption of the change.

Response:

Jefferson County also submitted notice to the Department of the proposed plan amendments affecting its zoning code. The County also referenced proposed plan amendments in accordance with its role as the coordinating land use planning entity for jurisdictions in Jefferson County.

(2) For purposes of this rule, a change to a comprehensive plan or land use regulation that requires two or more local governments to agree on and mutually adopt the change includes, but is not limited to, the establishment or amendment of an urban growth boundary or urban reserve by a city and county in the manner specified in Goal 14.

Response:

The proposed change does not involve an amendment to an urban growth boundary. This requirement is not applicable.

Section B - Compliance with Local Land Use Planning Requirements

MAJOR REVISIONS (LEGISLATIVE)

A major revision to this Plan is defined as a policy making change in the text or plan map that will have widespread and significant impact through the planning area. The proposed change will be considered as a legislative action and will require the following procedure:

- A. The City Council or Planning Commission may initiate the proposed change.
- B. The adopted citizen and agency involvement programs shall be utilized to stimulate the public interest and participation in the amendment process.
- C. A public hearing shall be conducted by the Planning Commission.
- D. At least 21 days notice to the public of the hearing shall be published in a local newspaper of general circulation.
- E. In order to submit a favorable recommendation for the proposed change to the City Council, the Planning Commission shall establish the compelling reasons and make a finding of fact for the proposed change. These include:
 - 1. The proposed change will be in conformance with statewide planning goals.
 - 2. There is a demonstrated need for the proposed change.

- F. The City Council, upon receipt of the Planning Commission recommendation, may adopt, reject, or modify the recommendations or may conduct a second public hearing on the proposed change.
- G. In all proposed amendment actions, the City Council must make the final decision to adopt or deny the proposed change.

Citizen Involvement Plan:

The City shall provide opportunities for citizen involvement in all phases of the planning process. The process shall include a series of workshop meetings and public hearings to discuss inventories, identify the needs, formulate goals and objectives, consider alternatives, and finally adopt a Comprehensive Plan. The City will provide opportunities for citizen involvement in the preparation and adoption of the Implementing Ordinances.

The City shall publicize the opportunities for citizen involvement by the following methods:

- A. The City shall post notices of Planning Commission meetings, outlining the date, time, place and topics to be discussed, on public bulletin boards within the City. This would include the City Hall, the County Courthouse, and local markets.
- B. In addition to the Oregonian and the Oregon Journal, there are two newspapers serving the area--the Madras Pioneer (a weekly), and The Bulletin (a Bend daily). Both papers have indicated a willingness to publish articles announcing meetings and general discussions of Planning Commission topics including any decisions that are rendered.
- C. Madras has a local television weather channel that allows placement of local notices. This is anticipated to provide an excellent method of notification go the general public.
- D. Local service organizations and clubs shall be informed on Planning Commission progress and discussion topics. These organizations include the Lions, Kiwanis, Chamber of Commerce, Epsilon Sigma Alpha Sorority, and the Jaycees.
- E. Technical assistance shall be provided to the Planning Commission and the general public by a planning consultant retained by the City. In addition, technical assistance is available from the City Manager's office. As Madras is the County Seat of Jefferson County, both the County Planner and the County Extension Agent have indicated a willingness to assist in the planning process and to provide assistance to interested citizens.

GOAL 1 - To develop a Citizen Involvement program that insures the opportunity for all citizens to be involved in all phases of the planning process.

EXHIBIT D

POLICY - The City shall insure an adequate citizen involvement in all phases of the planning process. To that end, the citizen involvement program is spelled out on Page 5 of this plan.

GOAL 2 - To establish a land use planning process and policy framework as a basis for all decisions and actions related to the use of the land and to insure an adequate factual base for such decisions and actions.

- POLICIES -
- A. The City shall insure that the Comprehensive Plan serves as a basis for future land use decision.
 - B. The City shall be responsive to the changes in needs and conditions over time and amend the plan accordingly. The amendment process is discussed in the Land Use element.

Codified Procedures:

Madras Mixed Use Employment Zone

Proposal

- Amend *Ordinance 864 – Zoning* to include a new base zone called Mixed Use Employment (MUE).
- Amend Article 2.4 – Zoning Map to show properties affected by the new zone.
- Amend Jefferson County Zoning Ordinance to adopt a similar but more restrictive zone.

Allowed Uses

- Commercial and institutional uses allowed in the C1 zone
- Business park/flex space
- Light manufacturing and fabrication
- Warehousing/ indoor storage /wholesale trade
- Trade schools and training facilities
- Other similar uses

Prohibited Uses

- Solid waste processing, offal and carcass rendering, tanning, etc
- Uses declared a public nuisance.

Site design standards

- **Minimum lot size:** 5000 sq. ft.
- **Coverage ratios:** maximum of 85% of lot area; Landscaping minimum 15% of lot area
- **Setbacks:** Front: minimum: 10'; maximum 75'.
- **Parking:** standard city parking ratios
- **Loading docks and storage areas:** on the side or rear of buildings; trucks may not block streets or drive aisles while loading
- **Illumination:** City outdoor lighting standards
- **Noise and Air Quality:** DEQ standards
- **Outdoor use and storage:** Must be screened. No outdoor assembly.

Building design standards

- 45' building height limit
- Roofs: flat, shed, gabled, arched; roof peak may not exceed height limit.
- Equipment: roof-top mounted equipment may exceed the building height by no more than 10' and must be screened (does not apply to solar collectors).
- Glazing coverage: 30% on the front of the building for the first 15' of height
- Main entry facing the primary street/drive aisle

Goal 9 - Economic Development

Vision Statement

Madras, Oregon is a healthy community with a diverse economy that focuses on traded-sector (export) industries. The City strives to promote “family-wage” job growth and provide opportunities for economic development in a business-friendly environment. Madras supports the growth and expansion of existing businesses, especially businesses that provide jobs in core economic sectors, which include agricultural products and support services, manufacturing, aviation/aeronautics, trucking services and testing, and wood product manufacturing. Madras supports investment in community and higher education and training to ensure we have the skilled labor force needed to support our economy.

Goals

1. Madras seeks opportunity for economic expansion in many economic sectors including new businesses that expand Madras Traded Sector economy, and that make use of existing economic development assets. Examples include but are not limited to:
 - Agricultural and Mining Industries (National)
 - Aviation and Aerospace Development Services (National)
 - Health Care and Community Services (Regional)
 - Manufacturing – material handling, wood products, high tech (Regional/National/International)
 - Tourism and Recreational Services (Regional)
 - Transportation testing (National/International)
 - Warehousing and Distribution Facilities (Regional)
2. Madras will take steps to facilitate economic growth and development by:
 - a. Investing in basic transportation infrastructure that supports economic development, including roads, rail access, and aviation facilities.
 - b. Ensuring the availability of public water and sanitary sewer service to land designated for employment uses.
 - c. Supporting community investment in essential “high-speed” communication and information exchange infrastructure that supports education, commerce, and institutional land uses.
 - d. Maintaining enough developable land to support economic development, including at the Madras Airport for air-side support services and business aviation.
 - e. Pursuing the designation of a regional large-lot industrial site.
 - f. Enacting programs that take advantage of the State of Oregon Enterprise Zone and other tax-incentive programs for new and existing businesses.

3. Madras is committed to balancing economic development goals with long-term preservation of the environment, including the area's surface and ground water resources, air quality, and high-value farmland, which sustain the local economy.

Policies

Madras will work to achieve these economic development goals using the following policies, which are number for reference purposes. All policies have equal standing and need to be balanced when applied to land-use planning decisions.

1. Provide an adequate supply of employment land in a variety of site sizes and locations, to meet employment growth forecasts.
2. Provide capacity and maintain the public infrastructure necessary to support local businesses and their employees, including roads, aviation and rail facilities, drinking water supply, and sanitary sewers.
3. Actively support investment in essential high-speed communications infrastructure to support the emerging information-economy, and seek ways to reduce communication tariffs on existing businesses and incubator sites.
4. Take steps to encourage investment downtown by adopting incentive programs that encourage redevelopment of property within the Willow Creek floodplain.
5. Encourage redevelopment of vacant and underutilized downtown commercial properties through fiscal policy, zoning regulations, and streamlined permitting.
6. Support businesses expansion and recruitment through local and regional economic development incentive programs.
7. Actively participate in regional economic development and recruitment efforts through Economic Development Central Oregon (EDCO).
8. Support planning and development of intermodal rail access through a rail siding and/or intermodal reload facility accessible to all employers in Jefferson County.
9. Promote economic development at the airport consistent with the Airport Master Plan.
10. Support workforce development and re-education efforts by the Jefferson County School District and the Madras campus of the Central Oregon Community College (COCC).

Implementation

Madras will take steps to achieve these economic development objectives using the following initiatives and regulatory measures:

1. Facilitate formation of an Ad Hoc economic development committee to identify and remove barriers to economic development in Madras and Jefferson County.
2. Work with EDCO and local property owners to identify and designate a Regional Large-lot Industrial Development Site in or near Madras.

3. Lead a rail access economic feasibility study that examines ways to improve intermodal freight accessibility in Madras and Jefferson County, including facilities that support basalt mining and other commodity exports.
4. Make public improvements in downtown and commercial corridors that reduce flood hazards and enhance development opportunities using urban renewal, ODOT highway enhancement, and local improvement financing tools.
5. Pursue Oregon Enterprise Zone designations and other tax incentive programs for industrial development sites.
6. Review the city's development application fees and look for ways to streamline development review with a "fast track" approval process for targeted reinvestment areas, including downtown Madras.
7. Investigate regulatory and policy approaches to preserve the irrigated agricultural land base in the county that may be impacted by urban development.
8. Work with Jefferson County and local property owners to expand the inventory of for small to medium sized development parcels suitable for employment use.
9. Review noise regulations and zoning in the vicinity of the Madras Airport to reduce future conflicts between uses.
10. Review and update the Madras Enterprise Zone every other year to ensure consistency with state law.

Madras Economic Opportunities Analysis Update 2015 to 2035

Final Draft Report

Prepared for:

City of Madras

August 2015

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ECONorthwest specializes in economics, planning, and finance. Established in 1974, ECONorthwest has over three decades of experience helping clients make sound decisions based on rigorous economic, planning and financial analysis.

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Acknowledgements

ECONorthwest and the City of Madras thank the many people who helped to develop the Madras Economic Opportunities Analysis.

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Executive Summary

This document presents an update to the Economic Opportunities Analysis (EOA) from the *Madras Urbanization Report* (November 2007), with updates of the buildable lands inventory, forecasts, and key parts of the factual basis, starting with information from the EOA and population and employment forecasts in the 2007 *Madras Urbanization Report*. The update provides Madras with more-recent information about Madras' economy and commercial and industrial land base. This information will be used to update Madras' land use policies that guide commercial and industrial development, such as the City's zoning and Comprehensive Plan policies.

How much employment growth is Madras planning for?

Table S-1 summarizes population and employment forecasts for Madras. The population forecast is the official, adopted forecast for the City. The employment forecast represents shows Madras growth at 3.35% per year between 2015-2035.

Table S-1. Employment forecast, Madras 2015-2035

Year	Total Employment
2015	4,808
2035	9,292
2057	16,205
Change 2015 to 2035	
Employees	4,484
Percent	93%
AAGR	3.35%

How much land does the City currently have?

Madras has about 1,073 acres of employment within the current Urban Growth Boundary (UGB). The City has about 444 acres of buildable commercial and industrial, land within its UGB. The majority of land (384 acres) is vacant, with 14% of employment land categorized as partially vacant.

Two-thirds of Madras' vacant and partially vacant land is in the Industrial zone (182 acres) or in the Airport Development zone (119 acres) Table S-2 summarizes the buildable land inventory.

Table S-2. Net acres of vacant and partially vacant land by generalized zoning, Madras UGB, 2015

Development Status/Zone	Number of Tax Lots	Total Acres	Vacant, ²		Percent of ² Vacant, ²
			Unsuitable ² Acres	Suitable ² Acres	
Partially³vacant					
AD	1	60	23	37	8%
C1	2	7	2	5	1%
CC	2	5	3	3	1%
I	1	22	7	15	3%
Subtotal	6	94	34	60	14%
Vacant					
AD	15	82	0	82	18%
C1	54	86	4	82	19%
C2	16	5	2	3	1%
C3	11	3	0	3	1%
CC	14	44	0	44	10%
I	24	167	0	167	38%
NC	1	3	0	3	1%
Subtotal	135	390	6	384	86%
All⁴Land					
AD	16	142	23	119	27%
C1	56	93	5	87	20%
C2	16	5	2	3	1%
C3	11	3	0	3	1%
CC	16	49	3	47	11%
I	25	189	7	182	41%
NC	1	3	0	3	1%
Total	141	484	40	444	100%

Source: Jefferson County GIS data; analysis by ECONorthwest

How much land will be required for employment growth?

Employment forecasts indicate that Madras will add 3,543 jobs between 2015 and 2035, excluding land for government employment.¹ The EOA identifies opportunities to accommodate about 477 employees on land with existing development, through redevelopment and filling of vacant built spaces.

Table S-4 shows that Madras will grow by 3,066 jobs, requiring 258 gross acres of land for the 2015-2035 period.

Table S-4 Forecast of land needed for employment, Madras UGB, 2015-2035

Land Use Type	Emp. on Vacant Land	EPA (Net Acres)	Land Demand (Net Acres)	Land Demand (Gross Acres)
Employment Growth 2015-2035				
General Industrial	963	10	96	113
Airport-Related Industrial	235	10	24	28
Retail Commercial	496	20	25	31
Non-Retail Commercial	1,372	20	69	86
Total	3,066		214	258

Source: ECONorthwest

Does Madras have enough land to accommodate expected employment growth?

Yes. The land needs analysis indicates the City has enough land to accommodate expected growth over the 2015-2035 period within the UGB.

Table S-5 Forecast of land needed for all types of uses, Madras UGB, 2015-2035

Land Use Type	Land Supply (Gross Acres)	Employment Growth 2015-2035	
		Land Demand (Gross Acres)	Land Surplus (Deficit)
General Industrial	182	113	69
Airport-Related Industrial	119	28	91
Commercial and Retail	143	117	26
Total	444	258	

Source: ECONorthwest

¹ In the 2007 Madras Urbanization Report, land needed for government employment was accommodated through an analysis of land needed for public and semi-public lands, including uses such as government offices and schools. This analysis excludes government employment to avoid double counting land need for public uses.

What are the key findings and recommendations of the EOA?

The key findings of the EOA are that:

- **Madras has a surplus of land for commercial and retail uses.** Madras' commercial land surplus to accommodate growth for the 20-year planning period is about 28 gross acres. The majority of Madras' vacant commercial land is in the C-1 and CC zones, with concentrations of vacant land in the southern section of Madras along Highways 97 and 26 and the middle part of Madras along Highway 97.
- **Madras has a surplus of general industrial land.** The surplus of Industrial (I) land is about 69 gross acres. All of Madras' vacant industrial land is located at in the northern part of Madras, near the Madras Airport and along Highway 26. Two-thirds of Madras' vacant Industrial land is in two sites, one with 42 acres of vacant suitable land and the other with 75 suitable acres of vacant.
- **Madras has a limited number of smaller general industrial sites.** General industrial businesses in Madras will need sites on a variety of sizes, including sites smaller than 5-acres, sites 5 to 20 acres, and sites larger than 20 acres. Madras' supply of general industrial sites are all near the Airport, with five vacant suitable sites smaller than one acre, 10 sites between 1 to 2 acres, and seven sites between 2 and 5 acres.
- **Madras has a surplus of airport-related industrial land.** The surplus of Airport Development (AD) land is 91 gross acres, all of which is located at the Madras Airport. AD land is in a range of site sizes from one acre parcels to a 27 acre parcel.

Based on these findings and the analysis in the EOA, we provide the following recommendations:

- **Madras should provide a variety of types of sites for employment.** Not all traded-sector employment is industrial or will locate in industrial areas. Traded-sector businesses are businesses that produce goods or services that are exported out of the community, bringing money into the community. Some examples of traded-sector businesses in office settings include software development, professional and technical services that provide services outside of the community, or finance and insurance businesses that provide services outside of the community.

These types of traded-sector employment may locate in a variety of locations and building types, such as in an office building in downtown or in an office park. By implication, Madras will need to provide a variety of opportunities for employment growth in industrial areas, in commercial areas, and in mixed-use areas like downtown. Madras should evaluate opportunities for developing a zone that will allow a mixture of industrial

and non-residential commercial employment. The best area for this type of zone would be along a State highway, in an area with vacant land in sizes ranging from smaller than an acre up to 10 acre sites.

- **Madras should evaluate whether the existing industrial land supply meets the City's economic development goals.** All of the land is located near the airport, along Highway 26 and two-thirds of the land is concentrated in two larger sites. Discussions with City staff and EDCO staff indicate that the owner of the larger site is unwilling to sell or lease the land and has no apparent intention of doing so in the foreseeable future.

In addition, Madras has 24 Industrial sites smaller than five acres (about 50 acres of land), all of which are located near the Madras Airport. More than 90% of existing employment in Madras is located on sites smaller than five acres, with nearly all of Madras' employment on Industrial zoned sites located on sites smaller than five acres.

The site needs of the target general industrial industries suggest that these industries will need sites in a variety of sizes, including small sizes, in a variety of locations throughout the city, with access to state highway, as well as some with access to rail. The City should evaluate opportunities to rezone land within Madras in areas that meet the need for smaller sites.

- **Madras should revise its land development policies to meet the needs identified in the EOA.** Madras may need to update its Comprehensive Plan policies to align with the City's economic development goals. In addition, the City may need to redesignate or rezone land to meet the needs identified in the EOA, especially for small to mid-sized industrial sites in areas away from the Madras Airport. The surplus of commercial land in the southern portion of the Madras UGB, along Highways 97 and 26, provide an opportunity for rezoning land from commercial uses to employment uses in a new zone that allows both commercial and light industrial employment, focusing on traded-sector employment.
- **Madras should continue to coordinate economic development opportunities at the Madras Airport to further the community's economic development goals.** Although land at the Madras Airport is not within the UGB, this land is a key economic development asset. Much of the recent economic growth in Madras is focused on city-owned land at the Airport, with the planned expansion of a business involved in vehicle testing. Land at the Madras Airport is city-owned, which gives the City opportunities to focus on development of businesses that meet the City's economic development objectives, especially with attracting family-wage jobs.

- **Encourage redevelopment of existing commercial areas.** The City has a substantial supply of commercial land, some of which may have redevelopment potential over the next 20 years. However, as the City develops new residential areas, these areas may need commercial development to provide commercial retail nodes in new neighborhoods. The City should encourage redevelopment of underutilized commercial areas in places with demand for new commercial development. The City has policies to facilitate redevelopment of employment areas, such as designating areas as urban renewal areas.
- **Madras should monitor and report on industrial and commercial land development.** The City should monitor and report on development and redevelopment of employment land. Monitoring can help the City understand where there is employment land pressure, allowing the City to better respond to the market. Monitoring also allows the City to track land development, as a means to ensure a long-term supply of industrial land.

1 Introduction

This document presents an update to the Economic Opportunities Analysis (EOA) from the *Madras Urbanization Report* (November 2007). This EOA is consistent with the requirements of statewide planning Goal 9, the Goal 9 administrative rules (OAR 660 Division 9) and the court decisions that have interpreted them. Goal 9 describes the EOA as “an analysis of the community's economic patterns, potentialities, strengths, and deficiencies as they relate to state and national trends” and states that “a principal determinant in planning for major industrial and commercial developments should be the comparative advantage of the region within which the developments would be located.”

Goal 9 requires cities to state objectives for economic development (OAR 660-009-0020(1)(a)) and to identify the characteristics of sites needed to accommodate industrial and other employment uses to implement the economic development objectives (OAR 660-009-0025(1)) over the 20-year planning period. This approach could be characterized as a *site-based* approach that projects land need based on the forecast for employment growth, the City's economic development objectives and the specific needs of target industries.

This report updates the buildable lands inventory, forecasts, and key parts of the factual basis, starting with information from the EOA and population and employment forecasts in the 2007 *Madras Urbanization Report*. The update provides Madras with more-recent information about Madras' economy and commercial and industrial land base. This information will be used to update Madras' land use policies that guide commercial and industrial development, such as the City's zoning and Comprehensive Plan policies.

1.1 Framework for Regional Economic Opportunities Analysis

The content of this report is designed to meet the requirements of Oregon Statewide Planning Goal 9 and the administrative rule that implements Goal 9 (OAR 660-009). The analysis in this report is designed to conform to the requirements for an Economic Opportunities Analysis in OAR 660-009 as amended.

1. *Economic Opportunities Analysis (OAR 660-009-0015)*. The Economic Opportunities Analysis (EOA) requires communities to identify the major categories of industrial or other employment uses that could reasonably be expected to locate or expand in the planning area based on information about national, state, regional, county or local trends; identify the number of sites by type reasonably expected to be needed to

accommodate projected employment growth based on the site characteristics typical of expected uses; include an inventory of vacant and developed lands within the planning area designated for industrial or other employment use; and estimate the types and amounts of industrial and other employment uses likely to occur in the planning area. Local governments are also encouraged to assess community economic development potential through a visioning or some other public input-based process in conjunction with state agencies.

2. *Industrial and commercial development policies (OAR 660-009-0020)*. Cities with a population over 2,500 are required to develop commercial and industrial development policies based on the EOA. Local comprehensive plans must state the overall objectives for economic development in the planning area and identify categories or particular types of industrial and other employment uses desired by the community. Local comprehensive plans must also include policies that commit the city or county to designate an adequate number of employment sites of suitable sizes, types and locations. The plan must also include policies to provide necessary public facilities and transportation facilities for the planning area.
3. *Designation of lands for industrial and commercial uses (OAR 660-009-0025)*. Cities and counties must adopt measures to implement policies adopted pursuant to OAR 660-009-0020. Appropriate implementation measures include amendments to plan and zone map designations, land use regulations, public facility plans, and transportation system plans. More specifically, plans must identify the approximate number, acreage and characteristics of sites needed to accommodate industrial and other employment uses to implement plan policies, and must designate serviceable land that is suitable to meet the identified site needs.

1.2 Organization of the Report

This report is organized as follows:

- **Chapter 2, Commercial and Industrial Buildable lands inventory** presents a summary of the inventory of commercial and industrial employment lands.
- **Chapter 3, Factors Affecting Future Economic Growth in Madras** summarizes historic economic trends that affect current and future economic conditions in Madras, as well as the city's competitive advantages for economic development.
- **Chapter 4, Employment Growth and Target Industries in Madras** presents a forecast for employment growth in Madras and describes the city's target industries.
- **Chapter 5, Land Demand and Site Needs** compares the supply of and demand for commercial and industrial land, as well as the site needs of target industries.
- **Chapter 6, Conclusions** presents the key conclusions and recommendations from the EOA.

This report also includes three appendices:

- **Appendix A, Commercial and Industrial Buildable Lands Inventory**
- **Appendix B, Economic Trends and Factors Affecting Future Economic Growth in Madras**
- **Appendix C, Madras Employment Forecast**

2 Commercial and Industrial Buildable Lands Inventory

The commercial and industrial buildable lands inventory is intended to identify lands that are available for employment within the Madras UGB. The inventory is sometimes characterized as the supply of land to accommodate growth. Population and employment growth drive demand for land. The amount of land needed depends on the density of development and other factors.

This chapter presents an updated commercial and industrial buildable lands inventory for the City of Madras. It builds from the inventory presented in the *Madras Urbanization Report* (ECONorthwest, 2007). The results are based on an analysis of Jefferson County GIS data by ECONorthwest (ECO) and were reviewed by City staff.

2.1 Definitions

ECO began the buildable lands analysis with an April 2015 tax lot database provided by the City of Madras through the Jefferson County GIS department. ECO merged assessment data into the tax lot database. The inventory was verified through City staff review in May 2015. The commercial and industrial buildable lands inventory builds from a tax lot-level database to estimate the amount of buildable land by plan designation. Because some tax lots have areas both inside and outside the UGB, the first step in the analysis was to identify lands within the Madras UGB. The 2015 commercial and industrial buildable lands inventory includes the following plan designations:

- C1
- C2
- C3
- NC – Neighborhood Commercial
- I – Industrial
- AD – Airport Development

Tax lots that were split by one of these plan designations were “clipped” to include only the portion of the tax lot within a commercial or industrial plan designation.

The next step in the buildable lands inventory was to develop a set of working definitions and assumptions. This involved classifying each tax lot into a set of mutually exclusive categories. ECO developed a set of working definitions that specify the rules used to classify the tax lots with input from City staff. The

commercial and industrial buildable lands inventory classified all tax lots in the UGB into one of the following categories:

- **Vacant land.** Tax lots that have no structures or have buildings with very little value. For the purpose of this inventory, lands with improvement values under \$5,000 were considered vacant.² For the purpose of this study, vacant acres are considered “suitable” for employment uses consistent with the definition in OAR 660-009-0005(12).
- **Partially vacant land.** Partially vacant tax lots are those occupied by a use but which contain enough land to be further subdivided without need of rezoning. Partially vacant commercial and industrial tax lots were identified by analysis of GIS data, aerial photographs, and fieldwork.
- **Undevelopable land.** Land that is under the minimum lot size for the underlying zoning district, land that has no access or potential access, or land that is already committed to other uses by policy.
- **Developed land.** Land that is developed at densities consistent with zoning and improvements. Lands not classified as vacant, partially-vacant, public, or undevelopable are considered developed. Redevelopable land is a subset of developed land. This includes land on which development has already occurred but on which, due to present or expected market forces, there exists the potential that existing development will be converted to more intensive uses during the planning period.
- **Public land.** Lands in public or semi-public ownership are generally considered unavailable for employment development. This includes lands in Federal, State, County, or City ownership. Lands owned by churches and other semi-public organizations such as water districts are considered unavailable if they have improvements. ECO identified such lands using tax-exempt property classifications (900 level) and property ownerships.

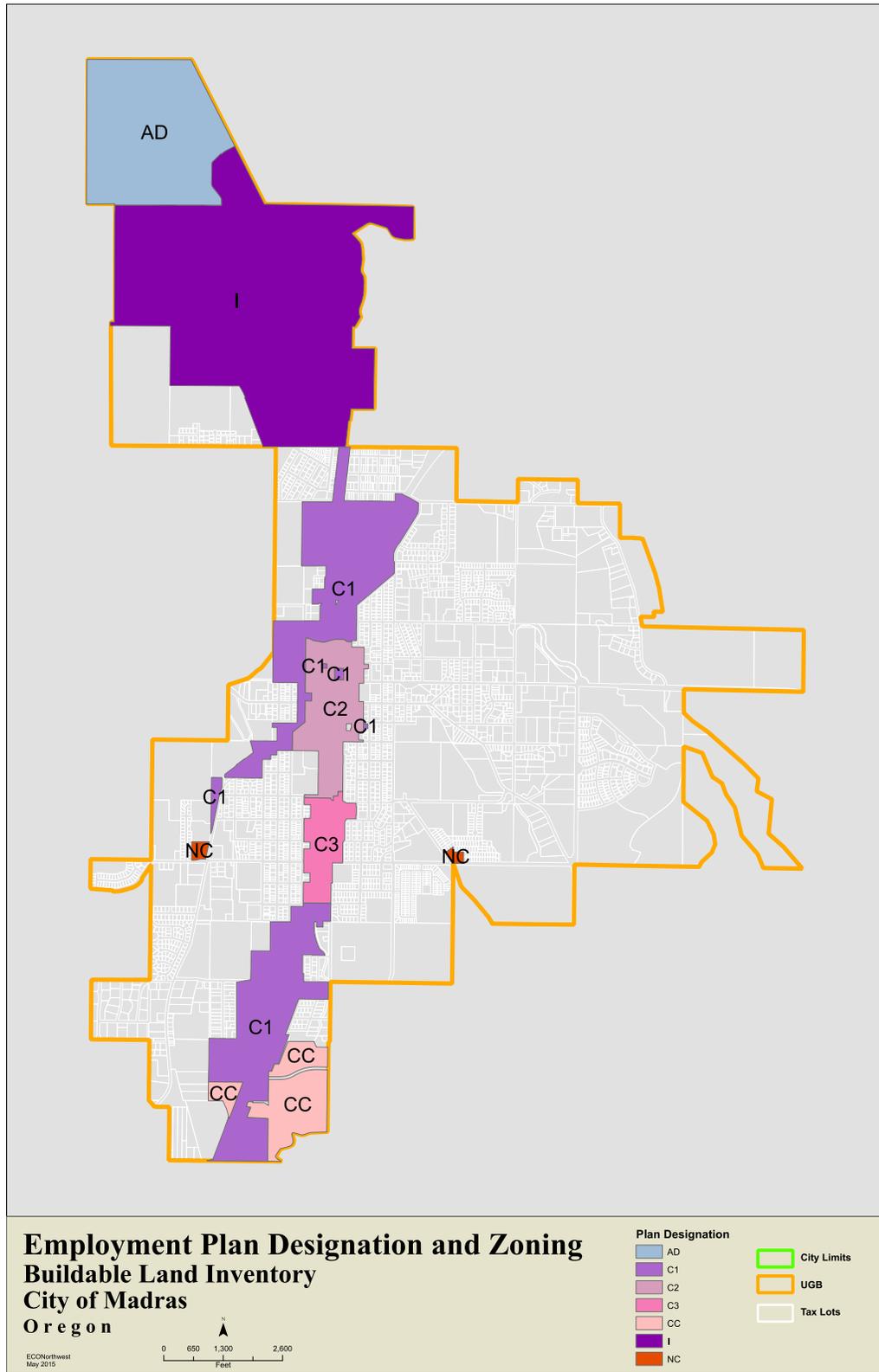
Using the definitions above, ECO then classified each of the tax lots in the database. City staff reviewed and verified the classifications. The inventory includes all lands within the Madras UGB. Map 1 shows lands by plan designation within the Madras UGB.

² Note that this study uses a more inclusive (e.g., it classifies more land as vacant) definition of vacant land than required by OAR 660-009-0005(14) "Vacant Land" means a lot or parcel:

(a) Equal to or larger than one half-acre not currently containing permanent buildings or improvements; or

(b) Equal to or larger than five acres where less than one half-acre is occupied by permanent buildings or improvements.

Map 1. Commercial and Industrial Plan Designations, Madras UGB, 2015



Source: Jefferson County GIS data; analysis by ECONorthwest

2.2 Employment Buildable Land Inventory Results

Table 1 shows acres by plan designation within the Madras UGB in 2015. According to the Jefferson County GIS data, Madras 1,073 acres in 672 tax lots were in employment land designations.

Table 1. Acres by plan designation, Madras UGB, 2015

Plan Designation	Code	Tax Lots	Acres
Airport Development	AD	22	184
C1	C1	217	252
C2	C2	193	51
C3	C3	82	26
County Commercial	CC	25	69
Industrial	CC	131	485
Neighborhood Commercial	I	2	5
Total		672	1,073

Source: Jefferson County GIS data; analysis by ECONorthwest

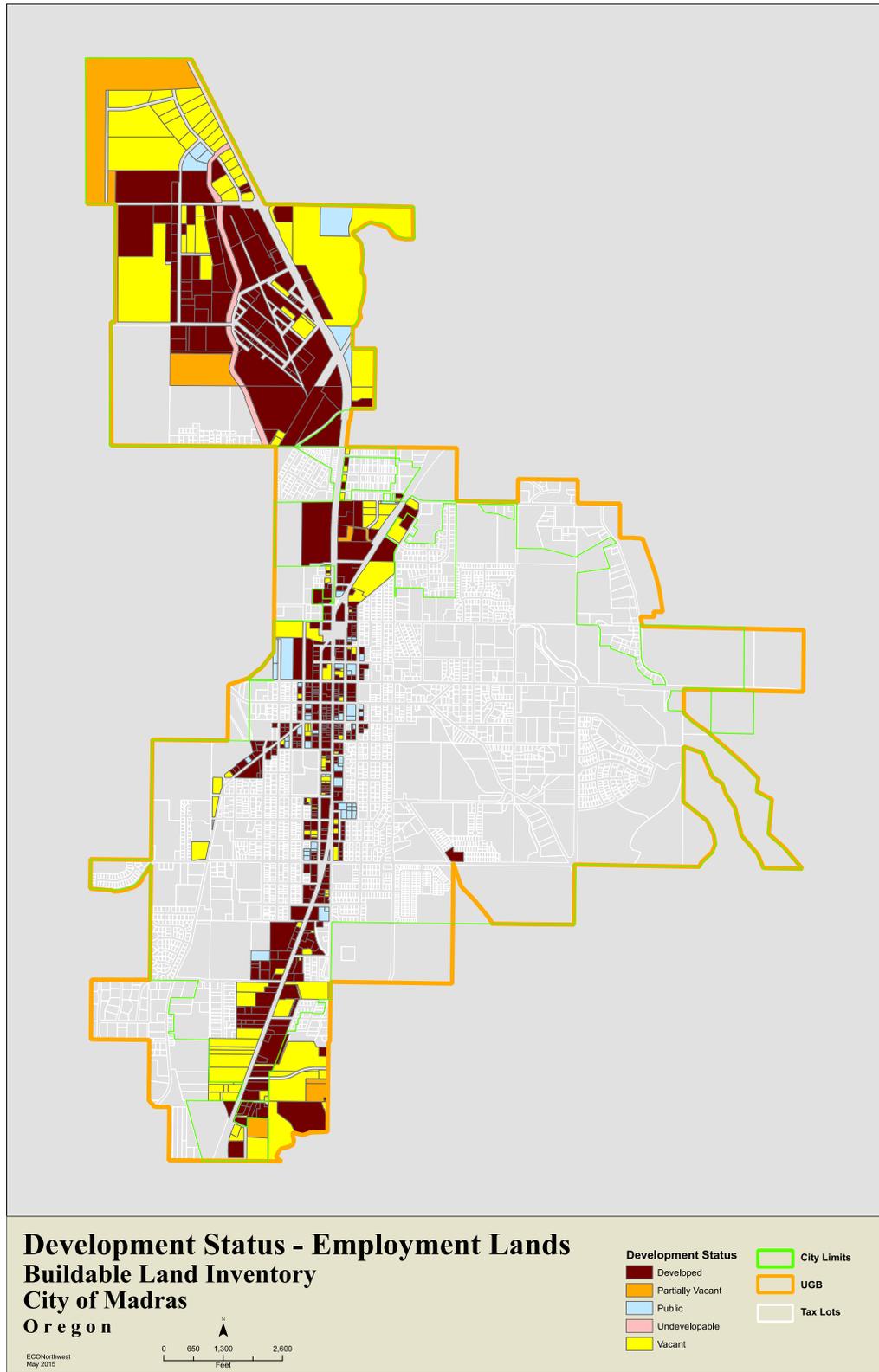
Table 2 and Map 2 show employment land by development status (i.e., classification) for the Madras UGB in 2015. The data show that about 545 acres of the 1,073 acres of employment land was classified “developed.” About 444 acres were classified as “suitable” and 83 acres were classified as “constrained.”

Table 2. Acres in tax lots by classification, Madras UGB, 2015

Development Status	Number of Tax Lots	Total Acres	Developed Acres	Constrained Acres	Suitable Acres
Developed	461	521	475	46	0
Partially Vacant	6	94	34	0	60
Public	66	49	36	13	0
Undevelopable	4	19	0	19	0
Vacant	135	390	0	6	384
Total	672	1,073	545	83	444

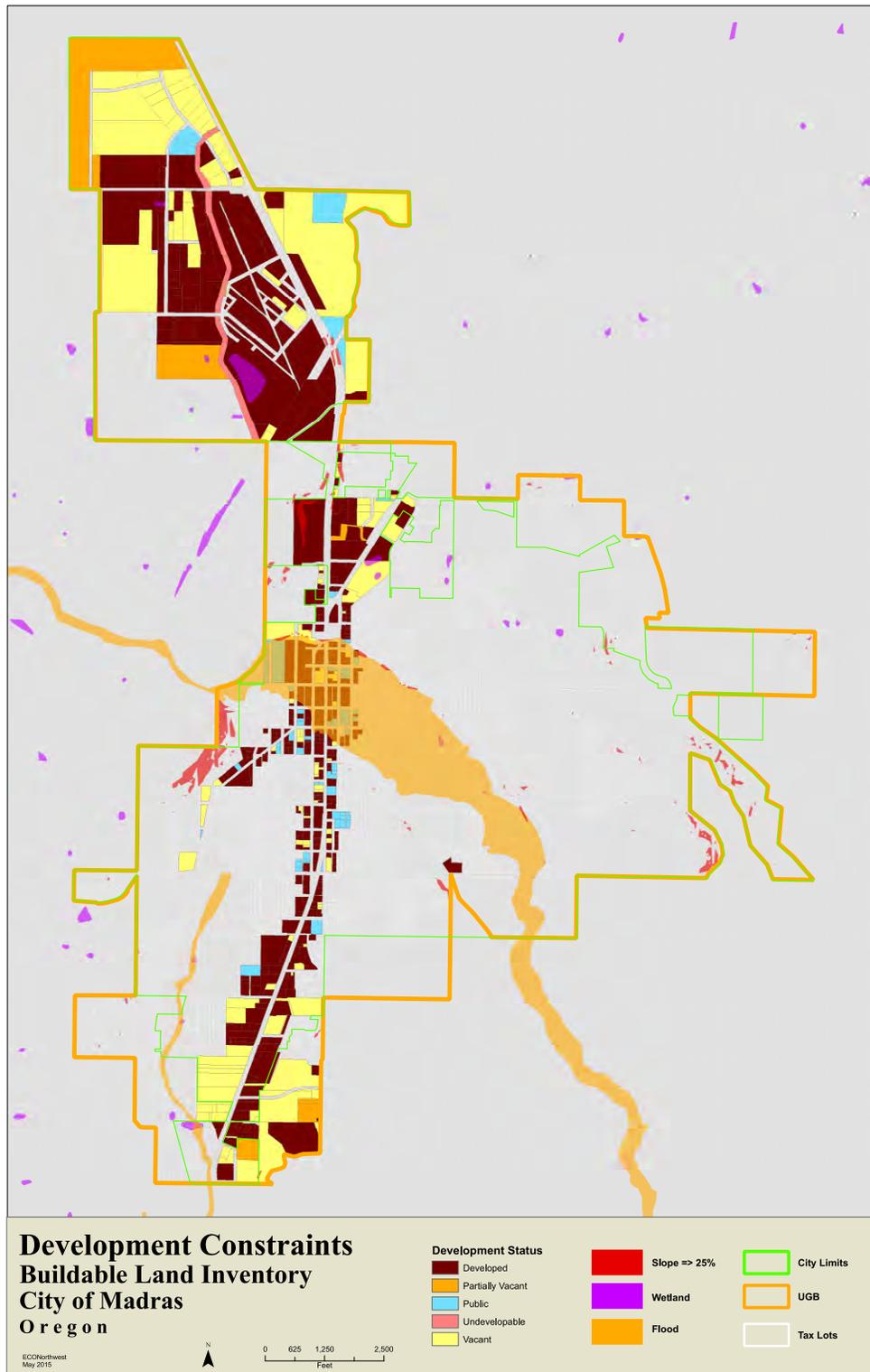
Source: Jefferson County GIS data; analysis and tabulations by ECONorthwest, 2015

Map 2. Land by classification, Madras UGB, 2015



Source: Jefferson County GIS data; analysis by ECONorthwest

Map 3. Land by classification with development constraints, Madras UGB, 2015



Source: Jefferson County GIS data; analysis by ECONorthwest

Table 3 shows total acres by plan designation and development status for the Madras UGB in 2015. The data show that about 49% of the land area tax lots was developed, while about 45% of the land area in tax lots is classified as vacant or partially vacant. It is important to note that not all vacant and partially vacant acres are buildable—some areas of partially vacant lots are developed and some vacant areas have development constraints (e.g., are in canal easements, steep slopes, or a floodplain).

Table 3. Acres in tax lots by classification and plan designation, Madras UGB, 2015

Plan Designation	Number of Tax Lots	Development Status (Classification)					Total	Percent of Total
		Developed	Public	Undevelopable	Partially Vacant	Vacant		
AD	22	32	6	4	60	82	184	17%
C1	217	146	14	0	7	86	252	24%
C2	193	37	9	0	0	5	51	5%
C3	82	19	4	0	0	3	26	2%
CC	25	20	0	0	5	44	69	6%
I	131	266	15	15	22	167	485	45%
NC	2	2	0	0	0	3	5	0%
Total	672	521	49	19	94	390	1,073	100%
Percent of Total		49%	5%	2%	9%	36%	100%	

Source: Jefferson County GIS data; analysis and tabulations by ECONorthwest, 2015

Note: Partially Vacant classification includes both developed and vacant acres in tax lots.

Vacant Suitable Employment Land

The next step in the buildable land inventory is to calculate vacant, buildable acres. To do this, ECO netted out portions of vacant and partially vacant tax lots that are unavailable or unsuitable for development. Areas unavailable or unsuitable for development fall into two categories: (1) developed areas of partially vacant tax lots, and (2) areas with physical constraints (in this instance, areas within canal easements and a floodplain).

Table 4 shows vacant and partially vacant land by plan designation. The data show that 484 acres within the UGB are in tax lots classified as vacant or partially vacant. Of those, 40 are unavailable for development, leaving about 444 vacant suitable acres within the UGB. About 42% of the net vacant suitable acres (185 net acres) are in industrial designations, while about 32% are in commercial designations. About 27% are in the Airport Development designation.

Table 4. Vacant and partially vacant land by Plan Designation, Madras UGB, 2015

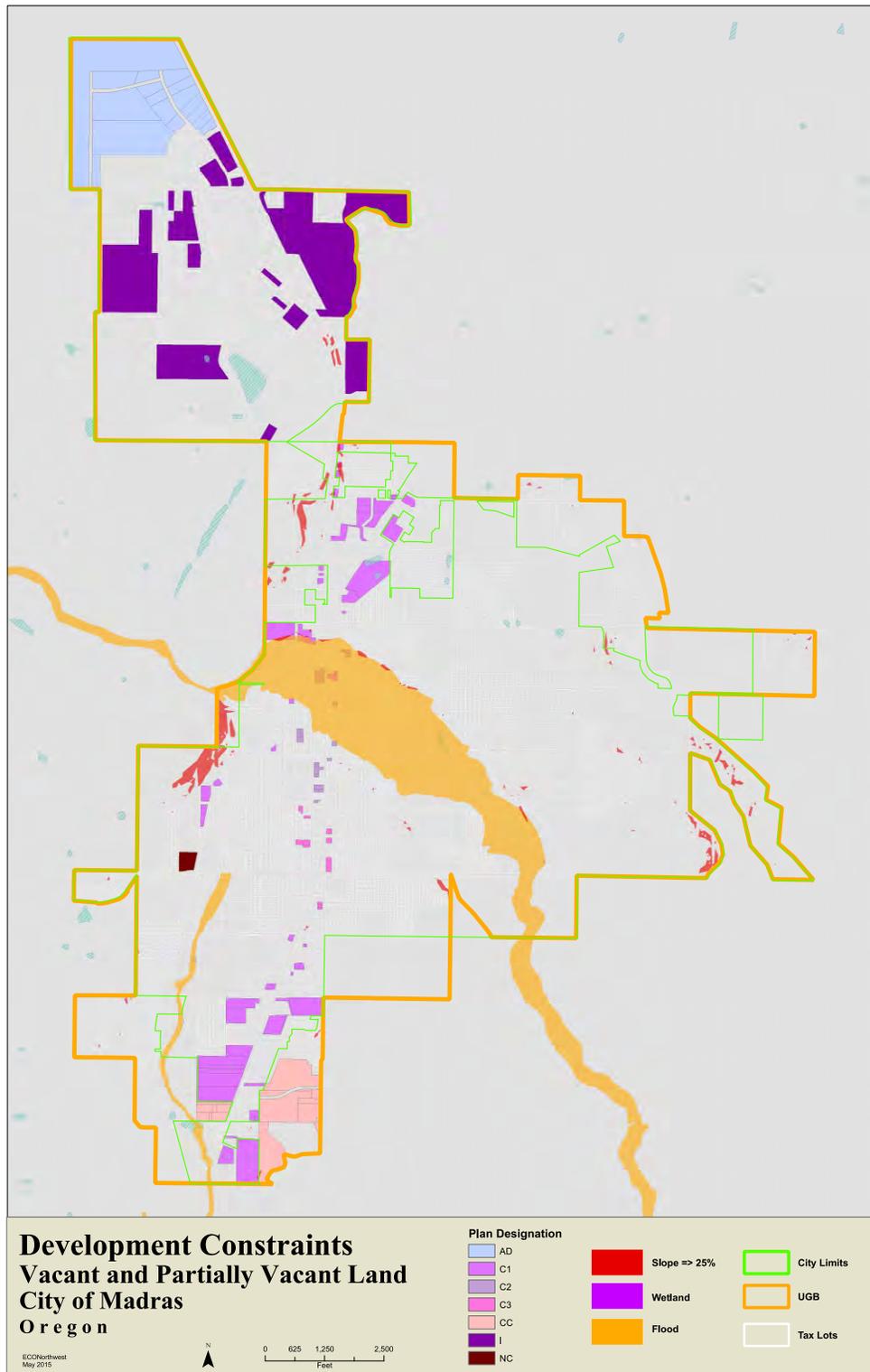
Development Status/Zone	Number of Tax Lots	Total Acres	Vacant, Percent of		Percent of
			Unsuitable Acres	Suitable Acres	
Partially vacant					
AD	1	60	23	37	8%
C1	2	7	2	5	1%
CC	2	5	3	3	1%
I	1	22	7	15	3%
Subtotal	6	94	34	60	14%
Vacant					
AD	15	82	0	82	18%
C1	54	86	4	82	19%
C2	16	5	2	3	1%
C3	11	3	0	3	1%
CC	14	44	0	44	10%
I	24	167	0	167	38%
NC	1	3	0	3	1%
Subtotal	135	390	6	384	86%
All Land					
AD	16	142	23	119	27%
C1	56	93	5	87	20%
C2	16	5	2	3	1%
C3	11	3	0	3	1%
CC	16	49	3	47	11%
I	25	189	7	182	41%
NC	1	3	0	3	1%
Total	141	484	40	444	100%

Source: Jefferson County GIS data; analysis by ECONorthwest

Notes: Acres Unavailable for Development includes developed areas of partially vacant tax lots and constrained lands

The number of vacant buildable acres in Table 3 is greater than vacant acres shown in Table 4 because the total includes vacant portions of partially vacant tax lots

Map 4. Vacant/Partially Vacant with development constraints, Madras UGB, 2015



Source: Jefferson County GIS data; analysis by ECONorthwest

Table 5 shows vacant buildable land by zoning and parcel size. This analysis is useful in that it shows the distribution of vacant buildable land by parcel size, which allows an evaluation of whether a sufficient mix of parcels is available. The distribution varies by zoning. For example, relatively few vacant parcels exist in the Industrial Zone—a result that is consistent with the average size of industrial parcels. The commercial designations show a broader range of parcel sizes. Madras has three vacant parcels larger than 20 buildable acres in size, including one that is larger than 50 buildable acres.

Table 5. Buildable acres in vacant and partially vacant tax lots by plan designation and parcel size, Madras UGB, 2015

Plan Designation	Lot Size (Gross Suitable Acres)							Total
	< 1 acre	1.0- 1.9	2.0- 4.9	5.0- 9.9	10.0- 19.9	20.0- 50.0	50+	
Suitable Acres								
AD	37	5	25	7	17	27	0	146
C1	9	15	31	32	0	0	0	87
C2	3	0	0	0	0	0	0	3
C3	3	0	0	0	0	0	0	3
CC	5	3	2	0	36	0	0	47
I	18	13	24	10	0	42	75	299
NC	0	0	3	0	0	0	0	3
Total	75	37	86	49	53	69	75	444
Number of Tax Lots	Lot Size (Gross Suitable Acres)							Total
	< 1 acre	1.0- 1.9	2.0- 4.9	5.0- 9.9	10.0- 19.9	20.0- 50.0	50+	
AD	1	3	9	1	1	1	0	17
C1	30	11	10	5	0	0	0	56
C2	16	0	0	0	0	0	0	16
C3	11	0	0	0	0	0	0	11
CC	9	3	1	0	3	0	0	16
I	5	10	7	1	0	1	1	27
NC	0	0	1	0	0	0	0	1
Total	72	27	28	7	4	2	1	141

Source: Jefferson County GIS data; analysis by ECONorthwest

3 Factors Affecting Future Economic Growth in Madras

This chapter summarizes the key findings and implications of information presented in Appendix A about Madras’ economy, in the context of Central Oregon and the state as a whole.

3.1 Implications of National, State and Regional Trends on Economic Development within Madras

This section presents the implications of national, state, and regional economic trends on economic growth in Madras.

Table 6. Implications of national, state, and regional economic and demographic trends on economic growth in Madras

National, State, and Regional Economic Trends	Implications for economic growth in Madras
<p>Moderate growth rates and recovery from the national recession</p> <p>According to the National Bureau of Economic Research, "The Great Recession" ended in 2009, but sluggish growth continued to affect businesses and workers alike for several years after.</p> <p>Unemployment at the national level has gradually declined since the height of the recession. Unemployment rates in Oregon and Jefferson County are typically higher than those of the nation as a whole.</p> <p>The federal government’s economic forecast from the Congressional Budget Office predicts a moderate pace of economic growth, with GDP increasing by around 2.3% annually between 2014 and 2025, and the unemployment rate falling to 5.4% in 2025. Economic growth in Oregon typically lags behind national growth.</p>	<p>Economic growth in Madras – in measures such as employment growth, unemployment rates, and wage growth – is gradually improving from previous years (i.e. since 2007).</p> <p>The rate of employment growth in Madras will depend, in part, on the rate of employment growth in Oregon and the nation. Employment in Madras in 2013 (not most recently available data) was 355 fewer employees than in 2004 (the base data for the employment forecast in <i>Madras Urbanization Report</i>).</p> <p>Growth in Madras’ employment lags behind statewide employment growth, consistent with growth in other rural parts of Oregon. Madras’ economy will begin to grow faster as the regional economy in Central Oregon begins to grow faster.</p> <p>Madras’ comparative advantages, especially the city’s location and proximity to regional population centers like Bend and Redmond, access to transportation, and supply of development-ready employment land, make Madras attractive to companies who want to grow, expand, or locate in Central Oregon.</p>

National, State, and Regional Economic Trends	Implications for economic growth in Madras
<p>Growth of service-oriented sectors</p> <p>Increased worker productivity and the international outsourcing of routine tasks led to declines in employment in the major goods-producing industries. Projections from the Bureau of Labor Statistics indicate that U.S. employment growth will continue to be strongest in healthcare and social assistance, professional and business services, and other service industries. Construction employment will grow with the economy, but manufacturing employment will decline. These trends are also expected to affect the composition of Oregon's economy.</p>	<p>Commercial employment grew at a faster-than-average rate in Jefferson County between 1980 to 2013 (2% average annual growth rate) , adding nearly 1,500 jobs over the 33-year period.</p> <p>Manufacturing employment, however, did not follow national trends. Jefferson County's manufacturing sector grew by nearly 100 jobs over the 1980 to 2013 period, contrary to national and statewide trends. Discussions with stakeholders indicate that wood products manufacturing continues to be an important part of Madras' economy.</p> <p>The Oregon Employment Department forecasts that the sectors likely to have the most employment growth in Crook, Deschutes, and Jefferson Counties over the 2012 to 2022 period are: Construction, Health Care, Nondurable Goods Manufacturing, and Professional and Business Services. These sectors represent employment opportunities for Madras.</p>
<p>Lack of diversity in Oregon's economy</p> <p>In 2013, 52% of Oregon's private employment was concentrated in just four industrial sectors. About 15% of employment, or 207,211 employees, was in Health Care and Social Assistance, 14%, or 191,113 employees, in Retail Trade, 12%, or 174,642 employees, in Manufacturing, and 11%, or 153,744 employees, in Accommodation and Food Services. In comparison, these industries account for 40% of employment at the national level.</p>	<p>Data from the Oregon Employment Department shows that employment in Madras is currently concentrated in a few sectors: Manufacturing (24%), Government (21%), and Health Care and Social Assistance and Private Education (15%) combined make up more than 59% of all employment.</p> <p>Manufacturing in Madras includes wood products and specialty manufacturing, such as medical equipment (e.g., lead aprons that provide protection from x-rays) or specialty flooring systems.</p> <p>Opportunities for growth of traded-sector employment include manufacturing of: aviation and aeronautics products (including UAV equipment), agricultural manufacturing and services, general manufacturing, and advanced manufacturing.</p>
<p>Importance of small businesses in Oregon's economy</p> <p>Small business, with 100 or fewer employees, account for 41% of private-sector employment in Oregon. Workers of small businesses typically have had lower wages than the state average.</p>	<p>The average size for a private business in Madras is 14.1 employees per business, compared to the state average of 11.2 employees per private business.</p> <p>Businesses with 100 or fewer employees account for roughly 63% of private employment in Madras and businesses with 10 or fewer employees account for nearly 50% of businesses in Madras.</p> <p>Growth of small businesses presents significant opportunities for economic growth in Madras.</p>

National, State, and Regional Economic Trends	Implications for economic growth in Madras
<p>Availability of trained and skilled labor</p> <p>Businesses in Oregon are generally able to fill jobs, either from available workers living within the state or by attracting skilled workers from outside of the state.</p> <p>Availability of labor depends, in part, on population growth and in-migration. Oregon added more than 1,076,000 new residents and about 638,620 new jobs between 1990 and 2013.</p> <p>Availability of labor also depends on workers' willingness to commute. Workers in Oregon typically have a commute that is 30 minutes or shorter. In the 2009-2013 period, about 71% of Oregonians had a travel-to-work time of less than 30 minutes.</p> <p>Availability of skilled workers depends, in part, on educational attainment. In the 2009-2013 period, about 30% of Oregon workers had a Bachelor's degree or higher.</p>	<p>Employment in Jefferson County grew at about 0.9% annually over the 2001 to 2013 period, while population grew at about 2.1% over the same period.</p> <p>Madras attracts workers from throughout the Central Oregon region. About 62% of workers at businesses located in Madras lived in Jefferson County, and 27% lived within Madras city limits.</p> <p>Madras' residents were less likely to have a Bachelor's degree or higher (18%) than the state average (30%).</p> <p>Businesses in Madras should be able to find qualified workers, either already living in the region or willing to relocate into the region. Businesses who need a relatively large number of workers with specialized training may need to work with education stakeholders in the region (e.g., OSU in Bend or the Central Oregon Community College) to develop training programs.</p>
<p>Changes in energy prices</p> <p>Although energy prices are currently low by historical standards, over the long-term, energy prices are forecast to return to relatively high levels, such as those seen in the 2006 to 2008 period, possibly increasing further over the planning period.</p>	<p>Currently, low energy prices have decreased the costs of commuting. Over the long-term, if energy prices increase, these increased prices will likely affect the mode of commuting before affecting workers' willingness to commute. For example, commuters may choose to purchase a more energy-efficient car, use the train, bus, or carpool.</p> <p>Very large increases in energy prices may affect workers' willingness to commute, especially workers living the furthest from Madras or workers with lower paying jobs.</p>
<p>Aging of the population</p> <p>The number of people age 65 and older will more than double between 2010 and 2050, while the number of people under age 65 will grow by only 20%. The economic effects of this demographic change include a slowing of the growth of the labor force, an increase in the demand for healthcare services, and an increase in the percent of the federal budget dedicated to Social Security and Medicare.</p> <p>People are retiring later than previous generations and continuing to work past 65 years old. This trend is seen both at the national and state levels. Even given this trend, the need for workers to replace retiring baby boomers will outpace job growth. Management occupations and teachers will have the greatest need for replacement workers because these occupations have older-than-average workforces.</p>	<p>The changes in the Madras' age structure are similar to those of the state, with the most growth observed in people 45 years and older. Madras' population is generally younger than the State's, with a larger share of its population below the age of 45. The median age in Madras is 32 years, compared to 39 years for the state as a whole.</p> <p>The state projects that the share of the population over the age of 60 in the Jefferson County will increase from 25% of the population in 2015 to 34% of the population in 2035.</p> <p>Firms in Madras will need to replace workers as they retire. Demand for replacement workers is likely to outpace job growth in Madras, consistent with state trends.</p>

National, State, and Regional Economic Trends	Implications for economic growth in Madras
<p>Comparatively low wages</p> <p>The income of a region affects the workforce and the types of businesses attracted to the region. Average income affects workers and businesses in different ways. Workers may be attracted to a region with a higher average wage or high wage jobs. Businesses, however, may prefer to locate in regions with lower wages, where the cost of doing business may be lower.</p> <p>Since the early 1980's, Oregon's per capita personal income has been consistently lower than the U.S. average. In 2013, Oregon's per capita personal income was 89% of the national average.</p>	<p>Per capita income in Jefferson county was lower than the state and national averages.</p> <p>Income in Oregon has historically been below national averages, and income in Jefferson County has been below state averages. There are four basic reasons that income has been lower in Oregon and Jefferson County than in the U.S.: (1) wages for similar jobs are lower; (2) the occupational mix of employment is weighted towards lower paying occupations; (3) a higher proportion of the population has transfer payments (e.g. social security payments for retirees), which are typically lower than earnings; and (4) lower labor force participation among working age residents (in part due to the presence of a large number of college students). To a certain degree, these factors are all true for both Oregon and Jefferson County, and result in lower income.</p> <p>In addition, wages in Jefferson County and Oregon tend to be more volatile than the national average. The major reason for this volatility is that the relative lack of diversity in the state and county economy. Wages in Oregon and Jefferson County are impacted more than the national average by downturns in either the national economy or in industries in Oregon and Jefferson County that are dependent on natural resources (e.g., timber and wood processing or R.V. manufacturing).</p> <p>The lower wages in Madras may be attractive to firms that typically pay lower wages, such as retail or accommodations and food services.</p>
<p>Education as a determinant of wages</p> <p>The majority of the fastest growing occupations will require an academic degree, and on average they will yield higher incomes than occupations that do not require an academic degree. The fastest growing of occupations requiring an academic degree will be: computer software application engineers, elementary school teachers, and accountants and auditors.</p> <p>Occupations that do not require an academic degree (e.g., retail sales person, food preparation workers, and home care aides) will also grow, accounting for about half of all jobs by 2018. These occupations typically pay less than occupations requiring an academic degree.</p>	<p>Madras' residents were less likely to have a Bachelor's degree or higher than the state average (18% versus 30%).</p> <p>Wages in Madras are relatively low compared to Oregon as a whole, and this is largely a result of the composition of the regional economy. Increasing the relatively low wages in the region is dependent on changing the composition of the regional economy, through growing or attracting businesses with higher paying occupations.</p> <p>Some of the businesses in Madras and businesses that Madras wants to attract require highly educated workers. Some examples include aerospace and aviation manufacturing and engineering, advanced manufacturing, or professional services such as health care. Madras' residents have opportunities for education and training at the Madras Campus of the Central Oregon Community College.</p>

National, State, and Regional Economic Trends	Implications for economic growth in Madras
<p>Importance of high quality natural resources</p> <p>The relationship between natural resources and local economies has changed as the economy has shifted away from resource extraction. Increases in the population and in households' incomes, plus changes in tastes and preferences, have dramatically increased demands for outdoor recreation, scenic vistas, clean water, and other resource-related amenities. Such amenities contribute to a region's quality of life and play an important role in attracting both households and firms.</p>	<p>The region's high quality natural resources and recreational opportunities present economic growth opportunities for Madras, ranging from wood products manufacturing to amenities that attract visitors and contribute to the region's high quality of life.</p>
<p>Growth in Aviation Employment</p> <p>Employment in aviation and aerospace technologies is a small industry in Oregon but one that is growing. Employment in aviation and related sectors includes air transportation, manufacturing aviation and aerospace products, and support activities for air transportation. About half of Oregon's nearly 7,500 jobs in these sectors in 2014 were in support activities for air transportation. Between 2010 and 2014, Oregon added 1,200 jobs in these industries. Between 2010 and 2014, job growth in these industries grew at an average annual growth rate of 2.2%, compared to overall annual job growth in Oregon of 2.0%.</p>	<p>In Central Oregon (Deschutes, Jefferson, and Crook Counties), employment in aviation grew from 155 jobs in 2010 to 285 jobs in 2014, growth of 130 jobs. Aviation-related employment accounts for a small share of overall employment in Central Oregon (0.36% of the Region's covered employment). Between 2010 and 2014, aviation-related employment grew substantially faster than other employment, with a 16% average annual growth rate, compared to the regional average of 3% for all employment.</p> <p>Erikson Air Tanker and Aircraft Collection located at the Madras Airport in 2013. The factors that brought Erikson to Madras were a climate suitable for long-term maintenance of historic aircraft, and the existing hangar facility developed by the City of Madras, with assistance from a ConnectOregon grant, for Butler Aircraft (a firm purchased by Erikson).</p>

National, State, and Regional Economic Trends	Implications for economic growth in Madras
<p>Growth in Development of Unmanned Aerial Vehicles</p> <p>Development of unmanned aerial vehicles (UAVs) for civilian uses is increasing in the U.S. The Association for Unmanned Vehicle Systems International estimates that UAV development, manufacturing, and sales will result in the addition of about 100,000 jobs in the U.S. between 2015 and 2025, with an economic impact of \$82 billion. The states forecast to have the largest economic impact from UAVs are California, Washington, Texas, Florida, and Arizona. Economic impacts in Oregon between 2015 and 2025 are forecast to include growth of more than 600 jobs and economic impacts of \$60 million.³</p> <p>The potential uses of UAVs are primarily related to precision agriculture and public safety, such as: agricultural monitoring, mapping wildfires, disaster management, monitoring weather, aerial mapping and imaging, telecommunications, oil and gas exploration, and freight transportation.</p>	<p>The Warm Springs Reservations is one of the three UAV test sites in Oregon. It has characteristics that make it attractive as a test site for UAVs: (1) varied terrain and elevation to test UAVs, (2) a dry climate with 300 sunny days per year, (3) privacy on the Reservation, (4) relatively sparse development on the Reservation, (5) local workforce from the Central Oregon cluster of aviation employment, and (6) high quality of life and amenities in Madras and Central Oregon.</p> <p>As the closest airport to the Warm Springs test range, the Madras Airport will provide aviation infrastructure necessary for UAV testing. The Airport provides a runway for take off and landing of UAVs, although some UAVs are hand-launched. The Airport can also provide hangar space and storage areas for UAV and related equipment.</p> <p>There are several types of activities associated with UAV development and testing that may require built space in Madras or at the Madras Airport:</p> <ul style="list-style-type: none"> • Researchers and development teams based in other cities (or other states) that come to Madras periodically to test UAVs on the Warm Springs Reservation. These teams of 15 to 30 people may need workspace and places to stay in Madras. In addition, the businesses may need secured storage or hangar space at the Madras Airport. • One or more companies may have local offices in Madras with a development and testing staff. While these businesses may be small, potentially ranging from one to five employees, they would need office space and may need secured storage or hangar space. • Engineers and other skilled workers in Madras able to fix small engines or do other manufacturing related to UAV development and testing. These workers would need work space and possibly secured storage or hangar space.

³ *The Economic Impact of Unmanned Aircraft Systems Integration in the United States*, Association for Unmanned Vehicle Systems International, March 2013.

This report’s estimates of job growth and economic impacts include both direct impacts of UAV development, manufacture, and sale, as well as indirect and induced impacts from economic activity related to UAVs. This report only considers the economic benefits of UAV development, without considering potential costs.

3.2 Madras' Comparative Advantages

The mix of productive factors present in Madras, relative to other communities in Central Oregon, are Madras' comparative advantage. The primary comparative advantages in Madras are its proximity to Bend and Redmond, access to Highways 97 and 26, its low housing costs, and its rural character and small town atmosphere. The City's encouragement of the development of livable, complete communities is also a comparative advantage. These factors make Madras attractive to residents and businesses that want to live and work in a community that has access to rural amenities but still have access to urban amenities and a regional transportation system.

Appendix B shows the industries that have shown growth and business activity in Jefferson County over the last few decades. These industries are indicative of businesses that might locate or expand in Madras. The characteristics of Madras will affect the types of businesses most likely to locate there:

- Madras' semi-rural setting, along with its access to Highways 97 and 26, and rail access (BNSF and UP mainline railways) make it attractive for businesses in specialty manufacturing. Examples include wood products manufacturing, food processing, industrial equipment, recreational equipment, and other specialty manufacturing.
- Madras' Airport is a general aviation airport, with connections to western hubs. The Madras Airport is the closest airport to the UAV test site on the Warm Springs Reservation, which is one of the six UAV test sites in the U.S. This may lead businesses involved with aviation and UAV research and development may choose to locate in Madras.
- Madras' semi-rural setting, along with its high quality of life, access to outdoor recreation in Central Oregon, and relatively easy access to Portland and other parts of Western Oregon make Madras appealing to entrepreneurs and businesses considering re-locating in Central Oregon for its quality of life. The types of businesses that may locate in Madras range from manufacturers to research and design companies to high tech companies.
- Madras' access to State highways, proximity to Bend and Redmond, and access to outdoor recreational areas make it likely that Madras will experience an increase in tourism. Businesses in the food and accommodation sector are likely to continue locating or expanding in Madras to serve the growing population and the tourists.
- Madras' proximity to Portland and access to outdoor recreational areas make it likely that Madras will experience an increase in households purchasing second homes or active pre-retirees buying in advance of retirement. Both housing segments are typically affluent, and expect high-quality housing that has recreational and social amenities.

- As the housing market continues to improve and demand for housing increases in Madras, residential development activity occurring in Madras makes it likely that construction businesses will expand in Madras.

Cities exist in an economic hierarchy in which larger cities offer a wider range of goods and services than smaller cities. The location of a community relative to larger cities, as well as its absolute size, affects the mix of goods and services that can be supported by a small city. Madras' small size and proximity to Bend and Redmond has implications for the types of retail and service firms most likely to locate in Madras:

- If big-box retailers locate in Madras, they are likely to build relatively small stores to serve the comparatively small population in and around Madras. Big-box retailers are more likely to build larger, regional retail facilities in Bend or Redmond.
- Population growth in Madras will drive more development of small and specialty retail, both in new and traditional areas of Madras.

4 Employment Growth and Target Industries in Madras

This chapter presents an employment forecast for Madras for the 2015 to 2035 period. The chapter presents a summary of Madras' economic development goals and target industries for growth.

4.1 Employment Forecast

This section presents Madras' employment forecast for the 2015 to 2035 period, as well as for the 2035 to 2057 period for urban reserves. To provide for an adequate supply of commercial and industrial sites consistent with plan policies, Madras needs an estimate of the amount of commercial and industrial land that will be needed over the planning period. Goal 9 requires cities identify "the number of sites by type reasonably expected to be needed to accommodate the expected employment growth based on the site characteristics typical of expected uses." The number of needed sites is dependent on the site requirements of employers. The estimate of land need is presented in the site needs analysis in the next section.

Demand for commercial and industrial land will be driven by the expansion and relocation of existing businesses and new businesses locating in Madras. The level of this business expansion activity can be measured by employment growth in Madras. This section presents a projection of future employment levels in Madras for the purpose of estimating demand for commercial and industrial land.

The projection of employment has five major steps:

1. **Establish base employment for the projection.** We start with the estimate of covered employment in Madras' UGB. Covered employment does not include all workers, so we adjust covered employment to reflect total employment in Madras.
2. **Project total employment.** The projection of total employment will be calculated using the safe harbor method suggested in OAR 660-024.
3. **Allocate employment.** This step involves allocating employment to different land use types.
4. **Forecast employment land that will require vacant commercial and industrial land.** This step accounts for employment that will be accommodated on land with existing built space, such as redevelopment.

5. **Forecast employment land need.** This step projects commercial and industrial land demand based on employment growth and future development densities.

Employment Base for Projection

To forecast employment growth in Madras, we must start with a base of employment growth on which to forecast. Table 7 shows the estimate of total employment in the Madras UGB in 2013. To develop the figures, ECO started with estimated covered employment in the Madras UGB from confidential QCEW (Quarterly Census of Employment and Wages) data provided by the Oregon Employment Department (presented in Table A-8).

Covered employment, however, does not include all workers in an economy. Most notably, covered employment does not include sole proprietors. Analysis of data shows that covered employment reported by the Oregon Employment Department for Jefferson County is only about 81% of total employment reported by the U.S. Bureau of Economic Analysis. We made this comparison by sector for Jefferson County and used the resulting ratios to convert covered employment to total employment in Madras. Table 7 shows Madras had an estimated 4,501 employees within its UGB in 2013.

Table 7. Estimated total employment in the Madras UGB by sector, 2013

Sector	Covered Employment		Estimated Total Employment
	Number	% of Total Emp.	
Natural Resources and Mining	90	3%	111
Construction	24	1%	59
Manufacturing	823	24%	909
Wholesale	76	2%	88
Retail	444	13%	571
Transportation, Warehousing, & Utilities	20	1%	44
Information	22	1%	37
Finance & Insurance	69	2%	131
Real Estate Rental & Leasing	28	1%	156
Professional and Technical Services & Management of Companies	44	1%	54
Admin. Support & Cleaning Srv.	76	2%	149
Health Care & Social Assistance and Private Education	502	15%	679
Arts, Entertainment & Recreation	41	1%	77
Accommodations & Food Services	355	10%	392
Other Services (except Public Admin.)	111	3%	324
Government	712	21%	720
Total	3,437	100%	4,501

Source: 2013 covered employment from confidential Quarterly Census of Employment and Wage (QCEW) data provided by the Oregon Employment Department. Covered employment as a percent of total employment calculated by ECONorthwest using data for Jefferson County employment from the U.S. Department of Commerce, Bureau of Economic Analysis (total) and the Oregon Employment Department (covered).

Note: The estimate of the percent of covered to total employment was not available for the following sectors because confidential employment data could not be disclosed for these sectors by either the Oregon Employment Department or the Bureau of Economic Analysis: Natural Resources and Mining; Information; Professional, Scientific, and Technical Services; and Management of Companies.

Employment Projection

Table 7 presents an estimate of total employment in Madras' UGB in 2013, 4,501 employees. Given the resurgence in job growth as recovery from the recent recession continues, we assume that Madras' employment base in 2015 grew at the same rate between 2013 and 2015 as the forecast rate (3.35% average annual growth rate) in the forecast in Table 8.

Madras does not have an existing employment forecast and there is no required method for employment forecasting. OAR 660-024-0040(9) sets out some optional "safe harbors" that allow a city to determine employment land need.

Madras is relying on the safe harbor at OAR 660-024-0040(9)(a)(B), which allows Madras to assume that the current number of jobs in the Madras urban area will grow during the 20-year planning period at a rate equal to "the population growth rate for the urban area in the appropriate 20-year coordinated population forecast." Table A-9 presents Madras' coordinated, adopted population forecast for growth between 2015 and 2057. The average annual growth rate of population growth in the adopted forecast is 3.35% between 2015 and 2035; between 2035 to 2057 the average annual growth rate is 2.56%.

The City of Madras is using the growth rates of the adopted forecast for population growth in Madras as the basis for employment growth for the 2015 to 2035 period. This approach is consistent with OAR 660-024-0040(9)(a)(A). Madras is using the growth rate in the population forecast to forecast long-term growth for the 2035 to 2057 period, consistent with the City's approach to establishing urban reserves for commercial and residential lands in the 2007 process.

Table 8 presents a forecast of employment in Madras for the 2015 to 2035 period, as well as a forecast for growth in urban reserves for the 2035 to 2065 period. Table 8 shows that Madras will grow by 4,484 employees between 2015 to 2035. Madras will grow 6,913 employees between 2035 and 2057.⁴

⁴ The City plans to establish urban reserves for industrial land to meet the forecast of growth through 2057. The City is establishing urban reserves for industrial for a 21-year period, rather than a 30-year period as allowed by OAR 660-021 to be consistent with the urban reserves established in 2007 for Madras for residential and commercial lands through 2057.

Table 8. Employment growth in Madras UGB, 2015-2035 and 2035-2057

Year	Total Employment
2015	4,808
2035	9,292
2057	16,205
Change 2015 to 2035	
Employees	4,484
Percent	93%
AAGR	3.35%
Change 2035 to 2057	
Employees	6,913
Percent	74%
AAGR	2.56%

Source: ECONorthwest

Allocate Employment to Different Land Use Types

The next step in the employment forecast is to allocate future employment to land use types by grouping employment into land use types with similar building and site requirements, based on the North American Industry Classification System (NAICS) and (for industrial employment) whether employment is located on land zoned as Airport Development. The land use types are:

- **General Industrial** businesses in the following sectors located on land zoned Industrial: Natural Resources and Mining, Construction, Manufacturing, Wholesale Trade, and Transportation, Warehousing, and Utilities. Industrial employment accounted for 29% of Madras' employment in 2013.
- **Airport-Related** businesses on land zoned Airport Development accounted for 2% of Madras' employment in 2013.⁵
- **Retail Commercial** businesses are in the Retail Trade sector and accounted for 13% of Madras' employment in 2013.
- **Non-Retail Commercial** businesses in the following sectors: Information, Finance and Insurance, Real Estate, Professional and Scientific Services, Management of Companies, Administrative and Support Services, Private Educational Services, Health Care and Social Assistance, Accommodations

⁵ This estimate is based on an estimate of employment at the Madras Airport from Rob Berg, Madras Airport Manager. It includes businesses located on land zoned AD the Airport, all of which are aviation-related businesses or industrial businesses located at the Airport.

and Food Services, and Other Services. Non-retail commercial employment accounted for 36% of Madras’ employment in 2013.

- **Government** includes employment local, state, and federal agencies, including public educational services. Government employment accounted for 21% of Madras’ employment in 2013.

Table 9 shows the forecast of employment growth by land use type in Madras’ UGB from 2015 to 2035 and 2035-2057. Table 9 forecasts growth in all land-use types. It only forecasts a minor shift in the distribution of employment, with small growth in the share of industrial employment at the Airport, compared with other industrial employment growth. This shift would be the result of investments that the City is making in Airport facilities.

Table 9. Forecast of employment growth in by land use type, Madras UGB, 2015-2035 and 2035-2057

Land Use Type	2015		2035		2057		Change 2015 to 2035	Change 2035 to 2057
	Emp.	% of Total	Emp	% of Total	Emp	% of Total		
General Industrial	1,346	28%	2,416	26%	4,213	26%	1,070	1,797
Airport-Related Industrial	96	2%	372	4%	648	4%	276	276
Retail Commercial	625	13%	1,208	13%	2,107	13%	583	899
Non-Retail Commercial	1,731	36%	3,345	36%	5,834	36%	1,614	2,489
Government	1,010	21%	1,951	21%	3,403	21%	941	1,452
Total	4,808	100%	9,292	100%	16,205	100%	4,484	6,913

Source: ECONorthwest

Note: Green shading denotes an assumption by ECONorthwest

Forecast of Employment that will Require Vacant Land

The next step in the forecast is forecasting employment growth that will require vacant commercial and industrial land in Madras. Not all employment growth will locate on land that is currently vacant. Employment can be accommodated in the following ways that do not require additional commercial and industrial land:

- **Underutilized built space.** In vacant buildings, vacant office or other space in multitenant buildings, and through intensifying employment in existing buildings (e.g., adding a new cubicle to office space currently in use).
- **Redevelopment or reuse of existing buildings.** Goal 9 does not provide specific guidance to cities about how to address redevelopment and it provides cities with local discretion about how to meeting requirements for considering redevelopment potential. However, a reasonable definition of redevelopment would be development that occurs on a tax lot that creates more employment space than the current use, increasing the capacity for employment on the tax lot.

One negative externality of redevelopment is that existing employment is often forced to move as a result of redevelopment, with the consequence

that the business may leave the city or cease to exist because of redevelopment. Madras wants to focus redevelopment efforts in areas with little or no existing employment, to avoid displacing existing employment. Analysis of employment patterns in Madras show that the majority of parcels identified as developed that do not have employment (in 2013) were small parcels, many along Highway 97. The majority of these parcels are in commercial uses.

In addition, City staff indicates that no employment sites in Madras have redeveloped (adding new employment capacity) over the past five years. This suggests that, in the absence of policies to increase redevelopment, Madras may see relatively little redevelopment over the next 20 years.

- **Employment in residential plan designations.** About 6% of Madras' employment in 2013 was in residential plan designations. All of this employment was retail or non-retail commercial employment.

Table 10 uses the information above to make the following assumptions about employment growth requiring vacant commercial and industrial land for 2015 to 2035 period:

- **General Industrial and Airport-Related Industrial.** About 10% of employment growth in these types of industrial employment will not require vacant land. This assumption is based on the relatively low amount of redevelopment that can be expected of existing industrial space, based on historically low levels of redevelopment in Madras.
- **Retail Commercial and Non-Retail Commercial.** About 15% of employment growth of these types of commercial employment will not require vacant commercial or industrial land. This assumption is based on: (1) the relatively low amount of redevelopment that can be expected of existing commercial space, based on historically low levels of redevelopment in Madras, and (2) assuming that about 5% to 6% of new commercial employment will locate on land designated for residential development.
- **Government.** Table 10 does not forecast any land need for government employment. The 2007 Madras Urbanization report included a forecast of lands needed for public and semi-public uses, which includes all types of government employment. This report focuses only on the forecast of new commercial and industrial employment.

For the 2035 to 2057 period, Table 10 uses the same assumptions from above for General Industrial and Airport-Related Industrial employment growth. Table 10 does not forecast growth of Retail Commercial and Non-Retail Commercial employment for this period. The City established urban reserves for commercial uses in the 2007 process.

Table 10. Forecast of employment growth that will require commercial or industrial vacant land, Madras UGB, 2015-2035 and 2035-2057

Land Use Type	Employment Growth 2015-2035			Employment Growth 2035-2057		
	New Employment	New Emp		New Employment	New Emp	
		That does not require vacant land	New Emp that requires vacant land		That does not require vacant land	New Emp that requires vacant land
General Industrial	1,070	107	963	1,797	180	1,617
Airport-Related Industrial	276	41	235	276	41	235
Retail Commercial	583	87	496	NA	NA	NA
Non-Retail Commercial	1,614	242	1,372	NA	NA	NA
Total	3,543	477	3,066			

Source: ECONorthwest

Forecast of Employment Land Need

Table 11 shows demand for vacant (including partially vacant) land in Madras. The assumptions used in Table 11 are:

- **Employment density.** Table 11 assumes the following number of employees per acre (EPA): Industrial will have an average of 10 employees per acre and Commercial and government will have an average of 20 EPA.

These employment densities are consistent with employment densities in Oregon cities of similar size as Madras.⁶ Some types of employment will have higher employment densities (e.g., a multistory office building) and some will have lower employment densities (e.g., a convenience store with a large parking lot).

- **Conversion from net-to-gross acres.** The data about employment density is in *net* acres, which does not include land for public right-of-way. Future land need for employment should include land in tax lots needed for employment plus land needed for public right-of-way. One way to estimate the amount of land needed for employment including public right-of-way is to convert from *net* to *gross* acres based on assumptions about the amount of land needed for right-of-way.⁷ A net to gross

⁶ The draft report *Analysis of Land Use Efficiency in Oregon Cities: A report to the HB 2254 Rulemaking Committee* (March 2015) prepared by researchers at the University of Oregon provides information about employment densities in Oregon cities. For cities of Madras' size (5,000 to 9,999 people), the average commercial employment density of 17.4 employees per acre and 9.4 employees per acre for industrial employment. For cities of all sizes in Central Oregon, the commercial average was 20.3 employees per acre and industrial was 8.8 employees per acre.

⁷ OAR 660-024-0010(6) uses the following definition of net buildable acre. "Net Buildable Acre" consists of 43,560 square feet of residentially designated buildable land after excluding future rights-of-way for streets and roads. While the administrative rule does not include a definition of a gross buildable acre, using the definition above, a gross buildable acre will include areas used for rights-of-way for streets and roads. Areas used for rights-of-way are considered unbuildable.

conversion is expressed as a percentage of gross acres that are in public right-of-way.

Net-to-gross factors generally range from 15% to 20% for cities like Madras. Given that Madras has an existing well-developed street system, ECO uses a net-to-gross conversion factor of 15% for industrial and 20% for commercial and government.⁸

Table 11. Demand for vacant land to accommodate employment growth, Madras UGB, 2015-2035 and 2035-2057

Land Use Type	Emp. on Vacant Land	EPA (Net Acres)	Land Demand (Net Acres)	Land Demand (Gross Acres)
Employment Growth 2015-2035				
General Industrial	963	10	96	113
Airport-Related Industrial	235	10	24	28
Retail Commercial	496	20	25	31
Non-Retail Commercial	1,372	20	69	86
Total	3,066		214	258
Employment Growth 2035-2057				
General Industrial	1,617	10	162	191
Airport-Related Industrial	235	10	24	28
Total	1,852		186	219

Source: ECONorthwest

⁸ The draft report *Analysis of Land Use Efficiency in Oregon Cities: A report to the HB 2254 Rulemaking Committee* (March 2015) prepared by researchers at the University of Oregon provides information about land in rights-of-way in Oregon cities. For cities of Madras' size (5,000 to 9,999 people), the average land in rights-of-way (excluding waterbodies) is 15%, with a low of 5% and a high of 43% of land in rights-of-way

4.2 Economic Development Objectives and Target Industries

An analysis of growth industries in Madras should address two main questions: (1) Which industries are most likely to be attracted to Madras? and (2) Which industries best meet Madras' economic objectives?

Economic Development Vision and Goals

The following section presents Madras' vision, goals, policies, and implementation steps for economic development over the 20-year planning period.

Vision

Madras, Oregon is a healthy community with a diverse economy that focuses on traded-sector (export) industries. The City strives to promote "family-wage" job growth and provide opportunities for economic development in a business-friendly environment. Madras supports the growth and expansion of existing businesses, especially businesses that provide jobs in core economic sectors, which include agricultural products and support services, manufacturing, aviation/aeronautics, trucking services and testing, and wood product manufacturing. Madras supports investment in community and higher education and training to ensure we have the skilled labor force needed to support our economy.

Goals

1. Madras seeks opportunity for economic expansion in many economic sectors including new businesses that expand Madras Traded Sector economy, and that make use of existing economic development assets. Examples include but are not limited to:
 - Agricultural and Mining Industries (National)
 - Aviation and Aerospace Development Services (National)
 - Health Care and Community Services (Regional)
 - Manufacturing – material handling, wood products, high tech (Regional/National/International)
 - Tourism and Recreational Services (Regional)
 - Transportation testing (National/International)
 - Warehousing and Distribution Facilities (Regional)
2. Madras will take steps to facilitate economic growth and development by:
 - a. Investing in basic transportation infrastructure that supports economic development, including roads, rail access, and aviation facilities.

- b. Ensuring the availability of public water and sanitary sewer service to land designated for employment uses.
 - c. Supporting community investment in essential “high-speed” communication and information exchange infrastructure that supports education, commerce, and institutional land uses.
 - d. Maintaining enough developable land to support economic development, including at the Madras Airport for air-side support services and business aviation.
 - e. Pursuing the designation of a regional large-lot industrial site.
 - f. Enacting programs that take advantage of the State of Oregon Enterprise Zone and other tax-incentive programs for new and existing businesses.
3. Madras is committed to balancing economic development goals with long-term preservation of the environment, including the area’s surface and ground water resources, air quality, and high-value farmland, which sustain the local economy.

Policies

Madras will work to achieve these economic development goals using the following policies, which are number for reference purposes. All policies have equal standing and need to be balanced when applied to land use planning decisions.

1. Provide an adequate supply of employment land in a variety of site sizes and locations, to meet employment growth forecasts.
2. Provide capacity and maintain the public infrastructure necessary to support local businesses and their employees, including roads, aviation and rail facilities, drinking water supply, and sanitary sewers.
3. Actively support investment in essential high-speed communications infrastructure to support the emerging information-economy, and seek ways to reduce communication tariffs on existing businesses and incubator sites.
4. Take steps to encourage investment downtown by adopting incentive programs that encourage redevelopment of property within the Willow Creek floodplain.

5. Encourage redevelopment of vacant and underutilized downtown commercial properties through fiscal policy, zoning regulations, and streamlined permitting.
6. Support businesses expansion and recruitment through local and regional economic development incentive programs.
7. Actively participate in regional economic development and recruitment efforts through Economic Development Central Oregon (EDCO).
8. Support planning and development of intermodal rail access through a rail siding and/or intermodal reload facility accessible to all employers in Jefferson County.
9. Promote economic development at the airport consistent with the Airport Master Plan.
10. Support workforce development and re-education efforts by the Jefferson County School District and the Madras campus of the Central Oregon Community College (COCC).

Implementation

Madras will take steps to achieve these economic development objectives using the following program and regulatory measures:

- a. Facilitate formation of an Ad Hoc economic development committee to identify and remove barriers to economic development in Madras and Jefferson County.
- b. Work with EDCO and local property owners to identify and designate a Regional Large-lot Industrial Development Site in or near Madras.
- c. Lead a rail access economic feasibility study that examines ways to improve intermodal freight accessibility in Madras and Jefferson County, including facilities that support basalt mining and other commodity exports.
- d. Make public improvements in downtown and commercial corridors that reduce flood hazards and enhance development opportunities using urban renewal, ODOT highway enhancement, and local improvement financing tools.
- e. Pursue Oregon Enterprise Zone designations and other tax incentive programs for industrial development sites.
- f. Review the city's development application fees and look for ways to streamline development review with a "fast track" approval process for targeted reinvestment areas, including downtown Madras.

- g. Investigate regulatory and policy approaches to preserve the irrigated agricultural land base in the county that may be impacted by urban development.
- h. Work with Jefferson County and local property owners to expand the inventory of for small to medium sized development parcels suitable for employment use.
- i. Review noise regulations and zoning in the vicinity of the Madras Airport to reduce future conflicts between uses.
- j. Review and update the Madras Enterprise Zone every other year to ensure consistency with state law.

Target Industries

The characteristics of Madras will affect the types of businesses most likely to locate in Madras. Madras' attributes that may attract firms are: the City's access to Highways 97 and 26, access to two mainline railroads, the Madras Airport, relative proximity to the Portland region, availability of buildable land with services, access to the workforce in Madras and Central Oregon, availability of skilled and semi-skilled labor, high quality of life, existing business base, and proximity to indoor and outdoor recreational opportunities.

The selection of target industries is based on Madras' economic development goals and strategies, economic conditions in Madras and Central Oregon, and the City's competitive advantages. Madras identified the following target industries as examples of the types of industries that the City wants to encourage. For the most part, these industries are traded-sector and likely to have above-average wages.

- **Aerospace and avionics.** The UAV test site on the Warm Springs Reservation, relatively dry climate, and facilities at the Madras Airport make Madras an attractive place for aerospace and avionics manufacturing, research and development, and aviation support services. Attracting aviation-related businesses will require sites in a variety of sizes, generally from five acres to 10 acres, with airside access to the runways at the Madras Airport.
- **Wood products.** Madras' history of wood products manufacturing and access to rail make it attractive to wood product manufacturers, such as firms that produce lumber or furniture. Attracting businesses in this target industry will require that Madras has a relatively flat site that is about 10-acres (see Table 15).
- **Agricultural manufacturing and services.** Madras has a long history of agricultural manufacturing, such as seed production, and providing support services to farms near Madras. Agricultural businesses likely to grow in Madras are those related to farming with in the region or processing of regional crops, such as food products manufacturing or additional seed production. In addition, Madras' agricultural areas provide an opportunity for development of UAV hardware and software used in to support agriculture, such as imaging of fields or monitoring crops.
- **General Manufacturing.** Madras' attributes (e.g., availability of labor and accessibility to transportation) may attract manufacturing firms. The type and size of manufacturing firm may depend on land availability. Larger manufacturers may require large, flat sites, and smaller manufacturers (i.e., firms with fewer than 50 employees) may have greater flexibility in where to locate. Table 15 shows the amount of land that is necessary to be competitive for attracting manufacturers: 10 acres

for general manufacturing, 20 acres for food processors, 25 acres for heavy industrial or heavy manufacturing, 25 acres for high-tech manufacturing or campus industrial, and 50 acres for clean-tech manufacturing. In addition, Madras should have a range of industrial sites smaller than 10 acres, especially those smaller than five acres, for small-scale industrial firms.

Examples of manufacturing include aggregate manufacturing, advanced manufacturing, high technology manufacturing, renewable energy equipment, specialty food processing, or recreational equipment.

- **Warehouse and distribution.** Madras' location in Central Oregon at the intersection of Highways 97 and 26 makes the City attractive to small-scale and regional warehouse and distribution businesses. The types of warehouse and distribution firms that may locate in Madras include those that are part of or are serving the manufactures in Madras and Central Oregon, as well as distribution firms serving businesses along the Highway 97 corridor. Madras will have a range of site sizes for warehouse and distribution, from sites about five acres up to sites about 25 acres in size (see Table 15).
- **Construction.** As a growing area with relatively low costs in Central Oregon, Madras may be the home to construction firms, especially those engaged in development in Madras.
- **Services for Residents.** Population growth will drive development of retail, professional services (e.g., lawyers or finance), medical services, and government services, including education, in Madras.
- **Tourism.** Visitors may be attracted to Madras to take advantage of recreational opportunities and other amenities. Industries that serve tourists, such as food services and accommodations, are likely to grow if tourism increases.
- **Services for seniors.** Madras' growing population of those near or in retirement may attract or create demand for health services that cater to the elderly, such as assisted living facilities, retirement centers, and medical services.

5 Land Demand and Site Needs

OAR 660-009-0015(2) requires the EOA to “identify the number of sites by type reasonably expected to be needed to accommodate the expected [20-year] employment growth based on the site characteristics typical of expected uses.” The Goal 9 rule does not specify how jurisdictions conduct and organize this analysis.

The rule, OAR 660-009-0015(2), does state that “[i]ndustrial or other employment uses with compatible site characteristics may be grouped together into common site categories.” The rule suggests, but does not require, that the City “examine existing firms in the planning area to identify the types of sites that may be needed.” For example, site types can be described by: (1) plan designation (e.g., heavy or light industrial), (2) general size categories that are defined locally (e.g., small, medium, or large sites), or (3) industry or use (e.g., manufacturing sites or distribution sites). For purposes of the EOA, Madras groups its future employment uses into categories based on their need for land with a particular plan designation (i.e., industrial or commercial) and by their need for sites of a particular size.

This section provides an estimate of employment land needs based on information about the amount of employment growth that will require new land, employment densities, and land need by site size. This section provides a *demand-based* approach to estimating employment land needs. It projects employment land need using the forecast of employment growth and recent employment densities (e.g., the number of employees per acre) to estimate future commercial and industrial land demand.

This chapter includes two sections: land sufficiency and site needs for target industries.

5.1 Land Sufficiency

Table 12 presents a comparison of the supply of employment land (Table 4) with the forecast for demand for land (Table 11) within the Madras UGB. For the 2015-2035 period, Table 12 shows:

- **General Industrial** land surplus of about 69 acres.
- **Airport-Related Industrial** land surplus of about 91 acres.
- **Commercial and Retail** land surplus of about 26 acres.

For the 2035-2057 period, Table 12 shows:

- **General Industrial** land deficit of about 122 acres.
- **Airport-Related Industrial** land surplus of about 63 acres.
- **Commercial and Retail** land need is not estimated for this period because Madras established urban reserves for commercial uses.

Table 12. Sufficiency of employment land to accommodate employment growth, gross acres, Madras UGB, 2015-2035 and 2035-2057

Land Use Type	Land Supply (Gross Acres)	Employment Growth 2015- 2035		Employment Growth 2035- 2057	
		Land Demand (Gross Acres)	Land Surplus (Deficit)	Land Demand (Gross Acres)	Land Surplus (Deficit)
General Industrial	182	113	69	191	-122
Airport-Related Industrial	119	28	91	28	63
Commercial and Retail	143	117	26	NA	NA
Total	444	258		219	

Source: ECONorthwest

Note: Vacant land includes land identified in the buildable lands inventory as vacant or partially vacant.

5.2 Site Needs for Target Industries

Typical Site Needs of Large Employers

Chapter 4 describes potential growth industries for Madras, based on the city's economic advantages. These target industries focus on manufacturing, including aerospace/aviation, wood products, and other types of manufacturing, as well as warehouse and distribution. This section focuses on the site needs for these target industries, considering site needs for businesses that need sites of all sizes.

Businesses considering locating in Oregon and in Madras will consider many factors before selecting a location (e.g., access to markets, availability of skilled workers, and availability of suitable land). The availability of vacant, large, and flat parcels of land is one of the key factors that businesses consider when making decisions about where to locate. Table 13 shows examples of traded-sector firms that considered locating in Oregon and Southern Washington since 1997. Table 13 shows that firms looking for office or flex space required sites from 30 acres up to more than 100 acres. Warehouse and distribution firms looked for sites between about 50 and 200 acres. Manufacturing firms required sites from 25 acres to 250 acres in size.

These firms worked with Business Oregon to find suitable sites in Oregon. Some of the firms chose to locate in Oregon and some chose to locate elsewhere. One of the key factors that influenced decisions to locate elsewhere was availability of large parcels of land with infrastructure services (e.g., transportation access, wastewater, etc.).

Table 13. Examples of firms that considered locating in Oregon and Southern Washington between 1997 and 2010

Type of business	General Location Considered	Site size (acres)	Building Size (square feet)	Located in Oregon ?
Office or Flex space				
Private technology firm	Northern Oregon I-5	100+	1 msf	
Facebook Data Center	Prineville	118	147,000 sf	Yes
Siltronics	Portland Harbor	35		
Nautilus	Vancouver	35	489,000	Yes
Google Data Center	The Dalles	30		Yes
Warehouse and Distribution				
Lowes	Lebanon	204	1.3 to 2.2 msf	Yes
NOAH-PepsiCo	Albany	204	2.5 msf	No
Wal-Mart	Hermiston	200	1.3 msf	Yes
Target	Albany	175	1.3 msf	Yes
Fed Ex	Troutdale	78	500,000 sf	Yes
Dollar-Tree	Ridgefield, Wa	75	800,000 sf	
Home Depot	Salem	50 to 100	400,000+	Yes
Manufacturing				
Apricus	Northern Oregon	250	Very large	No
Navitas	Oregon	150 to 200		No
Pacific Ethanol	Boardman	137		Yes
SolarWorld	Hillsboro	75	1 msf	Yes
Schott Solar	I-5 corridor	50+	up to 800,000 sf	No
Genentech	Hillsboro	50	500,000 sf	Yes
Amy's Kitchen	White City	50		Yes
Sanyo Solar	Salem	25	150,000 sf	Yes
Spectrawatt	Hillsboro	25	225,000 sf	No

Source: Business Oregon

Table 14 shows examples of manufacturers of clean energy technologies, such as solar panel manufacturers, that announced plans to build new manufacturing plants in 2009 or 2010. More than one-third of these firms considered locating in Oregon. The site size requirements of these firms ranged from 50 to nearly 500 acres, with an average site size of around 100 acres. These firms are within one of the potential growth industries identified in Chapter 4, renewable energy manufacturing.

Table 14. Examples of clean energy technologies that announced plans to build new manufacturing plants in 2009 or 2010

Company	Site Size (Acres)	Location	Industry
Tokuyama*	494	Malaysia	Solar
Vestas*	300	Colorado	Wind
US REG - A Power REC*	150	Nevada	Wind
Tindall	144	Kansas	Wind
Green2V	124	New Mexico	Solar
LG Chem Ltd.	120	Michigan	Batteries
Autoport/AC Propulsion	102	Delaware	Electric Vehicles
Energy Composites Corps	94	Wisconsin	Wind
Tesla	90	California	Electric Cars
Mitsubishi Heavy Industries*	90	Arkansas	Wind
Schott Solar*	80	New Mexico	Solar
Enerdel	75	Indiana	Batteries
Energy Composites Corporation	54	Wisconsin	Wind
Proterra*	50	South Carolina	Electric Buses
Confluence	50	Tennessee	Solar

Source: Business Oregon

*Note: These firms considered locating in Oregon.

Table 15 shows the characteristics required to make a site competitive for businesses considering locating or expanding in Oregon, based on information from Business Oregon. Sites for most manufacturing uses are generally between 10 acres to 50 acres. Some large industrial uses, such as businesses in the renewable and clean energy sector, require sites of 100 acres. Regional distribution centers require sites of 200 acres. Industrial users need sites that are relatively flat, generally with a slope of 5% or less.

Table 15. Site characteristics of common business types in Oregon

Industry Sector	Site size* (Acres)	Site topography (Slope)	Site Access Max distance in miles to interstate or major arterial	Utilities (Min. line size in inches) Water / Sanitary Sewer
Regionally to Nationally Scaled Clean-Tech Manufacturer	50	0-5%	10	10 / 10
Globally Scaled Clean Technology Campus	100	0-5%	10	10 / 10
Heavy Industrial/ Manufacturing	25	0-5%	10	8 / 8
General Manufacturing	10	0-5%	20	8 / 8
Food Processing	20	0-5%	30	10 / 10
High-tech Manufacturing or Campus Industrial	25	0-7%	15	10 / 10
Regional (multistate) Distribution Center	200	0-5%	5 Only Interstate highway or equivalent	4 / 4
Warehouse/Distribution	25	0-5%	5 Only Interstate highway or equivalent	4 / 4

Source: Business Oregon

*Note: Site size is the competitive acreage that would meet the site selection requirements of the majority of industries in this sector

Some industrial and large-scale commercial businesses may prefer to locate in an industrial or business park. Business parks are developments with multiple buildings, designed to accommodate a range of uses, from heavy industry to light industry to office uses. Most industrial parks, a subset of business parks, have large-scale manufacturing, distribution, and other industrial uses, with relatively little office space.

Table 16 shows examples of business park sites in the Portland Metro area. Business parks in the Portland area generally range in size from 25 acres to 75 or 100 acres in size. Some of the business parks are primarily industrial (e.g., Beaverton Creek, Columbia Commerce Park, or Southshore Corporate Park), some are primarily commercial (e.g., Creekside Corporate Park or Nimbus Corporate Center), and some are office and flex space (e.g., Cornell Oaks Corporate Center)

Table 16. Examples of business park sites, Portland Metro area

Business Park	Site Acres	Building Square Feet
AmberGlen Business Center	72	572,685
AmberGlen East and West	44	536,000
Beaverton Creek	56	512,852
Columbia Commerce Park	31	562,888
Cornell Oaks Corporate Center	107	684,000
Creekside Corporate Park	50	615,113
Kruse Woods Corporate Center	76	1,652,105
Lincoln Center	22	728,770
Nimbus Corporate Park	47	688,632
Oregon Business Park 1	36	782,294
Oregon Business Park 3	35	501,029
PacTrust Business Center	40	570,539
Pacific Business Park (South)	26	340,864
Pacific Corporate Center	56	601,542
Parkside Business Center	52	687,829
Southshore Corporate Park	312	1,630,000
Tualatin Business Center I and II	33	383,305
Wilsonville Business Center	30	710,000
Woodside Corporate Park	37	579,845

Source: Metro UGR, Appendix 5 Multi-tenant (business park)/Large lot analysis

In addition, the Portland Metro area has the following types of major employment sites, on sites ranging from 25 acres to more than 500 acres:⁹

- **General industrial.** The Portland region has 21 general industrial major employment sites, ranging in size from 25 acres to 164 acres and averaging 53 acres. Firms on these sites range from beverage manufacturers to construction product manufacturers to specialty manufacturing enterprises.
- **Warehouse and distribution.** The Portland region has 15 warehouse and distribution major employment sites, ranging in size from 25 acres to 452 acres and averaging 74 acres. Firms on these sites range from wholesalers to general warehouse and distribution to company-specific distributors.
- **Flex.** The Portland region has 14 flex major employment sites, ranging in size from 25 acres to 522 acres and averaging 112 acres. Firms on these sites include small and large semiconductor manufacturing and other high tech manufacturing. Flex buildings also house a variety of small start-up businesses, light manufacturing uses, as well as office uses.

⁹ These examples are documented in the Portland Metro 2009-2030 Urban Growth Report, Appendix 4

Site Needs of Businesses Who Considered Locating in Madras

The majority of Madras' available vacant industrial land is at or near the Madras Airport Industrial Park. Between August 2012 and December 2014, 31 businesses made inquiries about potentially locating in at the Madras Airport Industrial Park.

- **Site Size.** Seven businesses were looking for sites between 1 and 5 acres, 11 businesses needed sites 5 to 10 acres, six businesses needed sites 10 to 20 acres, and eight businesses needed sites 20 to 80 acres.
- **Ownership.** FAA regulations restrict private uses at airports to land leases, rather than allowing private ownership of land at airports. The Airport Industrial Park has a few smaller sites for available sale at the Business Park, none of which have existing buildings or runway access. At least six of the businesses that inquired about land at the Airport Industrial Park chose not to further consider locating there because of the lease-only restrictions. Other businesses would consider leasing property.
- **Availability.** Inquiries about purchasing or leasing industrial land in or around the Airport Industrial Park require that the land is available for sale or lease. Much of the property in the Airport Industrial Park is city-owned and available for lease. There are some parcels smaller than seven acres that are privately owned and potentially available for sale. The largest industrial parcel near the airport is 80 acres and is not currently available for sale.
- **Transportation.** All businesses need access by automotive (car or trucks) and some businesses need access by pedestrian or bicycle for workers and customers. Businesses involved with freight transportation need access to Highway 97 or Highway 26, either directly from the site or via local roads. Businesses who transport bulky or heavy freight may need access to a rail line. Aviation and aerospace businesses will need access to a runway.

Site Needs for Businesses with Airside Access at the Madras Airport

Map 5 shows the businesses at the Madras Airport with airside access, which gives businesses access to the taxiway and runway at the Airport. The facilities at the Madras Airport with airside access are (from north to south on the map):

- Erickson Aircraft Collection, an air museum with more than twenty vintage aircraft. The museum was built in 2013. The hangar is about 63,000 square feet in size.
- Erikson Airtanker, a firm used to convert and maintain airplanes used in fire suppression. Erikson Airtanker began operations in Madras in 2010. The hangar is about 43,000 square feet in size.
- Two (Parallel) T-hangars, built in the 1950's or so and used by single-engine fixed wing aircraft. Each hangar is about 10,600 square feet in size.
- T-hangar, built in the 1950's and currently vacant. The City is in a long-term lease for this hangar but is unused because the lessee is choosing not to use it currently. The hangar is about 3,600 square feet in size.
- T-hangar, built in the 1950's and used by single-engine fixed wing aircraft. The hangar is about 3,600 square feet in size.
- Hangar owned by the City of Madras, built in the 1990's and used by single-engine fixed wing aircraft and aircraft storage. The hangar is about 3,250 square feet in size.
- North Hangar owned by the City of Madras, built in the 1930's and used by single- and multi-engine fixed wing aircraft. The hangar is about 15,000 square feet in size.
- South Hangar owned by the City of Madras, built in the 1930's and used by single- and multi-engine fixed wing aircraft. The hangar is about 15,000 square feet in size and is located just outside of the UGB.
- Two hangars (parallel to each other), built in 1970's, one 6,000 square feet in size and one 4,250 square feet in size.
- One hangar, built in 1970's, 9,000 square feet in size.
- One hangar, built in 1970's, 1,800 square feet in size.
- One hangar, built in the 1970's and used by single- and multi-engine fixed wing aircraft. The hangar is about 2,770 square feet in size.

Map 5. Businesses with Airside Access, Madras Airport, 2015



Source: City of Madras

The Madras Municipal Airport Master Plan Update (December 2010) forecasts growth of 29 additional airplanes that will be based at the Madras Airport by 2030, with 90% of the airplanes requiring hangar space. Accommodating these aircraft in hangars will require 26 additional hangar spaces in about 39,000 square feet of space. The Master Plan recommends establishing a hangar reserve sufficient for an additional 29 aircraft through 2030. In total, the Master Plan recommends that the Airport plan for hangar space for 58 additional aircraft, which will require about 78,000 square feet of hangar space.

Aviation and business activity at the Madras Airport have increased since 2014, with the location of Erickson Airtanker and Erickson Aircraft Collection at the Airport. The number of aircraft based at the Madras Airport approximately doubled with the location of Erikson Airtanker and Erickson Aircraft Collection, including about 25 vintage airplanes at the Erickson Aircraft Collection. This increase is equivalent to all of the Airport Master Plan's forecast of the need for hangar space (up to 60 additional aircraft) through 2030.

The Madras Airport continues to attract businesses that are considering locating at the Airport. Several businesses are discussing locating at the airport, with each business requiring hangar space and airside access. In addition, Aero Air is planning to expand their presence at the Madras Airport. Aero Air's facilities at the Madras Airport are used for conversion airplanes for use in firefighting, as well as maintenance of existing planes for fire fighting.

In addition, Madras hopes to attract businesses involved in UAV and other aerospace development. Developing aviation-related businesses is an important part of the City's vision for economic development. The City, working with grants from the FAA and ConnectOregon, has made \$3 million in infrastructure improvements, including renovations of the runways and fuel tanks. The City is in the process of expanding its enterprise zone to include the Madras Airport, as a way to attract more aviation-related businesses.

Map 5 shows that the size of Madras' existing hangars vary from 1,800 square feet to 63,000 square feet. The spacing between hangars varies from 15 feet to 443 feet, with most hangars having from 65 to 200 feet between hangars. Most hangars are located directly airside, with a few examples of parallel hangars. The size of each hangar "site" (floor area of the hangar and space between hangars) varies from about one-half and acre to 2 acres.

The area occupied by hangars within the UGB where hangars are located is between the airway (western edge of the UGB) and Berg Drive, just north of the Erickson Aircraft Collection and just south of the City's north hangar. This area is about 20 acres in size. With eight hangars, each hangar requires about 2.5 acres of land, including the hangar foot-print, areas between hangars, and access to the airway.

In the future, the types of aircraft likely to locate at Madras will need hangars with sufficient space between hangars to safely maneuver aircraft, as well as access to the airway. Newer hangars are likely to need spacing similar to the two newer Erikson hangars, with about 150 feet between hangars to allow for maneuvering.

Accommodating growth of about 60 aircraft at the Madras Airport will require availability of about six spaces for new hangars, assuming that each hangar is about 10,000 to 15,000 square feet in size. At an average of 2.5 acres per hangar, six new hangars will need about 15 acres of land.

Need for these types of sites is currently being met through airside sites at the Madras Airport in unincorporated Jefferson County, shown in Map 5 south of the UGB.

Characteristics of Needed Sites for Manufacturing, Aviation and Aerospace, and Warehouse and Distribution

The Goal 9 Administrative Rule (OAR 660-009) requires that jurisdictions describe the characteristics of opportunity sites (OAR 660-009-0025(1)). The Administrative Rule defines site characteristics as follows in OAR 660-009-0005(11):

(11) "Site Characteristics" means the attributes of a site necessary for a particular industrial or other employment use to operate. Site characteristics include, but are not limited to, a minimum acreage or site configuration including shape and topography, visibility, specific types or levels of public facilities, services or energy infrastructure, or proximity to a particular transportation or freight facility such as rail, marine ports and airports, multimodal freight or transshipment facilities, and major transportation routes.

Friends of Yamhill County v. City of Newberg, 62 Or LUBA 5 (2010), established a two-prong test for establishing relevant "site characteristics" as follows: (1) that the attribute be "typical of the industrial or employment use," and (2) that it have "some meaningful connection with the operation of the industrial or employment use." The first of those prongs, that the attributes be "typical," appears expressly in OAR 660-009-0015(2), which refers to "site characteristics typical of expected uses." In upholding LUBA's two prong test, the Court of Appeals agreed, "[t]hat 'necessary' site characteristics are those attributes that are reasonably necessary to the successful operation of particular industrial or employment uses, in the sense that they bear some important relationship to that operation." *Friends of Yamhill County v. City of Newberg*, 240 Or App 738, 747 (2011).

Characteristics of Needed Airside Sites for Aviation and Aerospace

The following summarizes the site characteristics for aviation and aerospace related employment for businesses that require airside access to the taxiways and runways at the Madras Airport. These businesses are all involve flying aircraft, such as airplane manufacturing or conversion, UAV research and development, or aviation services. This section provides an overview of the two-prong test established for site characteristics under *Friends of Yamhill County v. City of Newberg*, 62 Or LUBA 5 (2010), *aff'd* 240 Or App 738 (2011).

The need for these sites is currently being met, through the existing airside sites at the Madras Airport in unincorporated Jefferson County. If there are barriers that prevent development of the airside sites and those barriers would be lowered or eliminated by bringing this land into the Madras UGB, the City may want to consider a UGB expansion to include sites that have the following characteristics.

1. **Location at an airport.** Businesses involved in flying planes and UAVs (except for some hand-held UAVs) need to be located at an airport with access to taxiways and runways.
 - Attribute is "typical of the industrial or employment use" – Aviation businesses that involve flying aircraft need to locate at an airport for access to a runway and proximity aviation services.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – Flying airplanes and other aircraft requires an airport location for access to a runway and proximity to other aviation businesses.
2. **Airside access.** Flying aircraft requires an airside location, with direct access to a taxiway and runways.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the “proximity to a particular transportation or freight facility such as rail, marine ports and airports, multimodal freight or transshipment facilities, and major transportation routes” as a site characteristic.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – This site characteristic provides the opportunity for the take-off and landing of aircraft. Aircraft must have airside access that avoids conflicts with other vehicles or aircraft, with clear and safe access to the taxiway. Hangars at the Madras Airport are located to the east of cement tie-down pads, west of the access road (such as Berg Drive).
3. **Site size.** Airside sites at general aviation airports like Madras generally include a hangar, which is used by one or more businesses. Hangar sites at airports like Madras are an average of 2.5 acres in size and have direct access to the airstrip and taxiway.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites “a minimum acreage” as a site characteristic. Hangars at Madras Airport generally have a building footprint smaller than one acre, with two buildings (both owned by Erikson) about 2 acres in size. Hangars need to have space between adjacent hangars for aircraft maneuvering. Hangars have frontage on the airway of between 200 to 500 feet wide, depending on the size and type of hangar (including space between hangars). Hangar sites in the Madras UGB average 2.5 acres per hangar.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – Having a site the appropriate

size for the business is important to aviation and aerospace companies. The site needs to be large enough to accommodate the needed built space for the hangar, as well as to provide appropriate frontage and access to the taxiway. Sites need to be large enough to allow room to maneuver airplanes between hangars. In addition, the sites need to provide space for automotive parking.

4. **Topography.** Airport hangars and aviation businesses are located at airports, which are developed on relatively flat sites, with slopes of not more than 5%.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites "site configuration including shape and topography" as a site characteristic.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – A flat site is important for take-off of aircraft, so that aircraft do not have to climb a slope prior to becoming airborne.
5. **Automotive access.** Aviation-related businesses are generally located at an airport with automotive access for cars and trucks.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "proximity to a particular transportation or freight facility such as rail, marine ports and airports, multimodal freight or transshipment facilities, and major transportation routes" as a site characteristic.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – This site characteristic provides the opportunity for workers and customers to access the business and allows for freight movement by truck.
6. **Access to municipal services.** City services should be directly accessible to the site, including sanitary sewer, and municipal water.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "specific types or levels of public facilities, services or energy infrastructure" as a site characteristic. Some aviation businesses need water and wastewater service similar to commercial office space. Some aviation businesses, such as those involved in fire fighting, need access to large quantities of water.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – Industrial buildings, including those at airports, require access to municipal water,

municipal sanitary sewer, and electricity/gas. Developing a site with direct access to municipal services is substantially more cost-effective than extending municipal services to an unserved site.¹⁰

7. **Surrounding land uses.** Surrounding uses must be compatible with usage aircraft and meet FAA regulations.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0025(6) strongly encourages cities to manage encroachment and intrusion of incompatible uses with employment uses. Aviation uses are generally compatible with uses that do not interfere with airport operations and are located in single-story buildings. Compatible uses exclude businesses with bright outdoor lights, smoke, or other operational characteristics that would interfere with airport operations. Compatible uses must be tolerant of airport noise and other disruptions present at airports. Compatible uses generally include other aviation uses, some types of industrial uses, and services for passengers or workers at the airport.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" - Aviation uses are able to operate efficiency where they are not in conflicts with adjacent land uses that could disrupt aviation activity. Noise makes aviation uses incompatible with adjacent residential uses.
8. **Land ownership.** Land at public airports, like the Madras Airport, is publicly owned. Businesses are allowed to lease land or buildings at the airport. FAA regulations strongly discourage private ownership of land at public airports, especially where the Federal government has made investments in airport facilities.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "site configuration" as a site characteristic. The FAA requires public ownership of airport land where the Federal government has made investments in airport facilities. While the FAA does not review all leases, the FAA provides guidance on terms of leases at airports like the Madras Airport.¹¹

¹⁰ Miles, Mike E., Haney, Richard L., Bernes, Gayle, "Real Estate Development: Principles and Process," The Urban Land Institute, 1997.

¹¹ FAA Airport Compliance Manual – Order 5190.6b, Chapter 12.

- Attribute has "some meaningful connection with the operation of the industrial or employment use" – The FAA discourages or disallows private ownership of airport land to protect the public interest in investments in airport infrastructure. FAA review of leasing arrangements is designed to ensure that the airport “maintains a fee and rental structure that will make the airport as self-sustaining as possible and that the facilities of the airport are made available to the public on reasonable terms without unjust discrimination”¹²

Characteristics of Needed Sites for Manufacturing

The following summarizes the site characteristics for manufacturing, for businesses that locate at the Madras Airport and on other lands that allow industrial development in Madras. Potential users include target industries such as wood products, agricultural manufacturing and services, aviation manufacturing, aviation and aerospace research (such for UAVs), and other types of manufacturing. This section provides an overview of the two-prong test established for site characteristics under *Friends of Yamhill County v. City of Newberg*, 62 Or LUBA 5 (2010), *aff'd* 240 Or App 738 (2011).

1. **Site size.** Sites for manufacturing firms range in size from sites of one to five acres up to larger sites of 10 to 50 acres. Some manufacturing firms may prefer to locate in a manufacturing or flex business park, which range in size from about 25 acres or several hundred acres.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites “a minimum acreage” as a site characteristic. Business Oregon finds that competitively-sized general manufacturing firms have sites 10 acres in size. Competitive sites for heavy manufacturing, high-tech manufacturing, or campus industrial manufacturing require 25-acre sites. Competitive sites for regionally scaled clean technology require 50-acre sites.

The *Central Oregon Large Lot Industrial Land Need Analysis*¹³ documents need for six sites 50-acres and larger in Central Oregon for high technology manufacturing or alternative energy equipment manufacturing.

Some businesses will prefer to locate in manufacturing to flex

¹² FAA Airport Compliance Manual – Order 5190.6b, Chapter 12.

¹³ *Central Oregon Large Lot Industrial Land Need Analysis*, November 20, 2012.

business parks. Business parks are typically at least 25 acres in size to allow for development of multiple buildings and associated parking. In the Portland area, these parks generally range in size from about 25 acres to 50 acres, with a few examples of parks around 75, 100, or 300 acres.

Major employment sites with general industrial uses in the Portland Metro area range in size from 25 to 160 acres and average about 50 acres in size. Businesses parks will need to be at least 25 to 50 acres and possibly as large as 75 to 100 acres.

- Attribute has "some meaningful connection with the operation of the industrial or employment use" – Site size is important to general industrial users. The site needs to be large enough to accommodate the needed built space, as well as to accommodate storage space or space for future expansion. In addition, the site needs to be large enough to accommodate not only the general industrial uses, but also parking, on-site circulation, connections to public transportation, rail connections, and other access to the transportation network.
2. **Land ownership.** Sites with two or fewer owners are necessary to reduce the cost and uncertainty of land assembly. Some businesses will require the opportunity to own the site, rather than lease a site.
- Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "site configuration" as a site characteristic. Developing an industrial building on a site with more than two owners requires negotiating land assembly and purchase from multiple owners. Land assembly is difficult and often costly for a number of reasons. People own land for a variety of reasons, such as the desire to develop the land, keep the land undeveloped, or sell the land for a profit. Getting landowners to sell land can be difficult, especially if the ownership is legally disputed, as is the case with some inheritances. If a landowner is a willing seller, they may have an unrealistic expectation of their land's value, in the context of comparable land values. In addition, one parcel of land may have multiple owners, compounding the issues described above.

Developers attempting land assembly often have difficulty assembling a site at a cost that makes development economically viable. When assembling land, developers often find that owners of key sites are not willing sellers, have unrealistic expectations of the value of their land, or cannot get agreement among multiple

owners to sell the land. As a result, developers of industrial buildings typically choose to develop sites with one or two owners.

Sites that are available only for lease, such as sites at the Madras Airport, will not meet the needs of businesses who need to own the site and building where the business is located. At least six of the 31 businesses that considered locating at the Madras Airport Industrial Park did not locate there because sites at the Industrial Park are only available for leasing.

- Attribute has "some meaningful connection with the operation of the industrial or employment use" – The cost of land assembly, in financial terms and in terms of extra time needed for site assembly, can make developing an industrial site with multiple land owners financially infeasible.

Some businesses will only locate on sites that they own, rather than sites that they lease. This is most common for businesses that build or redevelop an existing building to meet their specific production needs.

3. **Automotive access.** Manufacturing buildings generally are located on arterial or major collector streets. Traffic from the industrial development should not be routed through residential neighborhoods. The ideal site would have direct access to an arterial or state highway.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "proximity to a particular transportation or freight facility such as rail, marine ports and airports, multimodal freight or transshipment facilities, and major transportation routes" as a site characteristic. Business Oregon finds that manufacturing and industrial firms need to be located relatively close to an interstate highway or principle arterial road, generally within 20 miles or less.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – This site characteristic helps to minimize the amount of traffic on local streets, minimize freight traffic in residential neighborhoods, improve mobility, minimize adverse effects on urban land use and travel patterns, and provide for efficient long distance travel, which are all necessary for effective industrial operations.
4. **Rail access.** Manufacturers that product bulky products, such as wood products manufacturing, may need access to a main line rail road from their site, via a rail spur, track siding, or reload facility.

- Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "proximity to a particular transportation or freight facility such as rail, marine ports and airports, multimodal freight or transshipment facilities, and major transportation routes" as a site characteristic. Manufacturing firms that ship freight via rail must have access to a rail spur with a connection to the main line railroad from their site.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – This site characteristic provides the opportunity to ship freight via rail.
5. **Topography.** Manufacturing sites should be relatively flat, with slopes of not more than 5%.
- Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites "site configuration including shape and topography" as a site characteristic. Business Oregon finds that competitive sites generally have a slope of 5% or less, except high tech manufacturing and campus industrial, which have a slope of 7% or less.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – Industrial buildings require level floorplates to reduce costs and offer maximum flexibility, as well as level areas to provide for freight access and pedestrian walkways that meet ADA standards. The real estate development literature describes the increases in development costs and other difficulties associated with industrial development on a sloped site.
6. **Access to services.** City services should be directly accessible to the site, including sanitary sewer, and municipal water.
- Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "specific types or levels of public facilities, services or energy infrastructure" as a site characteristic. Business Oregon finds that competitive sites must have access to urban services, including water, wastewater, natural gas, electricity, and major telecommunications facilities.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – Industrial buildings require access to municipal water, municipal sanitary sewer, and electricity/gas. Developing a site with direct access to municipal

services is substantially more cost-effective than extending municipal services to an unserved site.¹⁴

7. **Surrounding land uses.** Industrial buildings are directly compatible with other industrial uses, commercial uses, and agricultural uses.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0025(6) strongly encourages cities to manage encroachment and intrusion of incompatible uses with employment uses. Industrial uses are generally compatible with other industrial uses, commercial uses, and some public uses. Industrial uses may be compatible with agricultural uses, provided that the industrial use does not encroach on the agricultural uses.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" - Industrial uses are able to operate efficiently where they are not in conflicts with adjacent land uses that could disrupt industrial business activity. Noise or odor conflicts may make some industrial uses incompatible with nearby residential uses.

Characteristics of Needed Sites for Warehouse and Distribution

Many of Madras' industries are dependent on warehouse and distribution firms for distribution of products manufactured in Madras or Central Oregon, as well as for getting inputs into the sales or manufacturing process. The following summarizes the site characteristics and provides an overview of the two-prong test established for site characteristics under *Friends of Yamhill County v. City of Newberg*, 62 Or LUBA 5 (2010), *aff'd* 240 Or App 738 (2011).

1. **Site size.** Sites for warehouse and distribution range from a site smaller than five-acre site for local distribution to 25-acre sites for regional distribution. Local firms may need a site five-acre or smaller warehouse and distribution site. In contrast, regional distribution sites are 25 acres.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites "a minimum acreage" as a site characteristic. Business Oregon finds that competitively sized warehouse and distribution sites are 25 acres.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – Site size is important to

¹⁴ Miles, Mike E., Haney, Richard L., Bernes, Gayle, "Real Estate Development: Principles and Process," The Urban Land Institute, 1997.

warehouse and distribution. The site needs to be large enough to accommodate the needed built space, as well as accommodate storage space, space for trucks, or space for future expansion. In addition, the site needs to be large enough to accommodate employee parking.

2. **Freight and Automotive Access.** Warehouse and distribution buildings generally are located on arterial streets with good access to an interstate highway. Traffic from the warehouse and distribution development should not be routed through residential neighborhoods. In addition, some warehouse and distribution firms prefer to locate near to regional airports or main railroad lines. The ideal site would have nearby access to a state highway.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "proximity to a particular transportation or freight facility such as rail, marine ports and airports, multimodal freight or transshipment facilities, and major transportation routes" as a site characteristic. Business Oregon finds that warehouse and distribution firms need to be located within five miles of an interstate highway or equivalent (such as a State highway).
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – This site characteristic helps to minimize the amount of traffic on local streets, minimize freight traffic in residential neighborhoods and commercial areas, improve mobility, minimize adverse effects on urban land use and travel patterns, and provide for efficient long distance travel, which are all necessary for effective distribution operations.
3. **Topography.** Warehouse and distribution sites should be relatively flat, with slopes of not more than 5%.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites "site configuration including shape and topography" as a site characteristic. Business Oregon finds that competitive sites generally have a slope of 5% or less.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – Warehouse and distribution buildings require level floorplates to reduce costs and offer maximum flexibility, as well as level areas to provide for freight access and pedestrian walkways that meet ADA standards. The real estate development literature describes the increases in development costs and other difficulties associated with development on a sloped site.

4. **Access to services.** City services should be directly accessible to the site, including sanitary sewer, and municipal water.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0005(11) specifically cites the "specific types or levels of public facilities, services or energy infrastructure" as a site characteristic. Business Oregon finds that competitive sites must have access to urban services, including water, wastewater, natural gas, electricity, and telecommunications facilities.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" – Warehouse and distribution buildings require access to municipal water, municipal sanitary sewer, and electricity/gas. Developing a site with direct access to municipal services is substantially more cost-effective than extending municipal services to an unserved site.¹⁵

5. **Surrounding land uses.** Warehouse and distribution buildings are directly compatible with industrial uses, some commercial uses, and agricultural uses.
 - Attribute is "typical of the industrial or employment use" - OAR 660-009-0025(6) strongly encourages cities to manage encroachment and intrusion of incompatible uses with employment uses. Warehouse and distribution uses are generally compatible with other industrial uses or some commercial uses. Warehouse and distribution uses may be compatible with agricultural uses, provided that the industrial use does not encroach on the agricultural uses.
 - Attribute has "some meaningful connection with the operation of the industrial or employment use" - Warehouse and distribution uses are able to operate efficiently where they are not in conflicts with adjacent land uses that could disrupt business activity.

¹⁵ Miles, Mike E., Haney, Richard L., Bernes, Gayle, "Real Estate Development: Principles and Process," The Urban Land Institute, 1997.

Conclusions and Recommendations

The key findings of the EOA are that:

- **Madras has a surplus of land for commercial and retail uses.** Madras' commercial land surplus to accommodate growth for the 20-year planning period is about 28 gross acres. The majority of Madras' vacant commercial land is in the C-1 and CC zones, with concentrations of vacant land in the southern section of Madras along Highways 97 and 26 and the middle part of Madras along Highway 97.
- **Madras has a surplus of general industrial land.** The surplus of Industrial (I) land is about 69 gross acres. All of Madras' vacant industrial land is located at in the northern part of Madras, near the Madras Airport and along Highway 26. Two-thirds of Madras' vacant Industrial land is in two sites, one with 42 acres of vacant suitable land and the other with 75 suitable acres of vacant.
- **Madras has a limited number of smaller general industrial sites.** General industrial businesses in Madras will need sites on a variety of sizes, including sites smaller than 5-acres, sites 5 to 20 acres, and sites larger than 20 acres. Madras' supply of general industrial sites are all near the Airport, with five vacant suitable sites smaller than one acre, 10 sites between 1 to 2 acres, and seven sites between 2 and 5 acres.
- **Madras has a surplus of airport-related industrial land.** The surplus of Airport Development (AD) land is 91 gross acres, all of which is located at the Madras Airport. AD land is in a range of site sizes from one acre parcels to a 27 acre parcel.
- **Madras has a deficit of aviation sites with airside access to the taxiway and runways.** Madras has eight developed airside sites with hangars and direct access to the taxiway and runways. Most of the hangars at Madras' Airport were developed more than two decades ago. Two of these sites, Erikson Airtanker and the Erickson Aircraft Collection developed since 2010 and provide an example of modern hangar design.

Madras has one site within the UGB available for development of a new hangar with airside access. The Madras Airport Master Plan recommends that the Airport plan for hangar space for 58 additional aircraft, which will require about 78,000 square feet of hangar space.

Accommodating growth of about 60 aircraft at the Madras Airport will require availability of about six spaces for new hangars, assuming that each hangar is about 10,000 to 15,000 square feet in size. At an average of 2.5 acres per hangar, six new hangars will need about 15 acres of land.

Madras has one vacant hangar site within the UGB. Madras will need five additional sites for hangars, on about 13 suitable acres of land. These five sites must be located airside and have direct access and taxiways. The sites must include sufficient space between hangars to allow for safe maneuvering of aircraft.

Based on these findings and the analysis in the EOA, we provide the following recommendations:

- **Madras should provide a variety of types of sites for employment.** Not all traded-sector employment is industrial or will locate in industrial areas. Traded-sector businesses are businesses that produce goods or services that are exported out of the community, thereby bringing money into the community. Some examples of traded-sector businesses in office settings include software development, professional and technical services that provide services outside of the community, or finance and insurance businesses that provide services outside of the community.

These types of traded-sector employment may locate in a variety of locations and building types, such as in an office building in downtown or in an office park. By implication, Madras will need to provide a variety of opportunities for employment growth in industrial areas, in commercial areas, and in mixed-use areas like downtown. Madras should evaluate opportunities for developing a zone that will allow a mixture of industrial and non-residential commercial employment. The best area for this type of zone would be along a State highway, in an area with vacant land in sizes ranging from smaller than an acre up to 10-acre sites.

- **Madras should evaluate whether the existing industrial land supply meets the City's economic development goals.** All of the land is located near the airport, along Highway 26 and two-thirds of the land is concentrated in two larger sites. Discussions with City staff and EDCO staff indicate that the owner of the larger site is unwilling to sell or lease the land and has no apparent intention of doing so in the foreseeable future.

In addition, Madras has 24 Industrial sites smaller than five acres (about 50 acres of land), all of which are located near the Madras Airport. More than 90% of existing employment in Madras is located on sites smaller than five acres, with nearly all of Madras' employment on Industrial zoned sites located on sites smaller than five acres.

The site needs of the target general industrial industries suggest that they will need sites in a variety of sizes, including small sizes, in a variety of locations throughout the city, with access to state highway, as well as some

with access to rail. The City should evaluate opportunities to rezone land within Madras in areas that meet the needs of smaller industrial and traded sector industries.

- **Madras should continue to coordinate economic development opportunities at the Madras Airport to further the community's economic development goals.** Although land at the Madras Airport is not within the UGB, this land is a key economic development asset. Much of the recent economic growth in Madras is focused on city-owned land at the Airport, with the planned expansion of a business involved in vehicle testing. Land at the Madras Airport is city-owned, which gives the City opportunities to focus on development of businesses that meet the City's economic development objectives, especially with attracting family-wage jobs.
- **Madras should work with Jefferson County to ensure that development can continue to occur at airside sites at the Madras Airport.** The EOA identified the importance of and need for additional hangar space at the Madras Airport, on sites with airside access. The majority of land at the Madras Airport with airside access is in unincorporated Jefferson County. The City has been and should continue to work with the County to develop new hangars and other airside facilities at the Madras Airport. In the future, if there are barriers that prevent development of these sites and those barriers would be lowered or eliminated by bringing this land into the Madras UGB, the City may want to consider such a UGB expansion.
- **Encourage redevelopment of existing commercial areas.** The City has a substantial supply of commercial land, some of which may have redevelopment potential over the next 20 years. However, as the City develops new residential areas, these areas may need commercial development to provide commercial retail nodes in new neighborhoods.

The City should encourage redevelopment of underutilized commercial areas in places with demand for new commercial development. The City has policies to facilitate redevelopment of employment areas, such as designating areas as urban renewal areas.

The City can also encourage redevelopment by limiting land available for development. This approach is most effective at encouraging retail and retail service redevelopment. Redevelopment generally occurs because the achievable rents on a specific site exceed the costs of development, making development financially feasible. In addition, a business may want to locate in a specific district or location.

- **Madras should revise its land development policies to meet the needs identified in the EOA.** Madras may need to update its Comprehensive Plan policies to align with the City's economic development goals. In

addition, the City may need to redesignate or rezone land to meet the needs identified in the EOA, especially for small to mid-sized industrial sites in areas away from the Madras Airport. The surplus of commercial land in the southern portion of the Madras UGB, along Highways 97 and 26, provide an opportunity for rezoning land from commercial uses to employment uses in a new zone that allows both commercial and light industrial employment, focusing on traded-sector employment.

- **Madras should monitor and report on industrial and commercial land development.** The City should monitor and report on development and redevelopment of employment land. Monitoring can help the City understand where there is employment land pressure, allowing the City to better respond to the market. Monitoring also allows the City to track land development, as a means to ensure a long-term supply of industrial land.

Appendix A. Economic Trends and Factors Affecting Future Economic Growth in Madras

Madras exists as part of the larger economy of Central Oregon and is strongly influenced by regional economic conditions. This chapter summarizes national, state, county, and local trends and other factors affecting economic growth in Madras. Each heading in this chapter represents a key trend or economic factor that will affect Madras' economy and economic development potential.

National, State, and Regional Trends

Economic development in Madras over the next 20 years will occur in the context of long-run national trends. The most important of these trends include:

- **Economic growth will continue at a moderate pace.** Analysis from the Congressional Budget Office (CBO) predicts that, following a slow recovery from the recession, the economy will grow at a solid pace in 2014 and for the next few years. Annual growth rates (in real GDP) are projected to be roughly 3% through 2017.

Unemployment rates have also improved with the recovery, and the CBO expects continued decline, but CBO estimates that it will remain above 6.0% until late 2016.

Beyond 2017, the CBO projects that economic growth will decline to a pace below the average seen over the past several decades. This expectation reflects long-term trends—in particular, slower growth in the labor force due to the aging of the population.

- **The aging of the baby boom generation, accompanied by increases in life expectancy.** The number of people age 65 and older will more than double by 2050, while the number of working age people under age 65 will grow only 19%. The economic effects of this demographic change include a slowing of the growth of the labor force, an increase in the demand for healthcare services, and an increase in the percent of the federal budget dedicated to Social Security and Medicare.¹⁶

Baby boomers are expecting to work longer than previous generations. An increasing proportion of people in their early to mid-50s expect to work full-time after age 65. In 2004, about 40% of these workers

¹⁶ The Board of Trustees, Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds, 2011, *The 2011 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*, May 13, 2011.

expected to work full-time after age 65, compared with about 30% in 1992.¹⁷ This trend can be seen in Oregon, where the share of workers 65 years and older grew from 2.9% of the workforce in 2000 to 4.1% of the workforce in 2010, an increase of 41%. Over the same ten-year period, workers 45 to 64 years increased by 15%.¹⁸

- **Need for replacement workers.** The need for workers to replace retiring baby boomers will outpace job growth. According to the Bureau of Labor Statistics, net replacement needs will be 33.7 million job openings over the 2010-2020 period, compared with growth in employment of 21.1 million jobs. The occupations with the greatest need for replacement workers include: retail sales, food service, registered nurses, office workers and teachers.¹⁹
- **The importance of education as a determinant of wages and household income.** According to the Bureau of Labor Statistics, a majority of the fastest growing occupations will require an academic degree, and on average, they will yield higher incomes than occupations that do not require an academic degree. The fastest growing occupations requiring an academic degree will be: health care service, computer programming, management and business services, college teachers, and architectural and engineering services. Occupations that do not require an academic degree (e.g., retail sales person, food preparation workers, and home care aides) will grow, accounting for more than two-thirds of all new jobs by 2020. These occupations typically have lower pay than occupations requiring an academic degree.²⁰

The national median income in 2013 was about \$43,004. Workers without a high school diploma earned \$18,460 less than the median income, and workers with a high school diploma earned \$9,152 less than median income. Workers with some college earned slightly less than median, and workers with a bachelor's degree earned \$14,612 more than median. Workers in Oregon experience the same patterns as the nation, but pay is generally lower in Oregon than the national average.²¹

¹⁷ "The Health and Retirement Study," 2007, National Institute of Aging, National Institutes of Health, U.S. Department of Health and Human Services.

¹⁸ Analysis of 2000 Decennial Census data and 2010 U.S. Census American Community Survey, 1-Year Estimates for the table Sex by Age by Employment Status for the Population 16 Years and Over

¹⁹ "Occupational Employment Projections to 2010-2020," Bureau of Labor Statistics, February 2012.

²⁰ "Occupational Employment Projections to 2010-2020," Bureau of Labor Statistics, February 2012.

²¹ Bureau of Labor Statistics, Employment Projections, March 2014.
http://www.bls.gov/emp/ep_chart_001.htm

- **Need for diversity in the skills of workers.** While workers with academic degree or “high” skills are forecast to continue to be in demand (e.g., managers, lawyers, engineers, or health care practitioners), businesses will need other skilled workers. These workers, termed “middle-skill,” are in occupations such as sales, administrative support, construction, maintenance, or transportation. Middle-skill workers may have a high school diploma or may have completed an Associate’s degree but are less likely to have a Bachelor’s degree. Middle-skill workers have specialized skills and need more training than a high school diploma.

The Oregon Department of Employment projects that about 28% of job openings in Oregon between 2010 and 2020 will be in middle-skill occupations.²²

- **Increases in labor productivity.** Productivity, as measured by output per hour, increased over the 1995 to 2005 period. The largest increases in productivity occurred over the 1995 to 2000 period, led by industries that produced, sold, or intensively used information technology products. Productivity increased over the 2000 to 2005 period but at a slower rate than during the later half of the 1990’s. The sectors that experienced the largest productivity increases over the 2000 to 2005 period were: Information, Manufacturing, Retail Trade, and Wholesale Trade. Productivity in mining decreased over the five-year period. Productivity continued to increase after 2005, growing at an average annual growth rate of 1.7% over the 2007-2013 period.²³
- **Continued shift of employment from manufacturing and resource-intensive industries to the service-oriented sectors of the economy.** Increased worker productivity and the international outsourcing of routine tasks lead to declines in employment in the major goods-producing industries. Projections from the Bureau of Labor Statistics indicate that U.S. employment growth will continue to be strongest in healthcare and social assistance, professional and business services, and other service industries. Construction employment will also grow but manufacturing employment will decline.²⁴

²² “A careful Analysis of Oregon’s middle-Skill Jobs,” July 2012 Oregon Employment Department.

²³ Corey Holman, Bobbie Joyeaux, and Christopher Kask, “Labor Productivity trends since 2000, by sector and industry,” Bureau of Labor Statistics *Monthly Labor Review*, February 2008. Shawn Sprague, “What Can Labor Productivity tell us about the Economy,” Bureau of Labor Statistics, May 2014 http://www.bls.gov/opub/btn/volume-3/what-can-labor-productivity-tell-us-about-the-us-economy.htm#_edn3.

²⁴ “Occupational Employment Projections to 2010-2020,” Bureau of Labor Statistics, February 2012.

- **Continued increase in demand for energy.** Energy prices are forecast to remain at relatively high levels, with continued, gradual increased prices over the planning period. While energy use per capita is expected to decrease to 2040, total energy consumption will increase with rising population. Energy consumption is expected to grow primarily from industrial and (to a lesser extent) commercial users, and remain relatively flat by residential users. Energy consumption for transportation is expected to decrease, as federal standards for energy efficiency in vehicles increases.

Energy consumption by type of fuel is expected to change over the planning period. By 2040, the U.S. will consume a little less oil and more natural gas and renewables. Despite increases in energy efficiency and decreases in demand for energy by some industries, demand for energy is expected to increase over the 2013 to 2040 period because of increases in population and economic activity.²⁵

- **Impact of rising energy prices on commuting patterns.** Energy prices may continue to be high (relative to historic energy prices) or continue to rise over the planning period.²⁶ The increases in energy prices may impact willingness to commute long distances.
- **Potential impacts of global climate change.** There is a consensus among the scientific community that global climate change is occurring and will have important ecological, social, and economic consequences over the next decades and beyond.²⁷ Extensive research shows that Oregon and other western states already have experienced noticeable changes in climate and predicts that more change will occur in the future.²⁸

²⁵ Energy Information Administration, 2013, *Annual Energy Outlook 2013 with Projections to 2040 Early Release Overview*, U.S. Department of Energy, December 2012.

²⁶ Energy Information Administration, 2014, *Annual Energy Outlook 2014 with Projections to 2040 Early Release Overview*, U.S. Department of Energy, April 2014.

²⁷ Karl, T.R., J.M. Melillo, and T.C. Peterson, eds. 2009. *Global Climate Change Impacts in the United States*. U.S. Global Change Research Program. June. Retrieved June 16, 2009, from www.globalchange.gov/usimpacts; and Pachauri, R.K. and A. Reisinger, eds. 2007. *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*.

²⁸ Doppelt, B., R. Hamilton, C. Deacon Williams, et al. 2009. *Preparing for Climate Change in the Upper Willamette River Basin of Western Oregon*. Climate Leadership Initiative, Institute for a Sustainable Environment, University of Oregon. March. Retrieved June 16, 2009, from http://climlead.uoregon.edu/pdfs/willamette_report3.11FINAL.pdf and Doppelt, B., R. Hamilton, C. Deacon Williams, et al. 2009. *Preparing for Climate Change in the Rogue River Basin of Southwest Oregon*. Climate Leadership Initiative, Institute for a Sustainable Environment, University of Oregon. March. Retrieved June 16, 2009 from http://climlead.uoregon.edu/pdfs/ROGUE%20WS_FINAL.pdf

In the Pacific Northwest, climate change is likely to (1) increase average annual temperatures, (2) increase the number and duration of heat waves, (3) increase the amount of precipitation falling as rain during the year, (4) increase the intensity of rainfall events, and 5) increase sea level. These changes are also likely to reduce winter snowpack and shift the timing of spring runoff earlier in the year.²⁹

These anticipated changes point toward some of the ways that climate change is likely to impact ecological systems and the goods and services they provide. There is considerable uncertainty about how long it would take for some of the impacts to materialize and the magnitude of the associated economic consequences.

Short-term national trends will also affect economic growth in the region, but these trends are difficult to predict. At times, these trends may run counter to the long-term trends described above. A recent example is the downturn in economic activity in 2008 and 2009 following declines in the housing market and the mortgage banking crisis. The result of the economic downturn was a decrease in employment related to the housing market, such as construction and real estate. Employment in these industries continue recover as the housing market recovers and will continue to play a significant role in the national, state, and local economy over the long run. This report takes a long-run perspective on economic conditions (as the Goal 9 requirements intend) and does not attempt to predict the impacts of short-run national business cycles on employment or economic activity.

State, Regional, and Local Trends

State, regional, and local trends will also affect economic development in Madras over the next 20 years. The most important of these trends includes: continued in-migration from other states, distribution of population and employment across the state, and change in the types of industries in Oregon.

²⁹ Mote, P., E. Salathe, V. Duliere, and E. Jump. 2008. *Scenarios of Future Climate for the Pacific Northwest*. Climate Impacts Group, University of Washington. March. Retrieved June 16, 2009, from <http://cses.washington.edu/db/pdf/moteetal2008scenarios628.pdf>; Littell, J.S., M. McGuire Elsner, L.C. Whitely Binder, and A.K. Snover (eds). 2009. "The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate - Executive Summary." In *The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate*, Climate Impacts Group, University of Washington. Retrieved June 16, 2009, from www.cses.washington.edu/db/pdf/wacciaexecsummary638.pdf; Madsen, T. and E. Figdor. 2007. *When it Rains, it Pours: Global Warming and the Rising Frequency of Extreme Precipitation in the United States*. Environment America Research & Policy Center and Frontier Group.; and Mote, P.W. 2006. "Climate-driven variability and trends in mountain snowpack in western North America." *Journal of Climate* 19(23): 6209-6220.

- **Continued in-migration from other states.** Oregon will continue to experience in-migration from other states, especially California and Washington. According to a U.S. Census study, Oregon had net interstate in-migration (more people moved *to* Oregon than moved *from* Oregon) during the period 1990-2010. Oregon had an annual average of 26,290 more in-migrants than out-migrants during the period 1990-2000, while the annual average dropped to 9,800 during the period 2000-2010. Between 2010 and 2013, the annual average was 15,612 a year.³⁰
- **Change in the type of the industries in Oregon.** As Oregon has transitioned away from natural resource-based industries, the composition of Oregon's employment has shifted from natural resource based manufacturing and other industries to service industries. The share of Oregon's total employment in Service industries increased from its 1970s average of 19% to 59% in 2013, while employment in Manufacturing declined from an average of 18% in the 1970s to an average of 10% in 2013.
- **Continued importance of manufacturing to Oregon's economy.** In 2013, Oregon's exports totaled over \$18.6 billion. Oregon's largest export industries were computer and electronic products and agricultural products, which accounted for nearly half of Oregon's exports. In 2014, Oregon's exports climbed about 11% to reach \$20.9 billion.³¹
- **Small businesses continue to account for a large share of employment in Oregon.** While small firms played a large part in Oregon's expansion between 2003 and 2007, they also suffered disproportionately in the recession and its aftermath (64% of the net jobs lost between 2008 and 2010 were from small businesses).

In 2013, small businesses (those with fewer than 100 employees) accounted for 96% of all businesses and 41% of all private-sector employment in Oregon. Said differently, most businesses in Oregon are small (in fact, 77% of all businesses have fewer than 10 employees), but the largest share of Oregon's workers work for large businesses.

The average annualized payroll per employee at small businesses (less than 100) was about \$34,248 in 2012, which is considerably less than that

³⁰ Portland State University Population Research Center, Population Report, Components of Population Change for 1990-2000, 2000-2010, and 2010-2013. <http://pdx.edu/prc/annual-oregon-population-report>.

³¹ U.S. Census Bureau, State Exports from Oregon, <http://www.census.gov/foreign-trade/statistics/state/data/or.html>. International Trade Administration, Oregon Exports, Jobs, and Foreign Investment, <http://www.trade.gov/mas/ian/statereports/states/or.pdf>.

at large businesses (\$48,938) and the statewide average for all businesses (\$42,887).³²

Factors Affecting Economic Growth in Madras

Availability of Labor

The availability of trained workers in Madras will impact development of Madras' economy over the planning period. Key trends that will affect the workforce in Madras over the next 20 years include its growing population, aging population, and commuting trends.

Growing Population

Population growth in Oregon tends to follow economic cycles. Historically, Oregon's economy is more cyclical than the nation's, growing faster than the national economy during expansions, and contracting more rapidly than the nation during recessions. Oregon grew more rapidly than the U.S. in the 1990s (which was generally an expansionary period) but lagged behind the U.S. in the 1980s. Oregon's slow growth in the 1980s was primarily due to the nationwide recession early in the decade. As the nation's economic growth slowed during 2007, Oregon's population growth began to slow.

Oregon's population grew from 2.8 million people in 1990 to 3.9 million people in 2012, an increase of over 1,000,000 people at an average annual rate of 1.43%. Oregon's growth rate slowed to 1.06% annual growth between 2000 and 2012.

Table A-1 shows that Madras' population grew faster, on a percentage basis, than the State's between 1990 and 2013, expanding by 2.6% annually and adding over 2,800 people over the 23-year period. Madras' population also grew faster than Jefferson County as a whole, which grew by 2.1% annually and added 8,364 residents.

Table A-1. Population in the U.S., Oregon, Jefferson County, Madras 1990-2013

Area	Population			Change 1990 to 2013		
	1990	2000	2014	Number	Percent	AAGR
U.S.	248,709,873	281,421,906	318,857,056	70,147,183	28%	1.0%
Oregon	2,842,321	3,421,399	3,962,710	1,120,389	39%	1.4%
Jefferson County	13,676	19,150	22,205	8,529	62%	2.0%
Madras	3,443	5,130	6,260	2,817	82%	2.5%

Source: Portland State University, Population Research Center

Note: AAGR is average annual growth rate.

³² U.S. Census Bureau, 2011 and 2012 Statistics of U.S. Businesses, Annual Data, Enterprise Employment Size, U.S. and States.

Migration is the largest component of population growth in Oregon. Between 1990 and 2010, in-migration accounted for 68% of Oregon’s population growth. Over the same period, in-migration accounted for roughly 62% of population growth in Jefferson County, adding more than 8,000 residents over the 20-year period.

Aging Population

The number of people age 65 and older in the U.S. is expected to double by 2050, while the number of people under age 65 will only grow by 12%. The economic effects of this demographic change include a slowing of the growth of the labor force, need for workers to replace retirees, aging of the workforce for seniors that continue working after age 65, an increase in the demand for healthcare services, and an increase in the percent of the federal budget dedicated to Social Security and Medicare.³³

The average age of Madras residents is increasing. Table A-2 shows the change in age distribution between 2000 and 2010. All age groups gained population. The age group that experienced the largest growth over the ten-year period—in terms of population (487 people) as well as percentage change (60%)—were those between the ages of 45 and 64. This trend is consistent with statewide trends.

Table A-2. Population by age, Madras, 2000 and 2010

Age Group	2000		2010		Change 2000-2010		
	Number	Percent	Number	Percent	Number	Percent	Share
Under 5	521	10%	602	10%	81	16%	0%
5-17	1,158	23%	1,260	21%	102	9%	-2%
18-24	538	11%	620	10%	82	15%	0%
25-44	1,509	30%	1,638	27%	129	9%	-3%
45-64	818	16%	1,305	22%	487	60%	5%
65 and over	534	11%	621	10%	87	16%	0%
Total	5,078	100%	6,046	100%	968	19%	0%

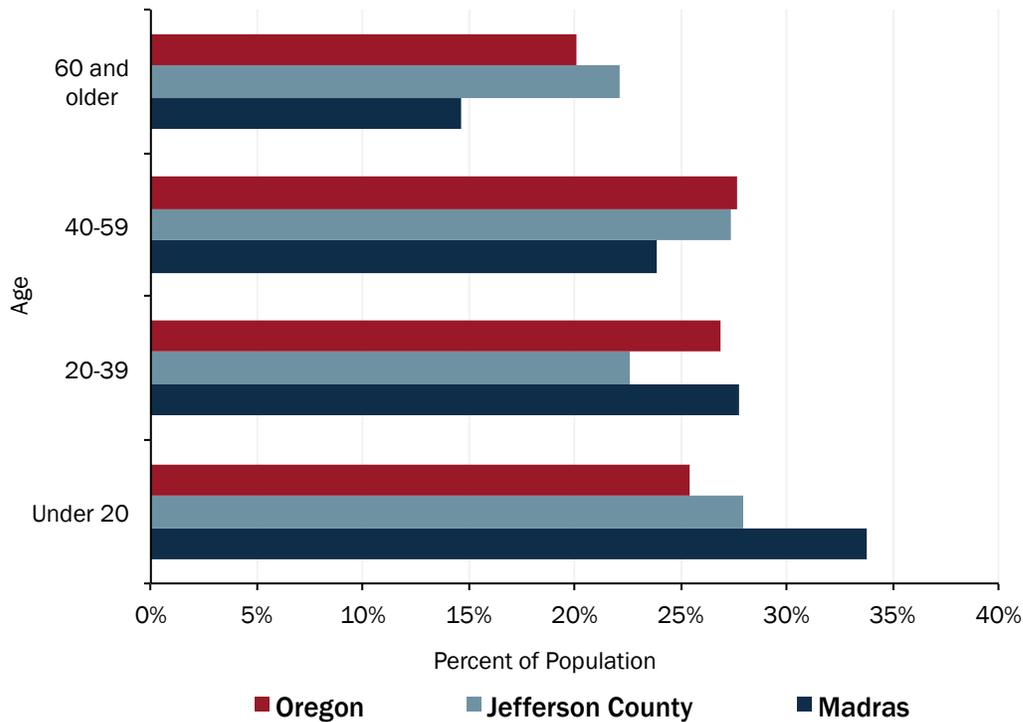
Source: U.S. Census 2000 Table P12, U.S. Census 2010 Table P12

³³ The Board of Trustees, Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds, 2008, *The 2008 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*, April 10, 2008. *The Budget and Economic Outlook: Fiscal Years 2007 to 2016*, January; and Congressional Budget Office, 2005, *The Long-Term Budget Outlook*, December.

Madras has a younger population than Jefferson County and Oregon as a whole. Table A-3 shows the age structure for Oregon, Jefferson County and Madras in 2010. Madras has a larger share of residents under the age of 20, and between the ages of 20 and 39 than Jefferson County and the State. Madras also has a comparatively smaller share of residents aged 40 and older.

The median age of Madras' residents in 2010 was 32 years old, compared to 40 in Jefferson County and 39 in the State as a whole.

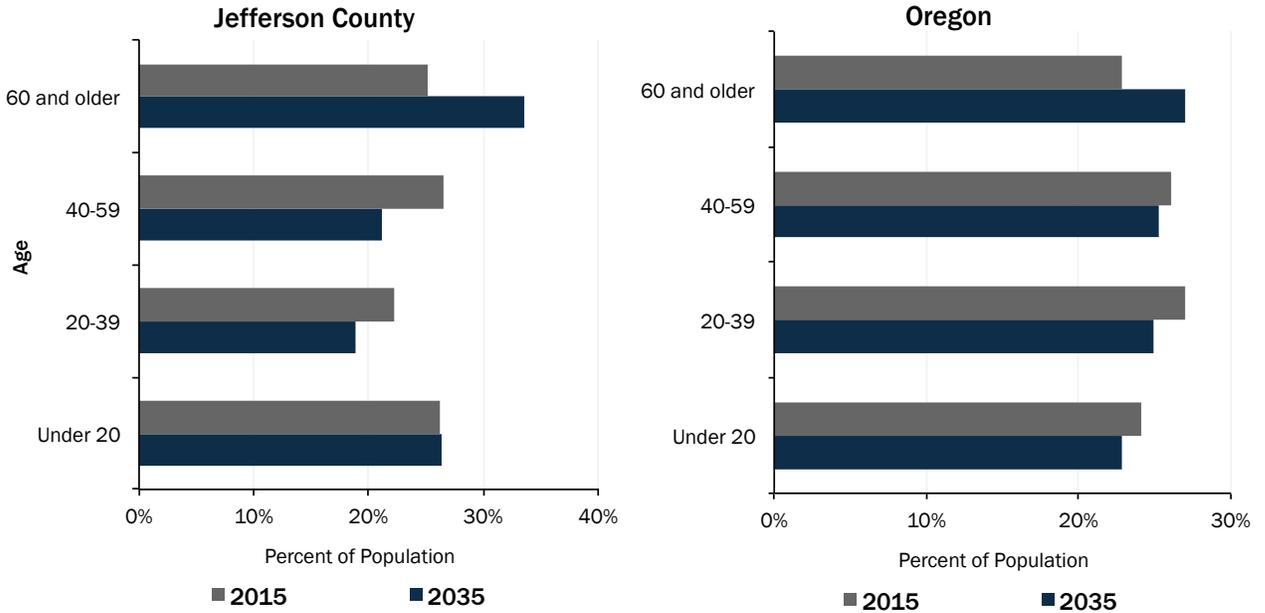
Table A-3. Population distribution by age, Oregon, Jefferson County, and Madras, 2010



Source: U.S. Census 2010, Profile of General Population and Housing Characteristics

Table A-4 shows the Oregon Office of Economic Analysis' (OEA) projection of the age structure in Jefferson County and Oregon in 2015 and 2035. The OEA projects that the share of the population over the age of 60 in Jefferson County will grow from 25% in 2015 to 34% in 2035, while Oregon will see an increase from 23% to 27%.

Table A-4. Current and projected population by age, Jefferson County and Oregon, 2015 and 2035



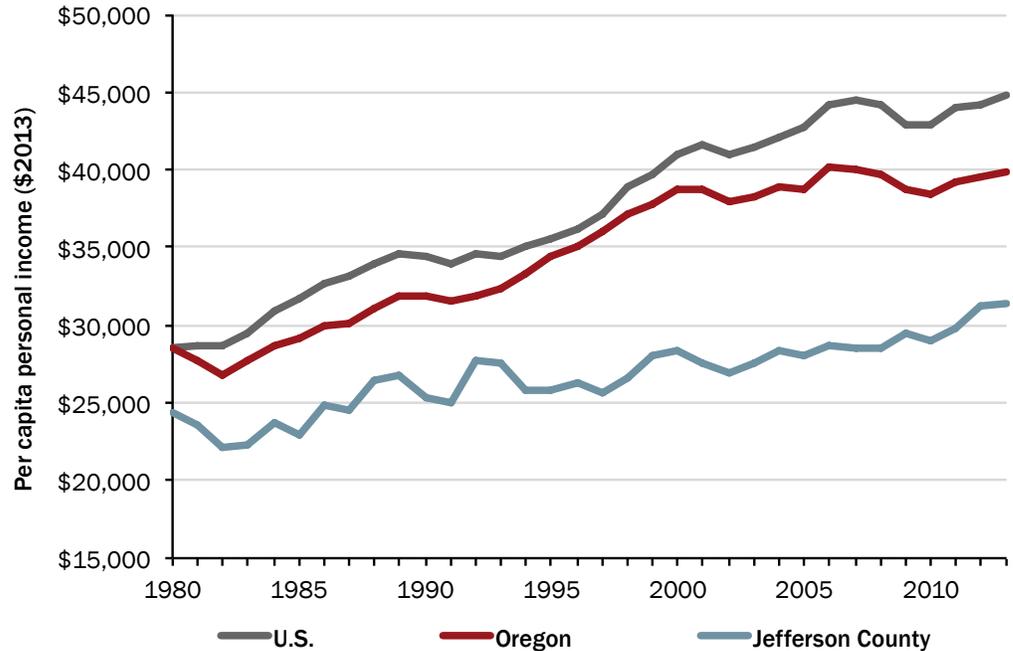
Source: Oregon Office of Economic Analysis: <http://www.oregon.gov/DAS/OEA/Pages/demographic.aspx>.
 Note: OEA develops demographic forecasts for counties and the state as a whole, but not individual cities and towns.

Income

Figure A-1 shows the change in per capita personal income for the U.S., Oregon, and Jefferson County between 1980 and 2013 (in constant 2013 dollars). Per capita income increased annually during the 33-year period, with the exception of decreases observed during recessions (such as the 2007-2009 period). Since 1980, Oregon's per capita personal income has consistently been lower than the U.S. average. In 1980, Oregon's per capita personal income was 100% of the national average and by 2013, this had decreased to 89% of the national average.

Jefferson County's per capita income has consistently been lower than National and State averages. In 1980, Jefferson County's per capita income was 85% of both the national and state average, and decreased to 70% and 79%, respectively, by 2013.

Figure A-1. Per capita personal income in the U.S., Oregon, and Jefferson County, 1980-2013, (2013 dollars)



Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce, Table CA1-3. <http://www.bea.gov/iTable/iTable.cfm?ReqID=70&step=1>.

In 2013, the median household income in Madras was \$38,934, compared to \$43,373 in Jefferson County, and \$50,229 in Oregon as a whole. Figure A-2 shows the distribution of household income in Oregon, Jefferson County and Madras between 2009 and 2013. About 68% of Madras' households had income of less than \$50,000, compared with 51% of State households.

Figure A-2. Household Income, Oregon, Jefferson County, and Madras, 2009-2013

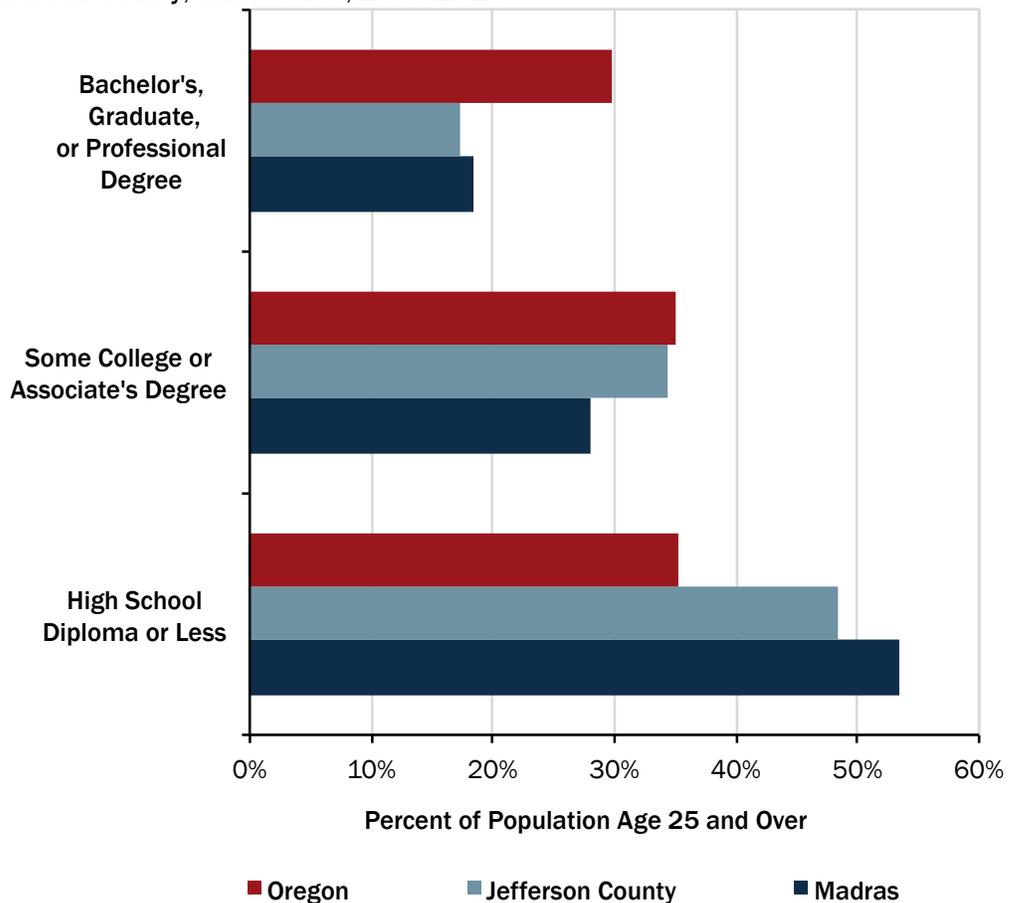


Source: American Community Survey, 2013; Table B19001

Educational Attainment

The availability of trained, educated workers affects the quality of labor in a community. Educational attainment is an important labor force factor because firms need to be able to find educated workers. Figure A-3 shows the share of population by education level completed in Oregon, Jefferson County, and Madras between 2009 and 2013. During this period, Madras and Jefferson County had similar shares of residents above the age of 25 with a bachelor's degree or higher (18% and 17%, respectively), which was lower than the State's share, at 30%. Madras also had a higher share of residents with a high school diploma or less (54%) than Jefferson County (48%) and the state as a whole (35%), and a lower share with some college or an associates degrees (28%, versus 34% in Jefferson County and 35% in Oregon).

Figure A-3. Educational attainment for the population 25 years and over, Oregon, Jefferson County, and Madras, 2009-2013

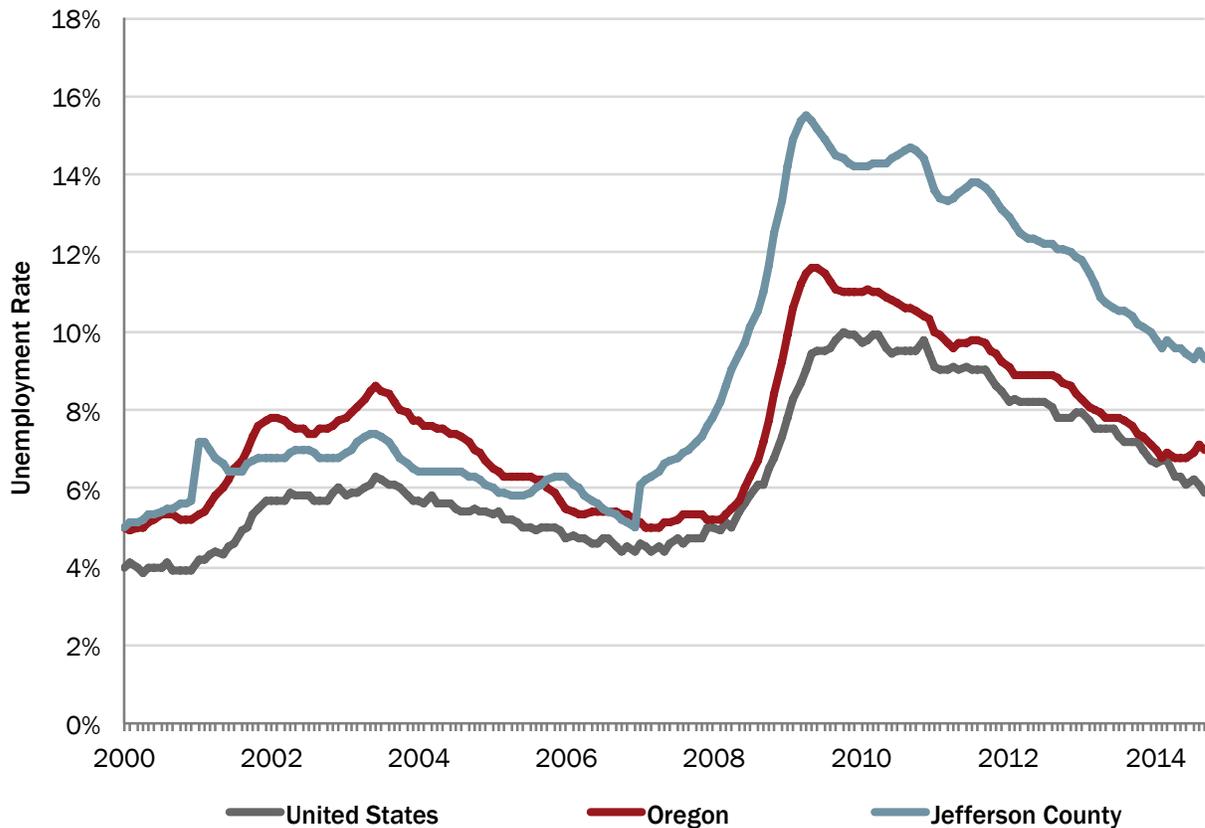


Source: 2009-2013 American Community Survey, B15003

Unemployment

The unemployment rate is one indicator of the relative number of workers who are actively seeking employment. Figure A-4 shows the unemployment rate for the U.S., Oregon, and Jefferson County 2000 and 2014. During this period, Oregon's unemployment rate was consistently higher than the nation's. Between 2000 and 2007, prior to the recession, Jefferson County's unemployment rate was similar to, or below, that of Oregon. The recession had an immediate impact on Jefferson County's unemployment rate, however, and it has remained substantially higher than that of both Oregon and the nation since.

Figure A-4. Unemployment Rate, U.S., Oregon, Jefferson County, and Madras, 2000-2014



Source: Bureau of Labor Statistics, via Oregon Labor Market Information System: <http://www.qualityinfo.org/olmisj/labforce>

Commuting Patterns

Commuting plays an important role in Madras' economy because employers in Madras are able to access workers from people living in Madras, as well as the broader Central Oregon region. Figure A-5 shows that in 2011 2,248 people commuted into Madras for work, 836 worked and lived in Madras, and 1,436 people live in Madras and work elsewhere.

Figure A-5. Inflow and outflow of labor in Madras, 2011



Source: U.S. Census Bureau: LED on the Map, <http://lehdmap3.did.census.gov/themap3/>.

Table A-5 shows where Madras residents go to work. Workers commute into Madras primarily from within Jefferson County (62%), as well as Deschutes County (15%). Roughly three-quarters of Madras' workforce commute in from other cities, including Redmond, Bend, Culver, and Prineville.

Table A-5. Where Madras residents work, 2011

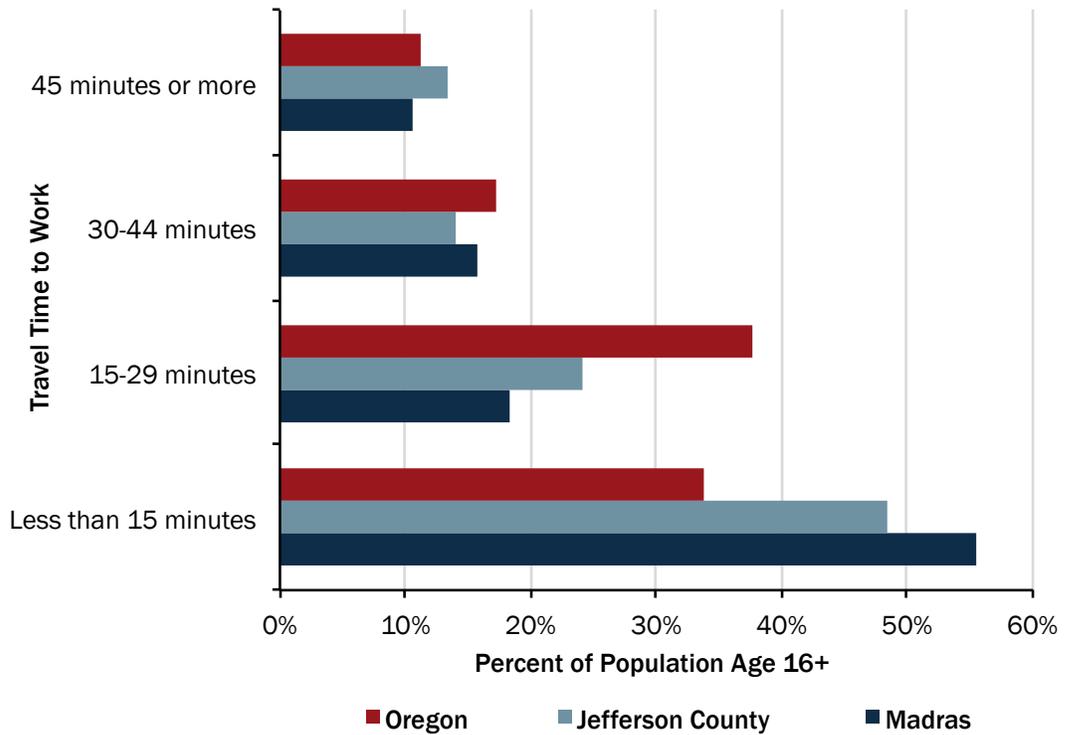
Location	Number	Percent
Counties		
Jefferson County	1,902	62%
Deschutes County	468	15%
Crook County	145	5%
Klamath County	82	3%
Wasco County	61	2%
Harney County	58	2%
Marion County	37	1%
Multnomah County	34	1%
All other counties	297	10%
Cities		
Madras	836	27%
Redmond	205	7%
Bend	114	4%
Culver	112	4%
Prineville	63	2%
All other cities	1,754	57%
Total	3,084	100%

Source: U.S. Census Bureau: LED on the Map,
<http://lehdm3.did.census.gov/themap3/>

These commuting patterns show that Madras' firms have access to workforce living throughout the region. Even though commutes in Madras are generally shorter than the State average, these commuting patterns create demand for automotive and other forms of transportation, both within Madras and on roads throughout the region.

Figure A-6 shows travel time to work for commuters in Oregon, Jefferson County, and Madras in the 2009-2013 period. About 56% of Madras residents have a commute of less than 15 minutes, compared to 48% in Jefferson County, and 34% in the state as a whole.

Figure A-6. Travel time to work, Oregon, Jefferson County, Madras, 2009-2013



Source: 2009-2013 American Community Survey, B08303.

Over the long-term, increasing energy prices may impact commuting patterns within Madras. The impact is most likely to be greatest for workers living in the cities and areas outside of Madras, because the commute to Madras is longer from these outlying cities and areas. Willingness to commute by most workers living and working within Madras is likely to have relatively little impact from fuel prices, unless prices increase or decrease dramatically.

Changes in Employment

The national economy changed substantially between 1980 and 2014. These changes have affected the composition of Oregon's economy, including that of Madras. At the national level, the most striking change was the shift from manufacturing employment to services. The most important shift in Oregon (including Madras) during this period has been the shift from a timber-based economy to a more diverse economy, with a concentration of employment in the services sector.

Employment Trends in Jefferson County and Madras

Over the past few decades, employment in the U.S. has shifted from manufacturing and resource-intensive industries to service-oriented sectors of the economy. Increased worker productivity and the international outsourcing of routine tasks have led to declines in employment in the major goods-producing industries.

In the 1970s, Oregon started to transition away from reliance on traditional resource-extraction industries. An important indicator of this transition is the shift within Oregon's manufacturing sector, with a decline in the level of employment in the Lumber & Wood Products industry³⁴ and concurrent growth of employment in high-technology manufacturing industries (Industrial Machinery, Electronic Equipment, and Instruments).³⁵

As Oregon has transitioned away from natural resource-based industries, the composition of Oregon's employment has generally shifted away from natural resource-based manufacturing to service industries. The share of Oregon's total employment in Service industries, for example, increased from its 1970s average of 19% to 30% in 2000, while employment in Manufacturing declined from an average of 18% of total employment in the 1970s to an average of 12% in 2000.

The long-term employment trends in the Jefferson County are similar to those observed for national and state employment. Table A-6 and Table A-7 present data from the Bureau of Labor Statistics and the Oregon Employment Department that show changes in covered employment for Jefferson County between 1980 and 2013.³⁶ The changes in sectors and industries are shown in two tables: (1) between 1980 and 2000 and (2) between 2001 and 2013. The analysis is

³⁴ Lumber and Wood Products manufacturing is in Standard Industrial Classification (SIC) 24

³⁵ SIC 35, 36, 38

³⁶ Covered employment refers to jobs covered by unemployment insurance, which includes most wage and salary jobs but does not include sole proprietors, seasonal farm workers, and other classes of employees.

divided in this way because of changes in industry and sector classification that make it difficult to compare information about employment collected after 2001 with information collected prior to 2000.

Employment data in this section is summarized by *sector*, each of which includes several individual *industries*. For example, the Retail Trade sector includes General Merchandise Stores, Motor Vehicle and Parts Dealers, Food and Beverage Stores, and other retail industries.

Table A-6 shows changes in covered employment by sector in Jefferson County between 1980 and 2000. Covered employment grew from 3,664 to 6,553, an increase of 79% or 2,889 jobs. Every sector except for construction added jobs during this period. The private sectors with the greatest change in employment were Manufacturing, Retail Trade, and Services, adding a total of 2,064 jobs or about 71% of all new jobs.

Table A-6. Covered employment by Industry, Jefferson County, 1980-2000

Sector	1980	1990	2000	Change 1980 to 2000			
				Difference	Percent	AAGR	Share
Agriculture, Forestry, and Fishing	144	268	377	233	162%	4.9%	2%
Mining	N/A	(D)	(D)				
Construction	71	(D)	(D)				
Manufacturing	826	1,398	1,928	1,102	133%	4.3%	7%
Transportation and Public Utilities	93	85	133	40	43%	1.8%	-1%
Wholesale Trade	210	267	296	86	41%	1.7%	-1%
Retail Trade	617	754	977	360	58%	2.3%	-2%
Finance, Insurance, and Real Estate	95	91	148	53	56%	2.2%	0%
Services	693	944	1,295	602	87%	3.2%	1%
Government	915	1,007	1,399	484	53%	2.1%	-4%
Total	3,664	4,814	6,553	2,889	79%	2.9%	

Source: Oregon Employment Department, Oregon Labor Market Information System, Covered Employment & Wages, <http://www.qualityinfo.org/olmisj/CEP>. Summary by industry and percentages calculated by ECONorthwest

Note: (D) indicates that data is unavailable due to non-disclosure. N/A indicates that data was not provided for the respective category in Jefferson County in that year.

Table A-7 shows the change in covered employment by sector in Jefferson County between 2001 and 2013. Total covered employment increased by 603 jobs, or 11%, during this period. The private sectors with the largest increases in number of employees were Education and Health Services, Natural Resources and Mining, and Professional and Business Services. Many other sectors lost jobs during this period, including the Manufacturing sector, which lost 622 jobs.

Table A-7. Covered employment by Industry, Jefferson County, 2001-2013

Sector	2001		2013		Change 2001 to 2013			
	Number	Share	Number	Share	Difference	Percent	AAGR	Share
Natural Resources and Mining	378	7%	454	7%	76	17%	1.5%	1%
Construction	90	2%	71	1%	-19	-27%	-2.0%	0%
Manufacturing	1,530	27%	908	15%	-622	-69%	-4.3%	-13%
Wholesale	237	4%	151	2%	-86	-57%	-3.7%	-2%
Retail	543	10%	518	8%	-25	-5%	-0.4%	-1%
Transportation & Warehousing	92	2%	125	2%	33	26%	2.6%	0%
Information	27	0%	26	0%	-1	-4%	-0.3%	0%
Finance & Insurance	79	1%	73	1%	-6	-8%	-0.7%	0%
Real Estate Rental & Leasing	52	1%	38	1%	-14	-37%	-2.6%	0%
Professional and Business Services	83	1%	148	2%	65	44%	4.9%	1%
Education and Health Services	179	3%	540	9%	361	67%	9.6%	6%
Arts, Entertainment & Recreation	29	1%	68	1%	39	57%	7.4%	1%
Accommodations & Food Services	479	9%	476	8%	-3	-1%	-0.1%	-1%
Other Services	153	3%	182	3%	29	16%	1.5%	0%
Government	1,616	29%	2,392	39%	776	32%	3.3%	10%
Total	5,567	100%	6,170	100%	603	11%	0.9%	

Source: Oregon Employment Department, Oregon Labor Market Information System, Covered Employment & Wages, <http://www.qualityinfo.org/olmisj/CEP>. Summary by industry and percentages calculated by ECONorthwest

Employment in Madras

Table A-8 shows a summary of confidential employment data for the Madras UGB in 2013. Madras had 3,437 jobs at 244 establishments in 2013, with an average firm size of 14 employees. The sectors with the greatest employees were: Manufacturing (24%), Government (21%), Health Care and Social Assistance and Private Education (15%), Retail (13%), and Accommodation and Food Services (10%). These sectors accounted for 2,836 or 83% of Madras' jobs.

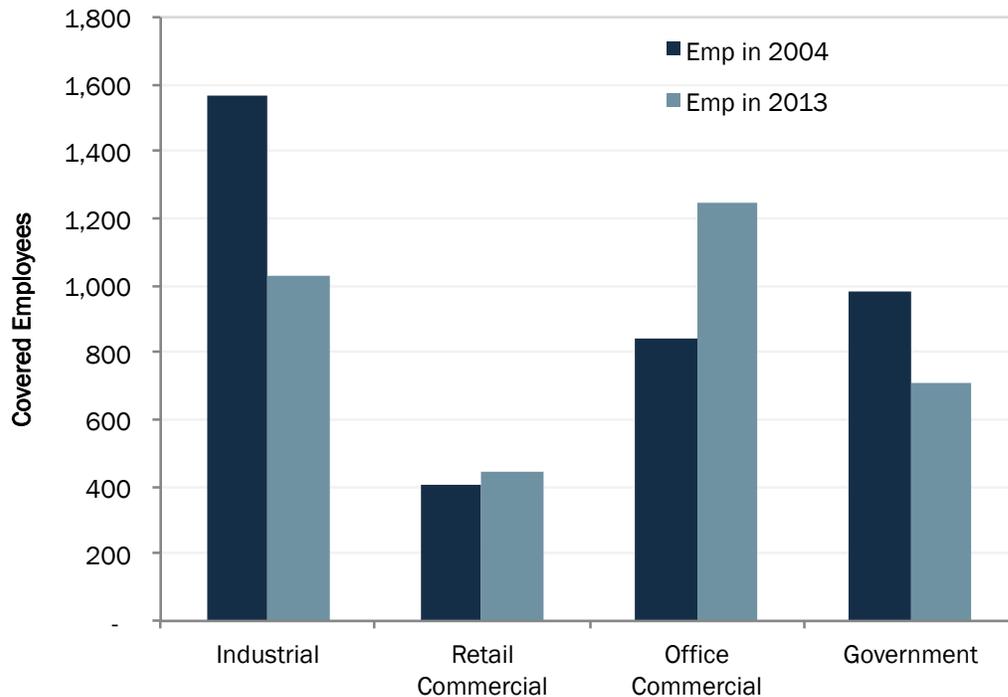
Table A-8. Covered employment, Madras UGB, 2013

Sector / Industry	Establishments	Employees		Payroll	
		Number	% of Total Emp.	Total	Average Pay per Employee
Agriculture, Forestry, Fishing, Hunting & Mining	7	90	3%	\$ 526,495	\$ 9,183
Construction	6	24	1%	\$ 85,439	\$ 8,560
Manufacturing	23	23	24%	\$ 2,943,308	\$ 40,028
Wholesale Trade	1	6	2%	\$ 339,157	\$ 3,936
Retail Trade	9	44	13%	\$ 1,608,203	\$ 23,892
Food and Beverage Stores	7	188	5%	\$ 3,710,765	\$ 19,738
Motor Vehicle and Parts Dealers	11	86	3%	\$ 3,456,139	\$ 40,188
General Merchandise Stores	3	56	2%	\$ 1,193,997	\$ 21,321
Other Retailers	18	114	3%	\$ 2,247,302	\$ 19,713
Transportation & Warehousing & Utilities	6	20	1%	\$ 371,562	\$ 8,578
Information	5	2	1%	\$ 36,849	\$ 8,948
Finance & Insurance	2	9	2%	\$ 473,527	\$ 5,848
Real Estate & Rental & Leasing	4	8	1%	\$ 55,126	\$ 9,826
Professional and Technical Services & Management of Companies	4	4	1%	\$ 239,752	\$ 8,176
Admin. & Support & Waste Mgt. & Remediation Srv.	6	6	2%	\$ 636,468	\$ 1,532
Health Care & Social Assistance and Private Education	2	202	15%	\$ 2,553,166	\$ 20,943
Arts, Entertainment, & Recreation	4	41	1%	\$ 398,277	\$ 9,714
Accommodation & Food Services	30	55	10%	\$ 1,026,273	\$ 14,159
Accommodation	6	70	2%	\$ 957,136	\$ 13,673
Food Services and Drinking Places	24	285	8%	\$ 4,069,137	\$ 14,278
Other Services (except Public Administration)	7	11	3%	\$ 777,142	\$ 6,010
Government	23	12	21%	\$ 9,773,523	\$ 1,817
Federal Government	1	11	0%	\$ 595,174	\$ 54,107
State Government	7	58	2%	\$ 2,578,259	\$ 44,453
Local Government	15	643	19%	\$ 26,600,090	\$ 41,369
Total	244	3,437	100%	\$ 16,544,267	\$ 3,909

Source: Oregon Employment Department Quarterly Census of Employment and Wages (QCEW). Summary by industry and percentages calculated by ECONorthwest

Figure A-7 shows change in covered employment by sector for the Madras UGB from 2004 to 2013. Over that period, covered employment fell in Madras by 355 employees from 3,792 to 3,437. Industrial employment fell the most, falling by 530 employees, or 34%, Government employment fell by 267 employees, or 27%. However, employment in Office Commercial rose by 405 employees, or 48%, and employment rose in Retail Commercial by 37 employees, or 9%. In 2013, Office commercial was the largest employment sector, with 1,248 employees, 36% of total employment.

Figure A-7. Change in covered employment by sector, Madras UGB, 2004 and 2013



Source: Oregon Employment Department Quarterly Census of Employment and Wages (QCEW). Summary by industry and percentages calculated by ECONorthwest

Note: Industrial includes the following sectors: Agriculture, Mining, Construction, Manufacturing, Wholesale Trade, and Transportation, Warehousing, and Utilities.

Retail Commercial is Retail Trade.

Commercial Office includes the following sectors: Information, Finance and Insurance, Real Estate, Professional and Technical Services, Administration and Waste Management, Health Care and Social Assistance, Private Education, Accommodations and Food Services, and Arts and Entertainment, and Other Services.

More recent business activity in Madras, beyond employment shown in Table A-8, includes:

- **Erikson Air Tanker and Aircraft Collection.** Erikson purchased Butler Aircraft, a business located in Madras, and moved the company’s Air Tanker maintenance and manufacturing operations to Madras. In addition, Erikson located the Aircraft Collection, an air museum formerly located in Tillamook, in Madras. Both of Erikson’s businesses are located at the Madras Airport, within the Madras UGB.
- **Central Oregon Seeds.** This company has been located in Madras and expanded its presence in Madras, with new facilities including new research green houses. Seed production has long been an important part of agricultural services in Madras.
- **Central Oregon Basalt.** This company has been located in Madras and expanded its facilities in Madras. Central Oregon Basalt’s quarry is northeast of Madras and produces high-quality basalt used for specialty products such as in jetties or ballast used for railroads.

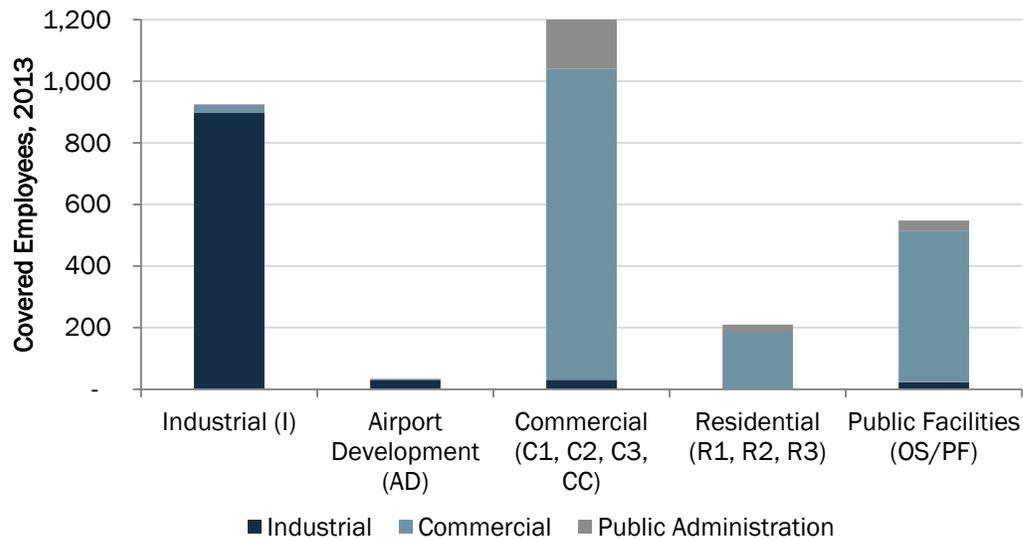
In addition, several businesses have located on sites just outside of the Madras UGB. A company involved in vehicular road testing is leasing a 100-acre city-owned site at the Madras Airport (on land outside of the UGB) for a test track and related facilities. This company is making an approximately \$18 million investment in these facilities, adding 45 to 60 new employees. This firm may expand further, as part of a second phase of development, onto additional land.

In addition, four companies investigated locating solar arrays near Madras, both on city-owned land at the Airport and on privately owned land. Each company was looking for sites between 80 to 100 acres in size. Two companies have leased privately owned land to build 10 megawatt solar arrays.

Figure A-8 shows the distribution of employment by plan designation for covered employment in Madras.

- **Commercial Plan Designations.** About 1,200 employees were located in commercial plan designations. Nearly 85% of employment in commercial plan designations was in commercial sectors, such as retail, accommodations and food services, or health care.
- **Industrial Plan Designation.** More than 900 employees in Madras were located in the Industrial Plan designation. Nearly all employment in Industrial was in industrial sectors, with the majority in manufacturing.
- **Airport Development Plan Designation.** About 35 employees were located in the Airport Development Plan Designation, nearly all of whom were in industrial sectors.
- **Residential Plan Designations.** More than 200 employees were in Residential Plan Designations, with most employment in commercial sectors like health care and social assistance.
- **Public Facilities.** More than 500 employees were in the Public Facilities Plan Designation, with most employment in commercial sectors like education and administrative support and waste remediation.

Figure A-8. Location of covered employment by Plan Designation, Madras UGB, 2013



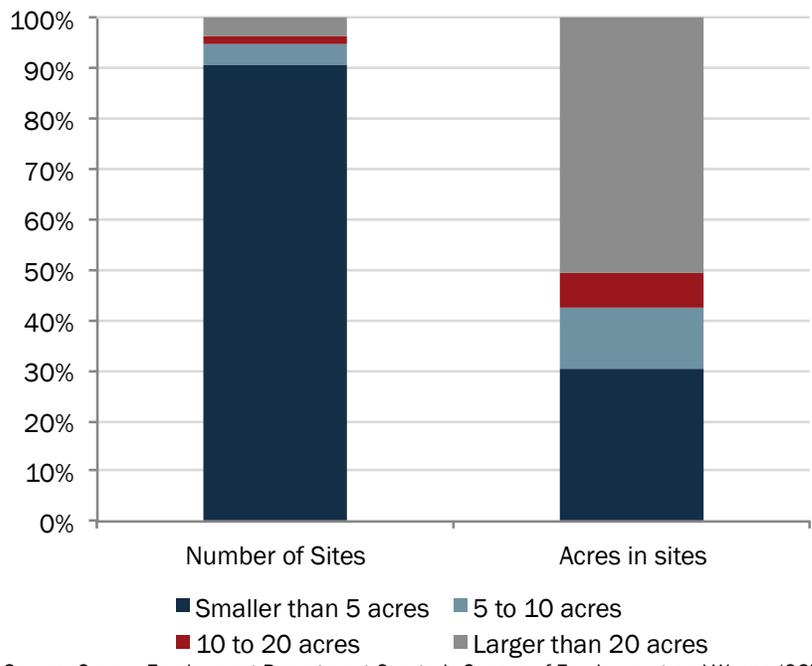
Source: Oregon Employment Department Quarterly Census of Employment and Wages (QCEW). Plan Designations from Jefferson County GIS data
 Summary by ECONorthwest

Note: The information in this figure does not separate government employment from private employment. It is reasonable to assume that the majority of government employment is in the Public Facilities Plan Designation, with a large amount of employment in this Designation in schools.

Figure A-9 shows the sizes of sites with covered employment in 2013. Figure A-9 shows that 90% of sites with employment in Madras were smaller than five acres in size.

When looked at by number of employees per site size, Madras' employees are concentrated on sites 20 acres and larger (50% of employment at five sites) and sites 5 acres and smaller (30% of employment at 128 sites). Sites larger than 20 acres were in the Airport Development or Public Facilities Plan Designations. Sites 5 acres and smaller were in the following Plan Designations (from most sites to fewest sites: Commercial (94 sites), Industrial (11 sites), and Public Facilities (4 sites).

Figure A-9. Size distribution of employment sites, Madras UGB, 2013



Source: Oregon Employment Department Quarterly Census of Employment and Wages (QCEW). Plan Designations from Jefferson County GIS data
Summary by ECONorthwest

Outlook for Growth in Madras

Table A-9 shows the coordinated, adopted population forecast for the City of Madras for the 2015 to 2056 period. Madras is forecast to grow by 7,946 people between 2015 to 2035, at an average annual growth rate of 3.35%. Between 2035 and 2056, Madras is forecast to add 11,532 people, growing at an average annual growth rate of 2.56%.

Table A-9. Population forecast, City of Madras, 2015 to 2056

Year	Population
2005	5,592
2010	6,969
2015	8,519
2020	10,365
2025	12,610
2030	14,510
2035	16,465
2040	18,683
2045	21,201
2050	24,057
2055	27,298
2056	27,997
Change 2015-2035	
Amount	7,946
% Change	93%
AAGR	3.35%
Change 2035-2056	
Amount	11,532
% Change	70%
AAGR	2.56%
Change 2015-2056	
Amount	19,478
% Change	229%
AAGR	2.94%

Source: Jefferson County Comprehensive Plan, Adopted Dec 27, 2006

Table A-10 shows the Oregon Employment Department’s forecast for employment growth by industry for the Central Oregon region (Crook, Deschutes, and Jefferson Counties) over the 2012 to 2022 period. The sectors that will lead employment growth in the region for the 10-year period are Educational and health services (adding 5,800 jobs), Trade, Transportation and Utilities (adding 2,900 jobs), Professional and Business Services (adding 2,900 jobs) and Local Government (adding 2,400 jobs). Together, these sectors are expected to add 14,000 new jobs or 42% of employment growth in the Region.

Table A-10. Employment projections by industry, Central Oregon (Crook, Deschutes and Jefferson Counties), 2012-2022

Industry Sector	2012	2022	Change 2012-2022		
			Number	Percent	AAGR
Natural resources and mining	1,330	1,590	260	20%	1.8%
Mining and logging	270	320	50	19%	1.7%
Construction	3,250	4,100	850	26%	2.4%
Manufacturing	5,370	6,380	1,010	19%	1.7%
Durable goods	4,320	5,080	760	18%	1.6%
Wood product manufacturing	1,890	2,310	420	22%	2.0%
Nondurable goods	1,040	1,300	260	25%	2.3%
Trade, transportation, and utilities	14,260	15,920	1,660	12%	1.1%
Wholesale trade	2,300	2,520	220	10%	0.9%
Retail trade	10,300	11,510	1,210	12%	1.1%
Transportation, warehousing, and utilities	1,660	1,890	230	14%	1.3%
Information	1,450	1,510	60	4%	0.4%
Financial activities	4,490	5,110	620	14%	1.3%
Professional and business services	6,990	8,680	1,690	24%	2.2%
Educational and health services	10,780	13,400	2,620	24%	2.2%
Health care and social assistance	9,990	12,450	2,460	25%	2.2%
Health care	8,690	10,860	2,170	25%	2.3%
Leisure and hospitality	10,660	12,810	2,150	20%	1.9%
Accommodation and food services	8,980	10,730	1,750	19%	1.8%
Other services	2,600	2,930	330	13%	1.2%
Federal government	1,330	1,250	-80	-6%	-0.6%
State government	1,780	1,990	210	12%	1.1%
Local government	9,330	10,090	760	8%	0.8%
Total payroll employment	73,620	85,760	12,140	16%	1.5%

Source: Oregon Employment Department. Employment Projections by Industry 2012-2022. <http://www.qualityinfo.org/pubs/projections/r5.pdf>. Projections summarized by ECONorthwest. Factors Affecting Future Economic Growth in Madras

Each economic region has different combinations of productive factors: land (and natural resources), labor (including technological expertise), and capital (investments in infrastructure, technology, and public services). While all areas have these factors to some degree, the mix and condition of these factors vary. The mix and condition of productive factors may allow firms in a region to produce goods and services more at a lower cost, or to generate more revenue, than firms in other regions.

By affecting the cost of production and marketing, comparative advantages affect the pattern of economic development in a region relative to other regions. Goal 9 and OAR 660-009-0015(4) recognizes this by requiring plans to include an analysis of the relative supply and cost of factors of production.³⁷ An analysis of competitive advantage depends on the geographic areas being compared. In

³⁷ OAR 660-009-0015(4) requires assessment of the “community economic development potential.” This assessment must consider economic advantages and disadvantages—or what Goal 9 broadly considers “comparative advantages.”

general, economic conditions in Madras will be largely shaped by national and Pacific Northwest regional economic conditions affecting Oregon and the Central Oregon region.

The previous section presents trends and forecasts of conditions in Oregon and Madras to help establish the context for economic development in Madras. Local economic factors will help determine the amount and type of development in Madras relative to other communities in Central Oregon and throughout the rest of the state. This section focuses on the competitive advantages of Madras for attracting businesses relative to the Central Oregon region, and Oregon as a whole.

Madras' Comparative Advantages

Location

Madras' location will have a substantial influence on its future development. Madras is located in Jefferson County in Central Oregon, slightly more than 40 miles (or an hour's drive) north of Bend. Madras' location has played a critical role in its growth, and will continue to have implications for economic development in the region:

- Highways 97 and 26 run through Madras. Highway 97 is the major north-south freight route east of the Cascades. Highway 26 connects Madras to the Portland Metropolitan area. Madras' proximity to Highways 97 and 26 provide businesses with access to markets in Portland and the West Coast.
- Madras has access to workers and markets of other cities in Central Oregon. Madras' proximity to Bend, Redmond, and Prineville give Madras access to the labor force and markets in these cities.
- Madras provides access to rural housing and recreational opportunities. Madras has a small-town atmosphere and access to a rural lifestyle, with housing and life-style options for workers in Bend and Redmond.

Madras' location, the presence of Highways 97 and 26, and proximity to Bend and Redmond are primary comparative advantages for economic development in Madras.

Transportation

Madras has several transportation options: two U.S. highways, Union Pacific and Burlington Northern Railroads, the Greyhound/ Amtrak Thruway bus line, and the Madras City-County Airport as well as the Redmond Municipal Airport, located 28 miles from Madras.

Madras is located at the intersection of US highways 97 and 26. Highway 97 is a north-south highway that connects eastern Washington to California, passing through the cities of Redmond, Bend, and Klamath Falls south of Madras.

Highway 26 is a primarily northwest to southeast highway that runs northwest over the Cascade Mountains to the Portland metropolitan area and southeast through Prineville to the Idaho border.

- The Oregon Trunk Railroad, utilized by Burlington-Northern and Union Pacific Railroad Companies, provides daily freight service to Madras. A spur line of the Oregon Trunk line serves the Madras Industrial Park. The Both lines run from northern Klamath County north to the Oregon/ Washington border.
- The Madras Airport, formerly used by the U. S. Army during World War II as a training center for the B-17, serves the City of Madras. The airport runs an average of 29 flights per day, 56% of which are local general aviation, 38% transient general aviation, 6% air taxi, and 1% military.³⁸ Air charter services are available. The Redmond Municipal Airport, 28 miles south of Madras, provides freight and passenger service. Three air carriers provide approximately 26 arriving and departing flights per day.
- Madras is served by the Pacific Trailways Bus System, and is the only city served by bus in the county. Pacific Trailways makes ten departures daily-- four each to Portland and Bend, and two to The Dalles—and also offers freight service from Madras.

Public services

This section presents a discussion of public services that are important to economic development, including planning support for economic development, water facilities, and wastewater facilities.

Utilities

Madras is served by a variety of public and private utilities. Cascade Natural Gas provides natural gas, Pacific Power & Light provides electricity, both Pacific Northwest Bell and United Telephone provide telephone service, and Crestview TV Cable provides cable service. North Unit Irrigation District and the Deschutes Valley Water District (DVWD) also serve the City of Madras. The Central Electric Cooperative provides electricity.

Renewable and non-renewable resources

Goal 9 requires economic development plans to consider the availability of renewable and non-renewable resources and pollution control requirements in the planning jurisdiction. Goal 9 also requires economic projections to consider the availability of natural resources to support expanded development, and

³⁸ “Madras Municipal Airport,” www.aimav.com/airport/S33, December 19th, 2014.

planning should consider a major determinant the carrying capacity of the air, land, and water resources of the planning area.

The Oregon Department of Environmental Quality (DEQ) has historically maintained compliance with all Environmental Protection Agency (EPA) health standards for outdoor air pollutants in Madras. Possible air quality issues that may arise with more intensive development in Madras could include the following, according to the DEQ:

- Smoke and dust management, related to agricultural field burning and disking, could become a nuisance issue for new residential development;
- Pollution from wood burning stoves and automobiles could lead to air stagnation and reduced air quality, especially if an inversion forms over the “bowl” surrounding Madras.
- Widespread use of open burning to dispose of yard waste may have to be curtailed as the DEQ begins to comply with the increasingly stringent EPA standards for particulates (lowering the particulate matter from PM₁₀ to PM_{2.5}). Areas that fail to meet any of the EPA’s National Ambient Air Quality Standards (NAAQS) are required, by law, to develop strategic plans to bring the areas back into compliance with the standards and maintain compliance.

The production of vegetable seed crops dominates agriculture activity in the Madras area because of the ideal regional climate; 85% of domestic carrot seed is produced near Madras. Grass seed, peppermint, and alfalfa are other types of crops grown in this area. Because growers have a strong niche market in vegetable seed production, they have remained successful. However, the Madras Oregon State Extension office predicts that in the next quarter century agriculture will gradually play a less important role in the Madras-area economy for three reasons:

- Although Madras has a niche market, it is also vulnerable to national trends: farming is becoming a less profitable way to earn a living, and large-scale commercial operations are dominating the national agriculture industry.
- Demographics demonstrate that the current generation of farmers is aging, and will retire within the next decade. Most Madras farmers do not have children who want to take over farming operations, and have no contingency plans for farm management.
- The economics of land value will gradually diminish the role of agriculture near Madras, as residential development becomes more lucrative than continued agricultural land use.

Quality of life

Quality of life is difficult to assess because it is subjective—different people will have different opinions about factors affect quality of life, desirable characteristics of those factors, and the overall quality of life in any community. Economic factors such as income, job security, and housing cost are often cited as important to quality of life. These economic factors and overall economic conditions are the focus of this report, so this section will focus on non-economic factors that affect quality of life.

Quality of life can be important for economic development in Madras because it affects the relative attractiveness of the City to households. The OEA forecasts that net migration will account for about 71% of population growth in Jefferson County and 79% of growth in over the next twenty years (to 2035). A relatively desirable quality of life may help Madras attract more households than it otherwise would. Many households bring work skills that will help increase availability of labor in the region and support economic activity in the construction, retail trade, and services sectors. Some migrants may be highly-skilled and can help generate further economic development by adding their skills to existing businesses or by attracting new businesses to the area.

Madras' quality of life characteristics are primarily related to its location and its rural character. Madras' proximity to Bend and Redmond, as well as Portland, give its residents access to urban amenities, such as shopping and cultural opportunities. On the other hand, Madras is located far enough way from Bend and Redmond to have lower housing costs. It provides urban and rural housing options. Madras is located near outdoor recreational areas, such as Lake Billy Chinook or ski resorts, that provide recreational opportunities for water sports, skiing, hiking, horseback riding, high desert hunting, and fishing. Madras' comprehensive plan policies and Master Planned Community overlay encourage development that will increase the desirability and livability of Madras. For example, a project developed under the overlay zone will be required to provide generous open space (at least 30% of the site area) and is encouraged to provide a mix of housing types and abundant amenities.

Appendix B. Potential UAV Use at the Madras Airport and Industrial Center

This Appendix presents to the memorandum developed by Becky Steckler, AICP for the City of Madras about potential for UAV use at the Madras Airport.

January 20, 2014

To	Nick Snead, City of Madras
CC	DJ Heffernan, AICP, DHC and Beth Goodman, ECONorthwest
From	Becky Steckler, AICP
SUBJECT	FINAL DRAFT TECHNICAL RESEARCH ON UAV USE AT THE MADRAS AIRPORT AND INDUSTRIAL CENTER

This memorandum is the draft technical research of Unmanned Aerial Vehicles (UAV) to inform the update of the City of Madras Economic Opportunities Analysis and Buildable Lands Inventory.

Introduction

This memorandum is an analysis of the regulatory practices that may be adopted by the City of Madras (City) concerning land uses and development in the vicinity of the Madras Airport and Industrial Center including land that is restricted under federal land-lease contracts for airport and aviation related use. The goal of the analysis is to identify a regulatory framework for the portion of the City's employment land inventory that is set aside exclusively for aviation-related development.

This memorandum describes a variety of factors that the City of Madras should consider regarding land use and development regulations for aviation uses on private land and on land subject to federal aviation lease restrictions. Specifically, it focuses on options for regulating land uses that engage in research, development, and operation of unmanned aerial vehicles³⁹ (UAV or drones) on industrial, airport management, and airport overlay zones in the City of Madras.

Background

In December 2013, the Federal Aviation Administration approved the University of Alaska's proposal of a diverse set of test site range locations in Alaska, Hawaii, and Oregon. The three test sites in Oregon are in Tillamook, Pendleton, and Warm Springs

³⁹ There are three terms that are commonly (and often interchangeably) used: unmanned aerial vehicles (UAV), unmanned aircraft systems (UAS), and drones. The industry tends to use UAV and UAS instead of drones, which is the term generally used in the media to describe the unmanned military vehicles used in Afghanistan, Iraq, and elsewhere.

(the Madras Airport is the closest airport to the test range). According to *The Oregonian*, “Economic development officials hope that Oregon will become a hotbed for emerging UAV applications, such as search and rescue, forest management and what Lee calls “precision agriculture.”⁴⁰ The article also states that the research plan includes “the development of a set of standards for unmanned aircraft categories, state monitoring and navigation. Alaska also plans to work on safety standards for UAS operations.” All of these test sites have Certificates of Authorization (COA) from the FAA and have flown a small number of test flights. Alaska is required to oversee operations in Oregon’s test ranges.

The University of Alaska proposal provides testing in arctic, temperate, and tropical climates and was the only test operator that was chosen on the west coast (the other test operators are the State of Nevada, New York’s Griffiss International Airport, North Dakota Department of Commerce, Texas A&M University – Corpus Christi, and Virginia Polytechnic Institute and State University (Virginia Tech)).

The City of Madras is updating its 2007 Buildable Lands Inventory (BLI) and 2007 Economic Opportunities Analysis (EOA). Given the limited number of test sites in Oregon and on the west coast (there are six additional test sites in Alaska and none of the test sites in Hawaii are active at this time), Madras is in a unique position to attract firms with work related to the flight-testing unmanned aerial vehicles. The updated EOA will help the City plan for and accommodate new employment in the UAV sector.

This analysis is designed to provide a framework for reviewing land use regulations at the Madras Airport and Industrial Center. The regulations need to be consistent with the recently adopted Madras Airport Master Plan and help the city take advantage of the recent federal designation for flight-testing unmanned aerial vehicles at Warm Springs.

This memorandum is organized into the following sections:

- **Anticipated needs of UAV firms** describes the land use needs of firms working on testing unmanned aerial vehicles (either directly or supporting firms).
- **Existing regulatory framework** describes the existing federal, state, and city regulations governing land at the Madras Airport and Industrial Center with a focus on how the impact of UAV uses.
- **Implications for updating regulations** lists factors that the City of Madras should consider when updating its industrial use regulations for the Madras Airport and Industrial Park.

⁴⁰ Mike Francis, *The Oregonian*, “FAA decision means more unmanned aerial vehicles -- drones -- are coming to Oregon skies” December 30, 2013. Viewed online on October 23, 2014 at http://www.oregonlive.com/business/index.ssf/2013/12/faa_decision_means_more_unmann.html.

Anticipated needs of UAV users at the airport

The FAA approval of Warm Springs as an UAV test site provides a significant opportunity for the City of Madras Airport. According to Mark Morrisson,⁴¹ Executive Director of SOAR Oregon, the Warm Springs test site has multiple advantages over other test sites in the Western United States, that include (but are not limited too):⁴²

- **Varied terrain.** The Confederated Tribe of Warm Springs UAS test range includes 645,000 acres or 1,000+ sq. miles of forest, mountains, high desert, and canyons within elevation between 1,000' to 10,500'.
- **Local applications.** Central Oregon offers opportunities to test applications related to forestry, agriculture, natural hazards (fire hazards, flooding, drought), geo thermal, and other sectors.
- **Favorable weather.** Madras enjoys the dry climate of the high desert with about 11 inches of precipitation and 300 days of sunshine per year.
- **Privacy.** Population centers at Warm Springs are concentrated, leaving most of the area uninhabited. In addition, access is controlled, adding an additional level of privacy.
- **Local workforce.** UAV test ranges often make use of small engines and provide other support services. Central Oregon is an aviation cluster; it has the second highest concentration of aviation companies in the state (over 50), after the Portland metro area (also over 50 firms).
- **Livability and amenities for workers.** Central Oregon has multiple communities that offer good schools, affordable housing, outdoor amenities (skiing, mountain biking, white water rafting, hiking and backpacking, and much more), that will be attractive to potential UAV firms.
- **Low volume airport.** Unlike Tillamook, Madras is a relatively low volume airport, which will reduce the number of conflicts between manned and unmanned aircraft.
- **Land and building regulations similar to manned aircraft.** Currently, there are no substantial differences in the need for land and buildings between manned aircraft and UAV users. UAV users are used to working within the existing regulatory framework at airports and are likely to do so into the future.

While Madras has many desirable attributes, it may have competition from Pendleton, home to the Oregon National Guard Detachment 1 of Bravo Company⁴³ 41st Special

⁴¹ Telephone interview with Mark Morrisson, SOAR Oregon on November 13, 2014.

⁴² SOAR Oregon Unmanned Unlimited website: <http://uastestranges.soaroregon.com/>. Viewed November 25, 2014.

⁴³ The Bravo Company is a military intelligence Company that provides “eyes in the sky.” They regularly fly the RQ-7 Shadow among other small, hand-help camera UAVs.

Troops Battalion, which tested its first UAV flight in October 2014.⁴⁴ Warm Springs is scheduled to test its first UAV in December 2014.

Mr. Morrisson said that each UAV test site is expected to attract between 300 and 400 new jobs, though some of these jobs may be temporary (workers that come in for a month or two at a time to test). The *Association for Unmanned Vehicle Systems*⁴⁵ provides estimates that are slightly more conservative. They estimate that Oregon will increase direct UAV employment of 214 by 2017 with an additional 212 indirect employment. They also project the industry will generate 70,000 jobs nationwide by 2017 with an economic impact of \$13.5 billion.⁴⁶ Their study finds that 90% of the potential market for UAV will be in precision agriculture and public safety. They also conclude that manufacturing jobs will be high paying (\$40,000) and require a technical baccalaureate degree.

Authors of an economic impact report for the *Association for Unmanned Vehicle Systems International* concluded that local communities can do a lot to attract UAV firms, “While we project more than 100,000 new jobs by 2025, states that create favorable regulatory and business environments for the industry and the technology will likely siphon jobs away from states that do not.”⁴⁷ However, the report did not estimate that Oregon will be in the top 10 states for UAV. California and Washington are expected to see the most gains in terms of job creation and economic impact (ranked 1 and 2), while the other top states are in the mid-US (Texas) and east coast. The authors note that a variety of factors will impact where economic impacts are realized, including the establishment of test sites (which had not been established when the report was written).

According to Brian Whitehead, President of VDOS Global⁴⁸ (a private company that provides UAV inspection, photography, and operations support and services) and on contract to manage the Warm Springs Test Site for the Tribe, UAV firms are used to working within the same land use and building regulations as manned aircraft firms. He commented on the rapid change in technology, from radar to fiber, and that the ability

⁴⁴ “Experts discuss UAVs at Kah-Nee-Ta” by Rachael Rees, The Bulletin October 2, 2014 and accessed online at <http://www.bendbulletin.com/home/2463534-151/experts-discuss-uavs-at-kah-nee-ta#> on November 25, 2014.

⁴⁵ Jenkins, Darryl and Dr. Bijan Vasigh, for the Association for Unmanned Vehicle Systems International, *The Economic Impact of Unmanned Aircraft Systems Integration in the United States*, March 2013. Downloaded from http://issuu.com/auvsi/docs/auvsi_economic_report#download on November 25, 2014.

⁴⁶

⁴⁷ Jenkins, Darryl and Dr. Bijan Vasigh, for the Association for Unmanned Vehicle Systems International, *The Economic Impact of Unmanned Aircraft Systems Integration in the United States*, March 2013. Downloaded from http://issuu.com/auvsi/docs/auvsi_economic_report#download on November 25, 2014. P. 2.

⁴⁸ Interviewed on Wednesday, December 3, 2014 via phone. Mr. Whiteside is also the president of the Cascade Chapter of Association of Unmanned Vehicle Systems International (AUVSI) and actively involved in the region as an industry representative of the national organization.

for the City of Madras decision-makers to respond quickly and make the necessary regulatory changes to take advantage of new technology will be important.

Mr. Morrisson and Mr. Whitehead also mentioned a number of improvements that would make industrial properties at the airport or other industrial, commercial, or office space close by. These improvements include:

- **High capacity fiber.** The UAVs will collect terabytes (or more) of data that will need to be downloaded and transmitted.
- **Secure hangers.** Companies testing UAVs for sensitive military or commercial purposes will want secure, protected hangers close to active runways at the airport.
- **Radar.** In order to “secure the air” and make it safe for both manned and unmanned flights, installation of radar and staffing to monitor it was recommended.

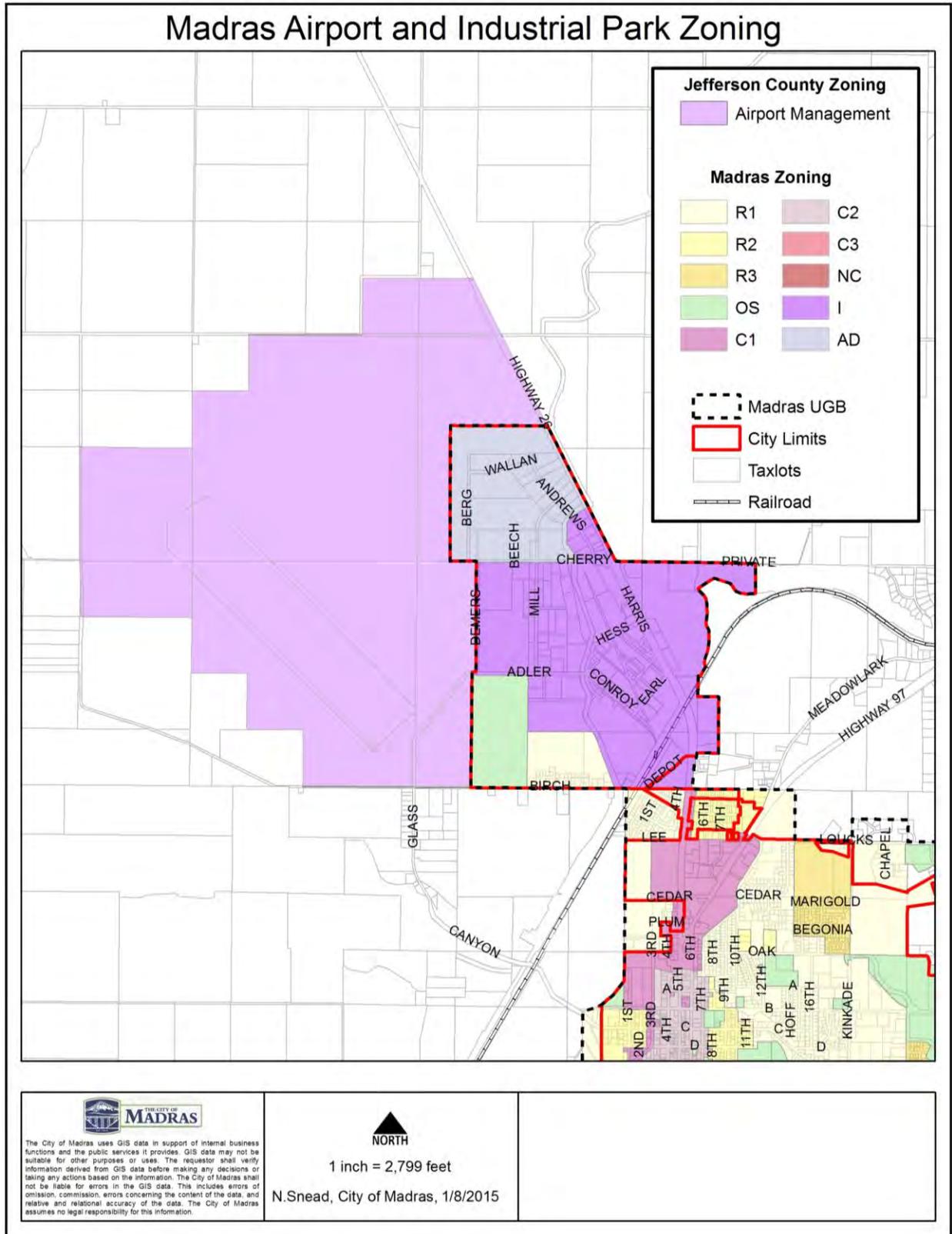
Janet Brown, Manager for Jefferson County for Economic Development for Central Oregon (EDCO), is currently working on several inquiries for sites that are one to two acres and would house approximately 60 to 75 employees. She noted that she has received 31 inquiries for land in the Madras area between August 2012 and December 2014. Of those inquiries, at least six did not consider airport property because of lease-only restrictions. It is not clear if the lease restriction, which is common at many municipal and port authority airports, poses a significant constraint for UAV developers.

Commercial applications of UAVs are anticipated to focus on precision agriculture, public safety, professional firefighting, and other applications (e.g. UAV packages delivery). UAVs are well suited to conduct aerial reconnaissance, from photographing landscape changes to filming movies from the air. Agricultural applications are likely to include remote sensing and precision application of water, fertilizer, or pesticides. UAVs can be used to record plant health, record growth rates, and pinpoint locations of disease. UAVs may soon allow farmers to apply fertilizers or pesticides only to that area of their farm that needs it, saving time, money, and reducing environmental impacts. These are just a few of the currently anticipated uses of UAVs. The potential commercial use of the technology is evolving rapidly and will likely expand into areas and services that have not even been thought up yet.

Existing Regulatory Framework

Land at the Madras Industrial Center is currently regulated by a mix of federal, state, and local regulations. The FAA is currently working to create rules for commercial UAV use. At the state level, the Oregon Legislature is just beginning to weigh in on UAV regulation, starting with the passage of HB 2710 in 2013. Finally, the City of Madras regulates land use and development with the application of three city zoning districts: (1) Industrial, which applies to industrial uses in the Madras Industrial Park, (2) Airport Development, (3) and the Airport Overlay Zone, as shown in Figure B- 1.

Figure B- 1. Madras Airport and Industrial Park Zoning, 2015



Source: City of Madras, 2015.

Federal Regulations

*National Plan of Integrated Airport Systems*⁴⁹

As a General Aviation Airport (National Plan of Integrated Airport Systems (NPIAS)), the Madras Municipal Airport has agreed to comply with 39 obligations, called assurances,⁵⁰ in exchange for FAA grants or land.⁵¹ Typically, these assurances are binding for 20 years. In general, most of the assurances are related to complying with federal regulations (the FAA lists 55 regulations), as well as legal and fiscal requirements for accepting and administering federal funding, and ensuring safe practices.

General Aviation Airports that acquire land with federal grants can only develop it as a lease option. If airport land is sold (only when no longer needed for airport use), then the funds (all or a portion) must be paid back into a federal Trust Fund or reinvested in another eligible airport improvement project at that airport or within the airport system.

The FAA also requires the assurance of consistency with local plans (“reasonably consistent”) that are authorized by the state to plan for lands surrounding the airport, as well as zoned to protect runway approaches. As such, the City, who operates the Madras Airport, is responsible for compliance with the applicable Federal, state, and local regulations.

In addition, airport sponsors must develop an Airport Layout Plan (signed and approved by the FAA). The Airport Master Plan describes how the airport will accommodate improvements and expansions to the Airport Layout Plan over time. The Madras Airport Master Plan was updated in December 2010, before Warm Springs was designated as a UAV test site. The City of Madras may want to consider adding operation of unmanned aircraft systems into the next update of its Airport Master Plan, depending on future federal and state regulation of the industry.

⁴⁹ Information in this section is summarized from the AOPA’s (Aircraft Owners and Pilots Association) Guide to FAA Airport Compliance,

⁵⁰ US Department of Aviation, Federal Aviation Administration, FAA Airport Compliance Manual (Order 5190.6B), September 30, 2009. Downloaded from http://www.faa.gov/airports/resources/publications/orders/compliance_5190_6/media/5190_6b.pdf on December 3, 2014.

⁵¹ http://www.faa.gov/airports/aip/grant_assurances/media/airport-sponsor-assurances-aip.pdf viewed online on November 30, 2014.

Unmanned Aircraft Systems

The FAA tightly regulates UAV flights⁵² and has designated six test sites across the country. Operations may range from near ground level to above 50,000 feet, depending on the specific type of aircraft. UAV operations, however, are not currently authorized in Class B airspace, which extends over major urban areas where the density of manned aircraft in the National Airspace System is highest. The FAA classifies three different types of unmanned aircraft systems: civil, public, and model aircraft.

Currently, UAVs can be tested on military sites (for military purposes) and individual hobbyists can fly UAVs for entertainment, but it is almost always illegal to fly UAVs for commercial uses. A recent article in the December 2014 Portland Monthly magazine⁵³ described commercial operators of UAVs as “operating in a gray zone.” The industry is waiting, in part, for the Federal Aviation Administration (FAA) to determine how to integrate unmanned aerial systems into the National Airspace System (NAS), as required by the 2012 FAA Modernization and Reform Act. According to an FAA guidebook on airport assurances “the main inhibitor of US commercial and civil development of the UAS is the lack of a regulatory structure. Because of current airspace restrictions, non-defense use of UAS has been extremely limited. However, the combination of greater flexibility, lower capital and lower operating costs could allow UAS to be a transformative technology in fields as diverse as urban infrastructure management, farming, and oil and gas exploration to name a few.”⁵⁴ The FAA will establish UAV operating rules by the end of 2015, hopefully, at which time the City of Madras and Warm Springs may need to revise their regulations to be consistent with the changes.

⁵² Information in this section is summarized from the FAA website <http://www.faa.gov/uas/> viewed on November 30, 2014.

⁵³ Frochtzwajg, Jonathan, “Drones are Set to Conquer Oregon’s Skies. Are you Ready?” Portland Monthly, Published December 1, 2014. Accessed at <http://www.portlandmonthlymag.com/news-and-profiles/science-and-technology/articles/drones-are-set-to-conquer-oregons-skies-are-you-ready-december-2014> on December 3, 2014.

⁵⁴ Jenkins, Darryl and Dr. Bijan Vasigh, for the Association for Unmanned Vehicle Systems International, *The Economic Impact of Unmanned Aircraft Systems Integration in the United States*, March 2013. Downloaded from http://issuu.com/auvsi/docs/auvsi_economic_report#download on November 25, 2014. P. 2.

State Regulations⁵⁵

Airport land use planning is regulated by OAR 660-013 - Airport Planning.⁵⁶ This division implements ORS 836.600 – 836.630 and Statewide Planning Goal 12 (Transportation) related to aviation. These rules require the State to adopt an Aviation System Plan as part of the State Transportation System Plan, for cities and counties to adopt comprehensive plan and land use regulations for airports consistent with these rules and acknowledged transportation system plans (including MPOs). The rule also requires the local government to map the airport boundaries, existing and planned expansion of airport facilities, location of safety zones, compatibility zones, and existing noise impact boundaries. In addition, local governments must plan and regulate uses that are compatible with airport uses as well as provide economic and use forecast information. Many local governments adopt the Airport Master Plan as part of their comprehensive land use plan, which satisfies most or all of these requirements.

Local governments are also required to develop Airport Safety Overlay zones (OAR 660-013-0070) to protect aircraft from structures, trees, and other objects. The rule also requires “compatibility” with airport uses (OAR 660-013-0080), for example, by prohibiting new residential development within the Runway Protection Zone, limit uses within a noise impact boundary, or restrict uses that might cause smoke, dust, or steam to obscure visibility. Outdoor lighting, transmission facilities, water impoundments, and locating new landfills near airports are also regulated.

The Oregon legislature may enact additional regulations on UAV uses that have implications for land use regulations. The 2013 Legislature passed HB 2710 that requires UAVs operated by law enforcement to be registered with the state and that the agencies must obtain a warrant before using it for surveillance on individuals, among other provisions. In addition, it directed the Oregon Department of Aviation to prepare a report to the Legislature regarding the status of federal regulations relating to unmanned aerial vehicles and whether or not private parties (recreational users and commercial users) should register UAVs with the state in a similar manner required for other aircraft. That report was published in December 2014. It notes that the state law pre-empts local jurisdictions from regulating UAV ownership or operations. As the use of UAVs grows, state regulation may follow. This is a topic that federal, state, and local regulators are monitoring and actively considering new regulations to address privacy, safety, and other concerns.

⁵⁵ Additional information and context about statewide land use planning related to airports was provided by Jeff Caines, Aviation Planner with the Oregon Department of Aviation in a telephone interview on December 4, 2014.

⁵⁶ See http://www.oregon.gov/aviation/docs/resources/appendixa_airport-planning.pdf for more information. Viewed online on December 4, 2014.

City and County Regulations

The Madras Airport and Industrial Center is located both in the City of Madras and unincorporated Jefferson County. The portion of the Airport inside the UGB is zoned Industrial, Airport Development, and Open Space/Public Facilities on the City's Urban Area Comprehensive Plan and Zone Map. The City is responsible for all planning and development at the Madras Airport for all land inside the City's UGB. Jefferson County is responsible for planning and development at the Madras Airport for all land outside the City's UGB. The runways and taxiways and surrounding areas are located outside the Madras city limits and UGB and are subject to Jefferson County Airport Management zoning.

City of Madras: Industrial

59.55 acres of the Madras Municipal Airport is zoned Industrial and is governed by Section 8-12.3.6 of the City's Zoning Ordinance (No. 864). The permitted uses (subject to site plan review) include (but are not limited to) the following types of uses that are likely to include UAV users or suppliers:

- Electronic firms with professional offices
- Precision machine shops
- Corporation headquarters and business offices directly related to industry
- Aircraft service, maintenance, and aviation related industry
- Manufacturing of photographic equipment
- General research and development facilities
- Facilities necessary to the operation of an industrial enterprise, or for a night watchman dwelling
- Transportation terminals
- Manufacturing, fabricating, processing, packaging or storage, repairing and warehousing, which are conducted within an enclosed building
- Processing and packaging of agricultural products
- High tech industry

All UAV uses at the airport would be subject to the same design review, approval standards, and other associated criteria as industrial uses.

City of Madras: Airport Development

Approximately 200.45 acres of the Madras Municipal Airport are zoned Airport Development and are governed by Section 8-12.3.9 of the City of Madras Zoning Ordinance (No. 846). The permitted uses (subject to site plan review) include the following types of uses (site plan required) that are likely to include UAV users or suppliers:

1. Air cargo terminals
2. Aircraft sales, repair, service, storage and schools related to aircraft operations, and facilities essential for the operation of airports, such as fuel storage, hangar use, and F.B.O. offices.

3. Terminals (passenger - air, taxi, and bus)
4. Public and semi-public buildings, structures and uses essential to the welfare of an area, such as fire stations, pump stations, and water storage.
5. Ancillary uses with a total floor area of no larger than 1,000 square feet.
6. Uses where the ongoing operations must be directly, dependent upon and associated with the airport.
7. Assembly and manufacture of goods.
8. Assembly, repair, and storage of heavy vehicles and machinery.
9. Storage and processing of agricultural products.
10. Warehouse and freight terminal operations.
11. Professional offices.
12. Public utility facilities.
13. Call Centers.

Jefferson County: Airport Management⁵⁷

The Airport Management Zone covers 1,790.81 acres of the Madras Municipal Airport and is governed by Section 313 of the Jefferson County Zoning Code. It allows uses compatible with airport uses. While the regulations don't specifically identify UAVs, they do allow "customary and usual aviation-related activities" as well as law enforcement and firefighting activities, aircraft service, maintenance, and training, as well as agriculture and forestry activities and other uses that can be interpreted to generally cover UAVs.

Implications for updating regulations

The technology for UAVs is evolving rapidly and regulators at the federal, state, and local level are having a difficult time keeping up. Public unease regarding privacy issues related to UAV use will likely result in calls for additional regulation. Becky Straus, legislative director the ACLU of Oregon said in the Portland Monthly drone article, "Unmanned aircraft carrying cameras raise the prospect of a significant new avenue for the surveillance of American life. Technology is outpacing our laws, and we in Oregon were lucky to be able to come up with commonsense policies to address that in regard to drones."⁵⁸ The ACLU of Oregon supported the passage of HB 2710. The article states that UAV supporters suggest that the collection and storage of data should be regulated, not the UAVs themselves.

⁵⁷ Jefferson County Zoning Ordinance, Section 313 viewed online at <http://www.co.jefferson.or.us/LinkClick.aspx?fileticket=uOrc-i4oK7U%3d&tabid=4550&language=en-US> on November 30, 2014.

⁵⁸ Frochtz wajg, Jonathan, "Drones are Set to Conquer Oregon's Skies. Are you Ready?" Portland Monthly, Published December 1, 2014. Accessed at <http://www.portlandmonthlymag.com/news-and-profiles/science-and-technology/articles/drones-are-set-to-conquer-oregons-skies-are-you-ready-december-2014> on December 3, 2014.

Conversations with Oregon UAV experts found that UAV users are used to working within the existing regulations at airports, and they are unlikely to need significant changes to regulations to operate successfully. Given the impending federal regulations, along with the changing technology, the City of Madras should wait until FAA rules related to the commercial use of UAVs is released to consider updates to it's zoning codes at the Madras Municipal Airport.

That said, the parties that were interviewed emphasized the need for the City of Madras to position itself to compete for future UAV employment. They mentioned that there were numerous economic development strategies the city could undertake, from partnerships with community colleges and universities to ensure there is a skilled, local workforce to facilitating relocation of regional offices of UAV companies and their workers to the City of Madras, just to name a few.