

# Highway Impacts Summary Guide

## Introduction: Climate-Friendly Areas & Metro Region 2040 Centers

Updates to the Transportation Planning Rules (TPR) established through the Climate-Friendly and Equitable Communities (CFEC) program established new transportation planning and land use requirements for cities and counties within metropolitan areas, with the aim of aligning the state's transportation planning with its long-term greenhouse emission reduction goal. One of these requirements, as provided by [OAR 660-012-0310](#), is the creation of climate-friendly areas (CFAs) in cities and counties over 5,000 population in a metropolitan area other than the Portland Metropolitan Area (Metro). A CFA is:

*"...an urban mixed-use area containing, or planned to contain, a mixture of higher-density housing, jobs, businesses, and services. These areas are served by, or planned for service by, high-quality pedestrian, bicycle, and transit infrastructure and services to provide frequent and convenient connections to key destinations within the city and region. These areas feature a well-designed and connected pedestrian environment... Climate-friendly areas will reduce the reliance on light duty motor vehicle trips for residents, workers, and visitors by providing more proximate destinations within climate-friendly areas, improved connectivity to key destinations elsewhere in the community, and enhanced alternative transportation options."*<sup>1</sup>

Cities and counties are first required to study CFA candidates compliant with OAR 660-012-310, -0315, and -0320 requirements (Phase 1), then adopt the final CFA(s) (Phase 2).

The previously established Metro Region 2040 centers are similar to CFAs and are within Metro. A Metro Region 2040 center is:

*"...the area within a boundary adopted by a city or county under Title 6 of the acknowledged Metro Urban Growth Management Functional Plan for the central city, regional centers, and town centers on [Metro's 2040 Growth Concept map](#)."*<sup>2</sup>

## Transportation Planning Rule Review in CFAs & Metro Region 2040 Centers

As part of the updated TPR, [OAR 660-012-0325](#) applies in lieu of [OAR 660-012-0060](#) within CFAs and Metro Region 2040 centers when a city or county proposes to:

- Adopt or expand a CFA or Metro Region 2040 center, or

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<sup>1</sup> [OAR 660-012-0005\(10\)](#)

<sup>2</sup> [OAR 660-012-0005\(24\)](#)

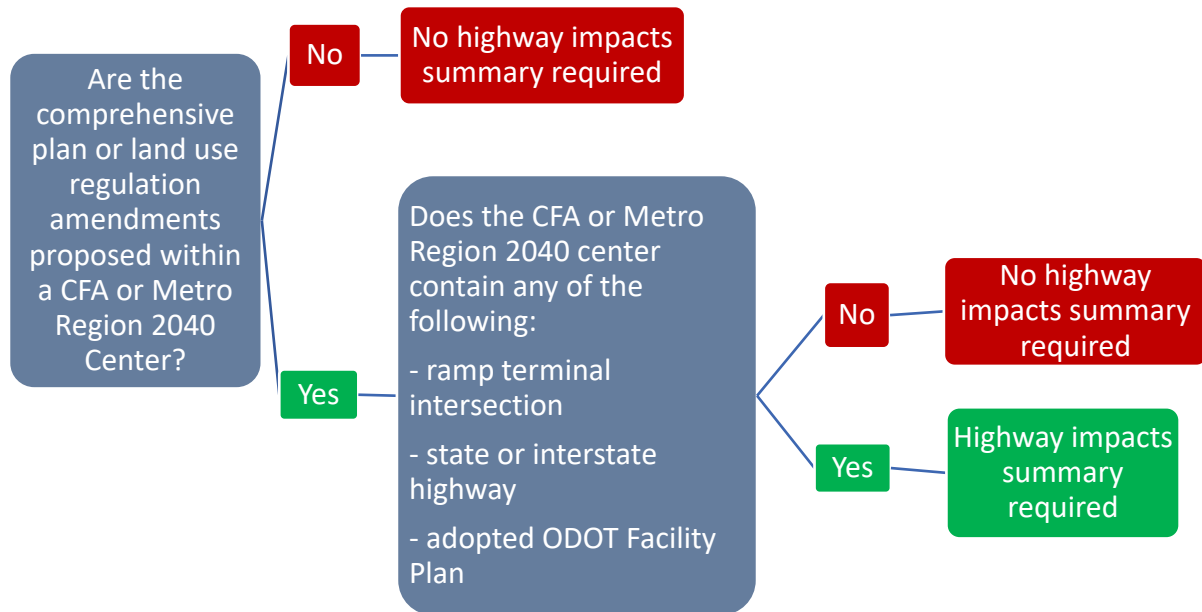
- Amend comprehensive plan or land use regulations within an existing CFA or Metro Region 2040 center.

### Adoption or Expansion

When *adopting or expanding* a CFA or Metro Region 2040 center, cities and counties are required to make findings which include a **multimodal gap summary**.<sup>3</sup> A **highway impacts summary** is also required when the CFA or Metro Region 2040 center contains any of the following:

- a ramp terminal intersection,
- state highway,
- interstate highway, or
- area subject to an adopted ODOT Facility Plan.

Figure 1. Adopting or Expanding a CFA or Metro Region 2040 Center



### Plan and Zone Amendments

When *considering an amendment* to a comprehensive plan or land use regulation within an existing CFA or Metro Region 2040, cities and counties are required to make findings which include a highway impacts summary if either of the following conditions are met:

- The proposed amendments apply to CFA or Metro Region 2040 center property within:
  - an adopted Interchange Area Management Plan,
  - one-quarter mile of a ramp terminal intersection, or

<sup>3</sup> Required multimodal gap summary components are detailed in [OAR-660-012-0325\(4\)](#).

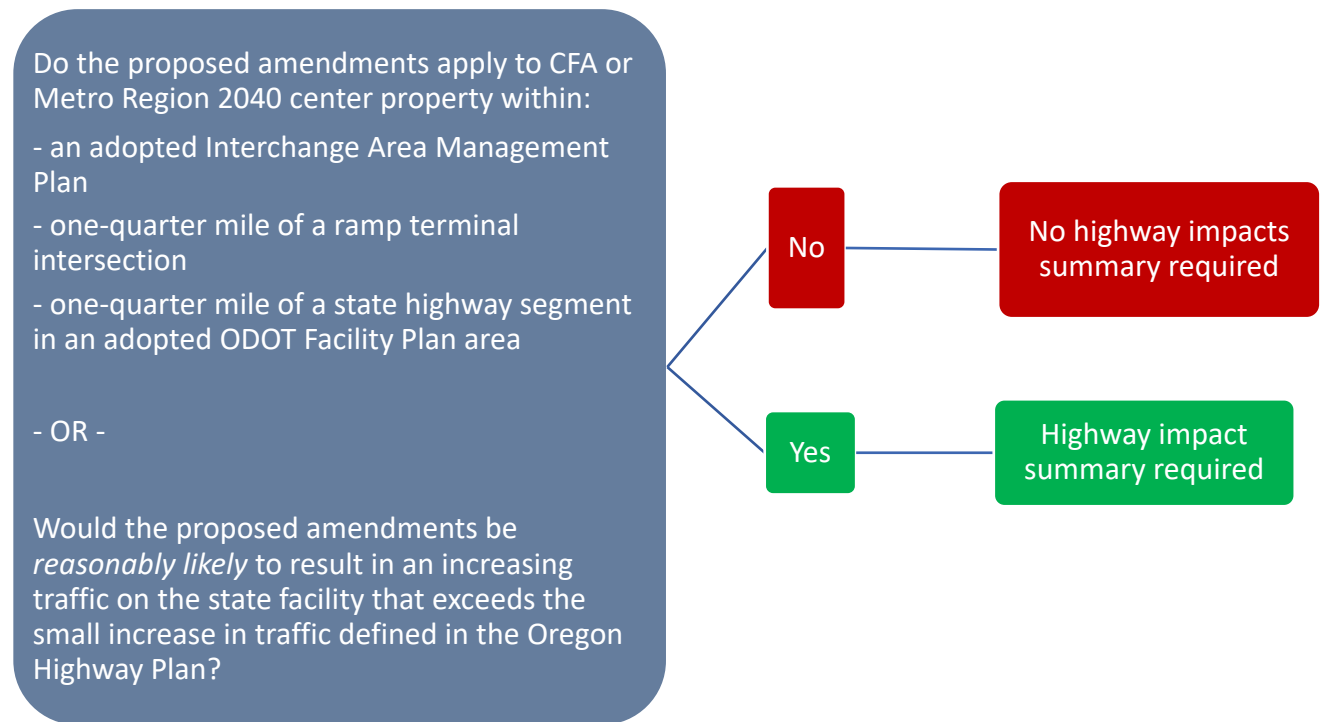
- includes property within one-quarter mile of a state highway segment in an adopted ODOT Facility Plan area.
- The proposed amendments would be reasonably likely to result in increasing traffic<sup>4</sup> on the state facility that exceeds the small increase in traffic defined in the Oregon Highway Plan adopted by the Oregon Transportation Commission.

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<sup>4</sup> As provided in Action 1F.5 of the [Oregon Highway Plan](#), “The threshold for a small increase in traffic between the existing plan and the proposed amendment is defined in terms of the increase in total average daily trip volumes as follows:

- Any proposed amendment that does not increase the average daily trips by more than 400.
- Any proposed amendment that increases the average daily trips by more than 400 but less than 1001 for state facilities where:
  - The annual average daily traffic is less than 5,000 for a two-lane highway
  - The annual average daily traffic is less than 15,000 for a three-lane highway
  - The annual average daily traffic is less than 10,000 for a four-lane highway
  - The annual average daily traffic is less than 25,000 for a five-lane highway
- If the increase in traffic between the existing plan and the proposed amendment is more than 1000 average daily trips, then it is not considered a small increase in traffic and the amendment causes further degradation of the facility and would be subject to existing processes for resolution.

Figure 2. Amending a Comprehensive Plan or Land Use Regulations within a CFA or Metro Region 2040 Center



## Highway Impacts Summary Requirements

The intent of the highway impacts summary is to enable a streamlined process for evaluating transportation impacts in areas designed to encourage and support transportation options that result in lower vehicle miles driven per capita. A highway impacts summary should include a high-level summary of current conditions and potential impacts, of increased development capacity in a CFA or Metro Region 2040 center to ODOT facilities.

As provided by [OAR 660-012-0325\(5\)](#), a highway impacts summary must include the following:



### Development Capacity

- A summary of changes between ***existing and proposed development capacity*** of the CFA based on the proposed changes to the comprehensive plan and land use regulations

### Traffic Generation

- Summary of ***additional motor vehicle traffic generation*** that may be expected in the planning period, considering reductions for:
  - expected complementary mixed-use development
  - additional multimodal options
  - assuming meeting goals for reductions in vehicle miles traveled per capita

### Safety

- Summary of ***traffic-related deaths and serious injuries*** within the CFA in the past five years

Highway Impact Summary Preparation: Roles, Responsibilities, and Deadlines  
For the initial adoption of a CFA or Metro Region 2040 center, ODOT Region Planners will be coordinating completion of the highway impacts summary, if required. This will involve coordinating with the applicable cities and counties, Metropolitan Planning Organizations (MPOs) or Councils of Governments (COGs) to obtain local data to inform the summary and could involve coordination with ODOT Region Traffic staff.

For the subsequent expansion of a CFA or Metro Region 2040 center, or amendments to comprehensive plan or land use regulations within these areas, the city or county will prepare or coordinate the preparation the highway impacts summary for ODOT Region staff review and comment.

The following cities and county are required to adopt a CFA:

City/County	CFA Adoption Deadline	ODOT Region
Albany	Apr 2025	2
Ashland	Jun 2025	3
Bend	Dec 2025	4
Central Point	Mar 2025	3
Corvallis	Jun 2025	2
Eagle Point	Dec 2024	3
Eugene	Dec 2026	2
Grants Pass	Dec 2024	3
Keizer	Jun 2026	2
Marion County	Dec 2024	2
Medford	Dec 2025	3
Philomath	Dec 2024	2
Salem	Jun 2026	2
Springfield	Dec 2026	2
Talent	Dec 2024	3

All cities have completed a CFA study. These studies are posted on Department of Land Conservation and Development's (DLCD's) [website](#) along with DLCD's comments. Some local jurisdictions must adopt their CFA(s) by December 2024, although a number of cities have received an extension for later adoption dates.

For CFA or Metro Region 2040 adoption, local jurisdictions will coordinate with ODOT staff to determine if the highway impacts summary requirement is triggered, and if so, that there is ample time for the ODOT Region Planner to prepare the highway impacts summary to meet the city or county's CFA adoption deadline.

Figure 3. Highway Impacts Summary Roles & Responsibilities: CFA Adoption

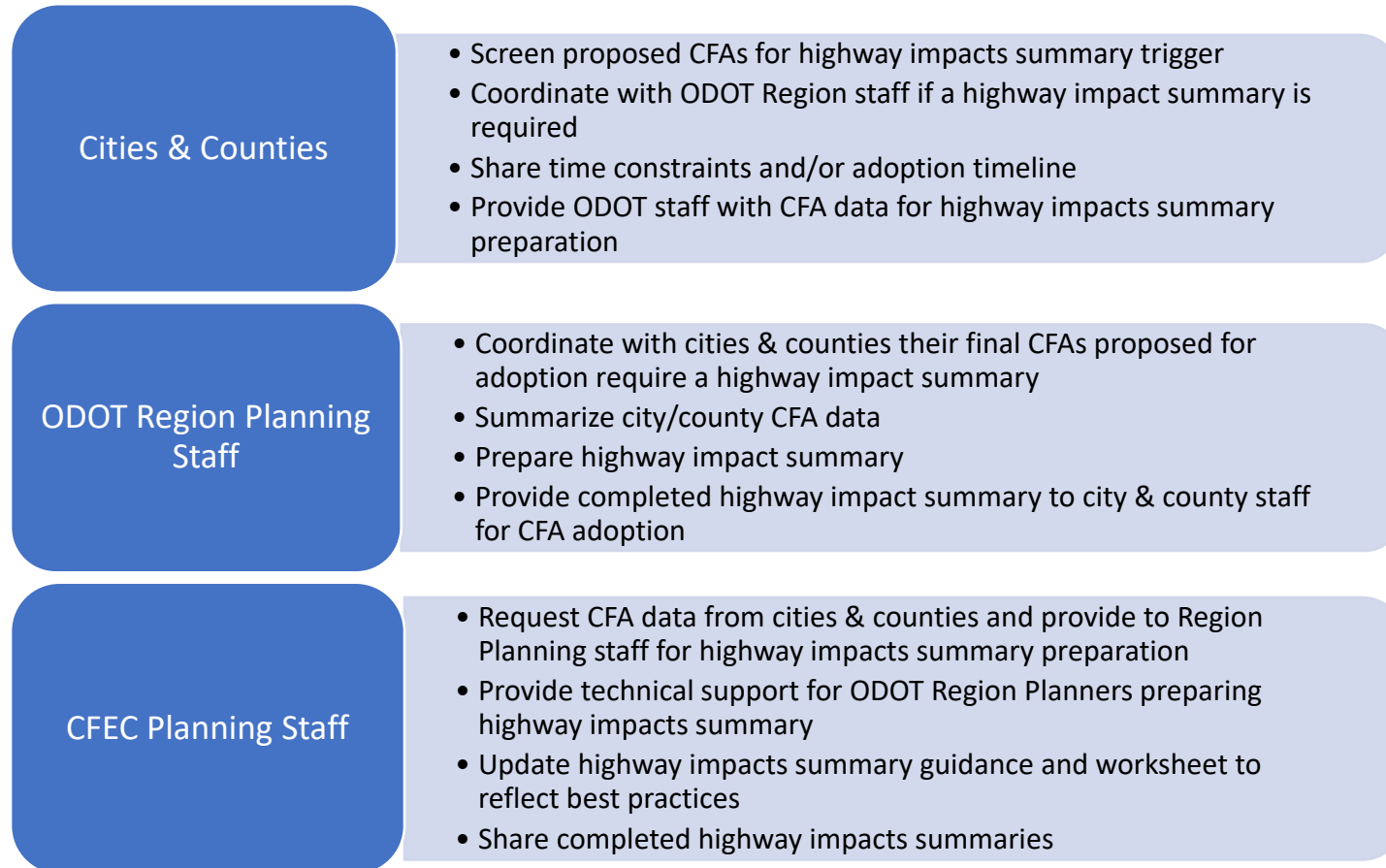
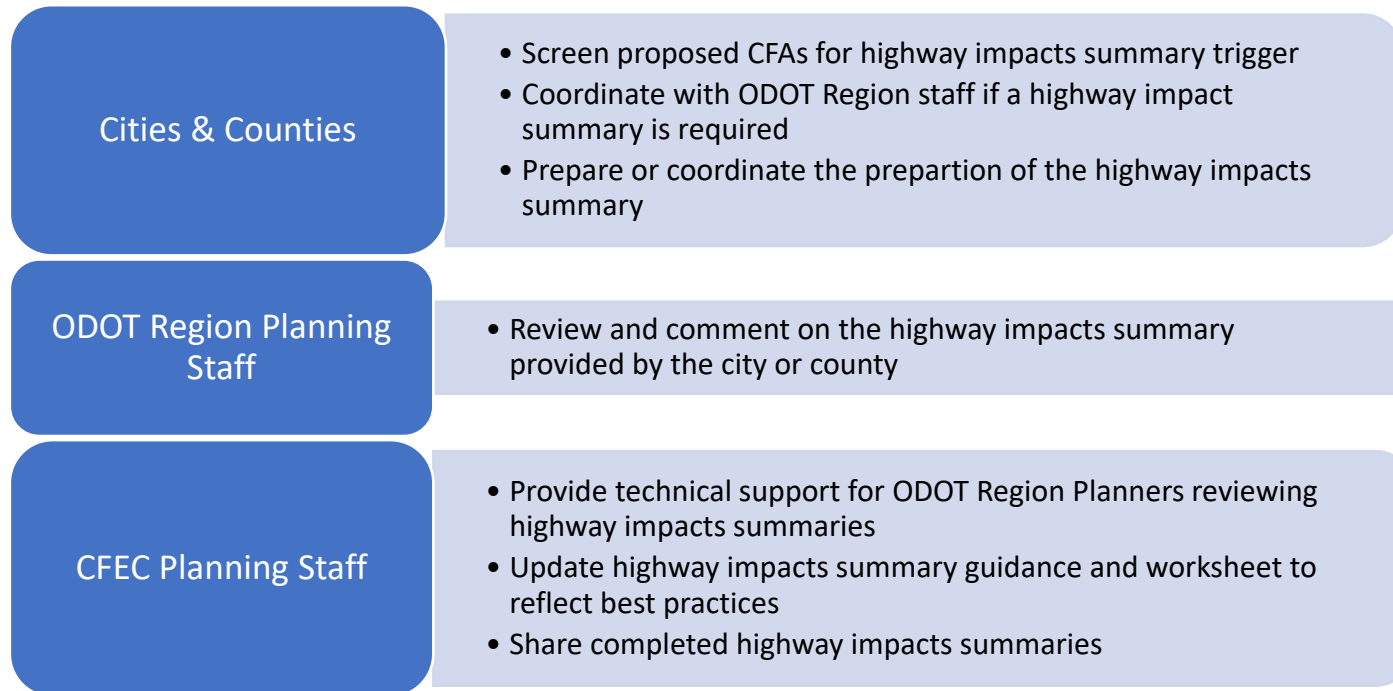


Figure 4. Highway Impacts Summary Roles & Responsibilities: CFA or Metro Region 2040 Center Expansion or Amendments to Comprehensive Plan or Land Use Regulations





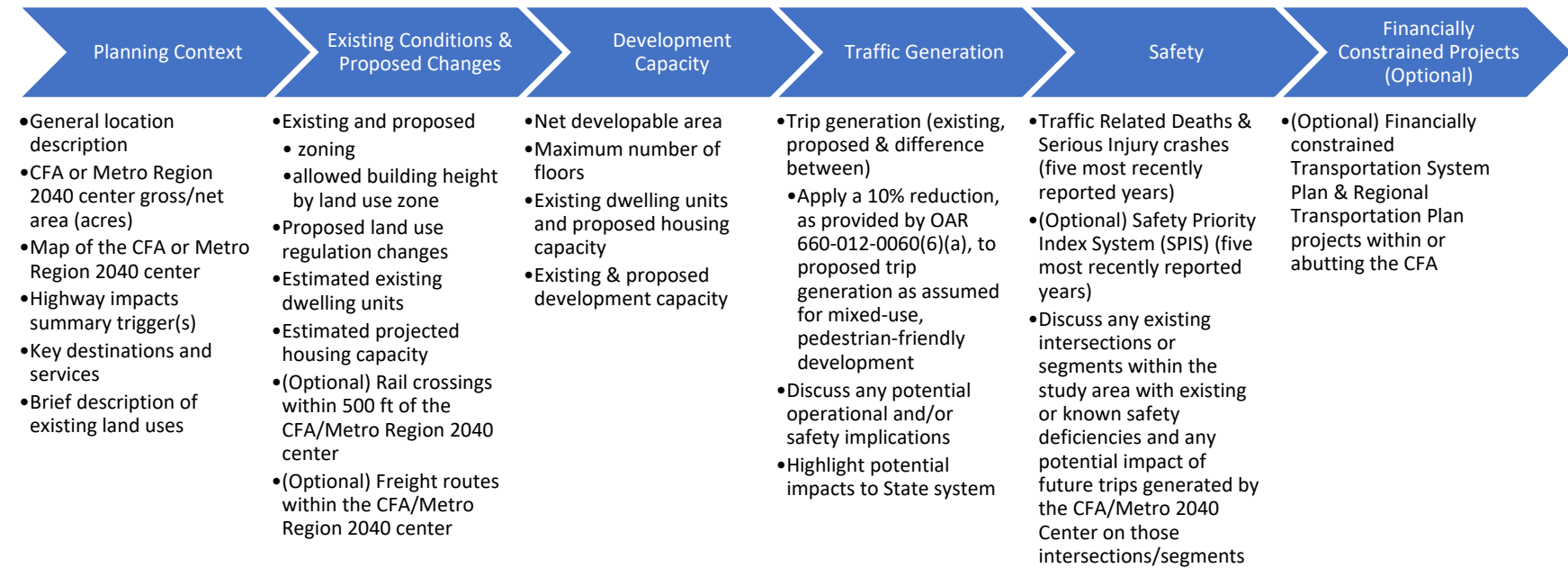
## Highway Impacts Summary Outline

The following is a general outline of the anticipated components of a highway impacts summary, which include required and additional, value-added information to inform potential impacts to ODOT facilities at time of CFA adoption as well as a subsequent expansion, or amendments to the comprehensive plan or land use regulations within a CFA or Metro Region 2040 center. OAR 660-012-0325 calls for a summary, not an analysis. As with the multimodal transportation gap summary, the level of information needed in the highway impact summary will generally be readily available and will not be separately developed for this process.

The highway impacts summary should function as a stand-alone document, requiring that information documented in other reports, plans, and/or studies will be included in the summary. This may include data from a city or county's CFA study, the associated multimodal transportation gap summary, and other plans and/or reports as necessary.

Some highway impacts summary data inputs and assumptions described below are based on CFA study analysis and the CFA Methods Guide. While a CFA study or equivalent analysis is not required for a Metro Region 2040 center, for the purposes of the highway impacts summary, this framework is applied to Metro Region 2040 centers. Similar data and assumptions can be compiled for Metro Region 2040 centers in consultation with Metro and the applicable city or county with land use planning authority. With the necessary Metro Region 2040 center data and assumptions, the methodology described below can be applied to Metro Region 2040 centers to meet the requirements of OAR 660-012-0325(5). This methodology can also be modified, as necessary, based on data availability and applicable planning assumptions.

Figure 5. Highway Impacts Summary Outline



## Planning Context

Provide a summary of the planning context and proposed changes in existing and proposed zoning and land use regulations. Including the following:

- Map of the CFA or Metro Region 2040 center
- CFA or Metro Region 2040 center gross/net area (acres)
- General location description (e.g. streets bounded by, etc.)
- Highway impacts summary trigger(s)
  - For the adoption or expansion of a CFA or Metro Region 2040 center, indicate if the area includes any of the following:
    - ramp terminal intersection
    - state highway
    - interstate highway
    - adopted ODOT Facility Plan
  - For the amendment of comprehensive plan or land use regulations within an existing CFA or Metro Region 2040 center, the area:
    - Includes property within:
      - adopted Interchange Area Management Plan,
      - one-quarter mile of a ramp terminal intersection, or
      - one-quarter mile of a state highway segment in an adopted ODOT Facility Plan area; or
    - The proposed amendments would be reasonably likely to result in increasing traffic on the state facility that exceeds the small increase in traffic defined in the Oregon Highway Plan adopted by the Oregon Transportation Commission.
- Key destinations and services
- Brief description of existing land uses

## Existing Conditions & Proposed Changes

- Existing and proposed zoning
- Existing and proposed allowed building height by land use zone
- Proposed land use regulation changes:
  - Highlight changes in land use regulations which will impact intensity of allowed land uses
- Estimated existing dwelling units
- Estimated projected housing capacity
- (Optional) Rail crossings within 500 ft of the CFA/Metro Region 2040 center
- (Optional) Freight routes within the CFA/Metro Region 2040 center

## Development Capacity: Difference between Existing Conditions & Proposed Changes

The highway impacts summary analyzes the difference between existing and proposed development capacity of a CFA and Metro Region 2040 center. Highway impacts summary development capacity is defined similarly to zoned building capacity in the CFA study. In the CFA study, zoned building capacity was used to identify candidate CFAs which meet the required housing unit capacity and any necessary code amendments or zoning changes to comply with the Transportation Planning Rules. OAR 660-012-315(2)(a) and the CFA Methods Guide inform the calculation of zoned building capacity “regardless of existing development.” In this approach, each lot (aside from excluded land uses listed below) in a CFA is considered developable, although in the highway impacts summary, future parcelization is not considered for means of simplification.

For the purposes of the highway impacts summary, CFA or Metro Region 2040 center development capacity is calculated using the following variables:

1. The net developable area of all lots (aside from excluded land use types list below) in square feet
2. The maximum number of building floors

Development capacity is the product of net developable area and the allowed maximum number of floors:

$$\text{Development Capacity} = \text{net developable area} \times \text{maximum number of floors}$$

### When Development Capacity Summaries Are Not Required

If the proposed comprehensive plan or land use regulation amendments will not result in an increase in intensity of land uses, in an increase of allowed building height, or a substantial increase in buildable area, then the quantitative summarization below is not required. Document this in the highway impacts summary narrative.

### Net Developable Area

Net developable area differs from the gross area in that it excludes the following types of land uses:<sup>5</sup>

- Existing right-of-way
- Land area set aside to protect natural resources or to prevent natural hazards as specified by land use rule or statute (e.g., Goal 7 or Goal 5 protected areas)
- Land area planned for public uses, such as parks or open space areas

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<sup>5</sup> [Climate-Friendly Area Methods Guide](#)

Additionally, net developable area takes into consideration existing and proposed CFA or Metro Region 2040 center development standards by deducting out the following from gross lot area:

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- Required setbacks
- On-site parking or vehicular access requirements
- Pedestrian circulation requirements
- Landscaping requirements
- Open space requirements

Unbuildable lot area by land use zone based on development standards (herein referred to as the development standards reduction factor) can be calculated as a percentage and then be deducted from net buildable area. Several jurisdictions provided a development standards reduction factor by land use zone in their CFA studies, while other jurisdictions omitted this step, as allowed in the CFA Methods Guide.<sup>7</sup> If this reduction factor can be obtained from the CFA study or provided by the city or county, this should be applied to the net developable area (low estimate, if low and high estimates are provided). If this data is unavailable, this step can be eliminated and should be documented as a data accuracy limitation in the highway impacts summary.

Maximum number of floors is determined by allowed building height of each land use zone and is calculated utilizing the following formula<sup>8</sup>. The result should be rounded down:

$$\text{maximum number of floors} = \frac{\text{allowed building height}}{12}$$

#### Existing Dwelling Units & Projected Housing Capacity

The CFA study analyzed the residential building capacity of each candidate CFA. This dwelling unit data should be used to calculate existing and proposed development capacity. As a result, residential development capacity is calculated separately from non-residential development capacity detailed above. Given that a CFA study was not prepared for Metro Region 2040 centers, consult with Metro and the applicable city or county with land use planning authority regarding the appropriate assumptions or data input for Metro Region 2040 centers.

#### Existing Dwelling Units

During CFA adoption (Phase 2), cities and counties are required to report the number of existing dwelling units if this was not reported in the CFA study. The square footage of existing

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<sup>6</sup> [OAR 660-012-0315\(2\)\(a\)](#)

<sup>7</sup> See “net developable area” tip under Step 6. Calculate CFA Capacity, of Phase 1: CFA Study, in the CFA Methods Guide.

<sup>8</sup> See OAR 660-012-0315(2)(b)

dwelling units (assuming each is 900 square feet<sup>9</sup>) is deducted from the total existing development capacity. Dwelling units are added back in to the development capacity at the trip generation calculation step of the highway impacts summary.

#### Projected Housing Capacity

In the CFA study, cities and counties with a population greater than 10,000, assume that 30% of the overall CFA proposed development capacity will be residential as provided by OAR 660-012-0315(3)(b). While this applies to CFAs for cities with a population greater than 10,000, for the purposes of simplifying the calculation of CFA development capacity for the highway impacts summary, this will be applied to all CFAs. In some cases, in which a city or county proposes to adopt more than one CFA, the city or county has provided an alternative projected percentage or number of dwelling units. If so, these alternative values should be used in lieu of 30% to calculate projected dwelling units. Thus, 30% or the alternative projected percentage or number of dwelling units as provided by the city or county should be subtracted from the total proposed development capacity. The projected number of dwelling units will be added back in to calculate proposed trip generation.

Below are the associated formulas, calculation steps, and summary tables for existing and proposed development capacity.

#### How to Calculate Change in Development Capacity

Calculate separately for existing and proposed development capacity.

1. Calculate net developable area
  - a. Gross CFA or Metro Region 2040 center area minus:
    - i. Existing right-of-way (if not already deducted)
    - ii. Land area set aside to protect natural resources or to prevent natural hazards as specified by land use rule or statute (e.g., Goal 7 or Goal 5 protected areas)
    - iii. Land area planned for public uses, such as parks or open space areas
  - b. Summarize above result by land use zone
  - c. Convert acres to square feet  
net developable area = acreage x 43,560 square feet
  - d. Determine development standards reduction factor by land use zone for (*omit this step if none is provided in the CFA study or otherwise reported by the city or county*):
    - i. required setbacks
    - ii. on-site parking or vehicular access requirements
    - iii. pedestrian circulation requirements
    - iv. landscaping requirements
    - v. open space requirements

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<sup>9</sup> As provided by OAR 660-012-0315(2)(e).

- e. Subtract development standards reduction factor from summarized area by land use zone (*omit this step if none is provided in the CFA study or otherwise reported by the city or county*):
2. Calculate maximum number of floors
  - a. Summarize allowed building height by land use zone
  - b. Divide allowed building height by land use zone 12. Round down the result.  

$$\text{maximum number of floors} = \frac{\text{allowed building height}}{12}$$
3. Calculate non-residential development capacity area in square feet
  - a. Existing Only
    - i. Multiply net developable area per land use zone by maximum number of floors  

$$\text{Development Capacity} = \text{net developable area} \times \text{maximum number of allowed floors}$$
    - ii. Multiply total number of dwelling units by 900 square feet (assumed average unit size)
    - iii. Divide the total square footage of dwelling units by the total development capacity area
    - iv. Apply this percent reduction to the total development capacity result above to account for CFA or Metro Region 2040 center dwelling units
  - b. Proposed Only
    - i. Multiply net developable area per land use zone by maximum number of floors  

$$\text{Development Capacity} = \text{net developable area} \times \text{maximum number of allowed floors}$$
    - ii. Projected Residential Percentage Reduction: Apply a 30% or the alternative projected percentage reduction to the development capacity area result above to account for the 30% of CFA or Metro Region 2040 center dwelling units (in consultation with Metro and applicable city or county with land use planning authority)  

$$\text{Non-residential Development Capacity} = \text{Development Capacity} - (\text{Development Capacity} \times \text{percent residential})$$

--Or--
    - iii. Projected Dwelling Units Reduction: Multiply total number of projected dwelling units by 900 square feet (assumed average unit size)
    - iv. Divide the total square footage of dwelling units by the total development capacity area
    - iv. Apply this percent reduction to the total development capacity result above to account for CFA or Metro Region 2040 center dwelling units

Development Capacity Summary Tables

Table 1. Existing Development Capacity (sq ft)

a	b	c	d	e	f	g	h	i	j
Land Use Zone	Net Developable Area (acres)	Net Developable Area (sq ft)	Development Standards Reduction Factor	Total Net Developable Area	Allowed Building Height	Maximum Number of Floors	Development Capacity (Sq Ft)	Percent Residential based on Existing Dwelling Units	Development Capacity without Dwelling Units (Sq Ft)
Formula (data input by column letter)		$b \times 43,560$		$c - (c \times d)$		$(f/12)^*$ (*result is rounded down)	$e \times g$	(existing residential units x 900)/sum of h	$h - (h \times i)$
Example: Commercial Mixed-Use (CMU)-2	6.64	289,238	0.3	202,467	75	6	1,214,801	0.35%	1,210,601
Example: Mixed-Use Employment Center (MUE)	26.56	1,156,954	0.3	809,868	45	3	2,429,603	0.35%	2,421,203



Table 2. Proposed Development Capacity (sq ft)

a	b	c	d	e	f	g	h	i	j
Land Use Zone	Net Developable Area (acres)	Net Developable Area (sq ft)	Development Standards Reduction Factor	Total Net Developable Area	Allowed Building Height	Maximum Number of Floors	Development Capacity (Sq Ft)	Percent Residential Dwelling Units	Development Capacity without Proposed Dwelling Units (Sq Ft)
Formula (data input by column letter)		b x 43560		c - (c x d)		(f/12)* (*result is rounded down)	e x g	(projected residential units x 900)/sum of h	h - (h x i)
Example: Commercial Mixed-Use (CMU)-2	33.2	1,446,192	0.3	1,012,334	75	6	6,074,006	27.89%	4,380,206

#### Additional Motor Vehicle Traffic: Difference between Existing & Proposed Trip Generation

Weekday average daily trip generation rate will be used as a proxy for traffic generation in the CFA and Metro Region 2040 center informed by the “reasonable worst-case scenario”<sup>10</sup> of full build-out of the existing and proposed zoning and development code standards.

To calculate weekday average daily trip generation, first, summarize the total non-residential development capacity of each land use zone and report the number of dwelling units. Use the most recent version of the Institute of Transportation Engineers (ITE) Trip Generation Manual to determine the most appropriate ITE code for each land use zone. For non-residential land use zones, ITE Code selection should be based on a “reasonable worst-case scenario”. This is informed by the allowed uses within each land use zone as detailed in the city or county’s development code and summarized in the CFA study. Multiply development capacity of each land use zone by associated ITE code weekday average daily trip generation rate.

Complete this calculation process for both existing and proposed development capacity and associated trip generation.

Below are the associated formulas, calculation steps, and summary tables to calculate additional motor vehicle traffic.

#### How to Calculate Additional Motor Vehicle Traffic

1. Summarize the difference between existing and proposed weekday average daily trips.
    - a. Report development capacity without dwelling units by land use zone
    - b. Add dwelling units to summary table (Tables 3 & 4)
    - c. Determine ITE Codes to each land use zone and dwelling units based on reasonable worst-case scenario of allowed uses.
      - i. For non-residential land uses, determine a high-level estimated percentage combination of ITE Codes (2-4 ITE Codes may be sufficient) on existing uses for existing traffic generation and allow uses for proposed traffic generation. Select the most appropriate combination of ITE Codes based on knowledge of the CFA or Metro Region 2040 center and readily available data. Factors to consider are the development context (e.g. urban, suburban, or small town) and development type (e.g. urban or suburban town center, or small-town main street). Enter this percentage into the Percentage column of Tables 3 & 4 of the worksheet.
- The following is a list of suggested ITE Codes which may be appropriate:<sup>11</sup>

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<sup>10</sup> “‘Reasonable worst case’ scenario for potential land use and traffic assumptions, rather than the particular land use and effects of what is proposed” as provided by ODOT Development Review Guidelines, 2017, Section 3.2, page 102; consistent with methodology detailed in Section 3.2.2, bullet point 5, page 83.

<sup>11</sup> This is not intended to be a comprehensive list of ITE Codes but can be used as a starting point in this process.

1. Retail
  - a. ITE Code 821 – Shopping Plaza (40-150k sq ft)
  - b. ITE Code 822 – Strip Retail Plaza (<40k sq ft)
  - c. ITE Code 850 – Supermarket
  - d. ITE Code 820 – Shopping Center (>150k sq ft)
  - e. ITE Code 851 – Convenience Market
  - f. ITE Code 875 – Department Store
2. Office/Industrial
  - a. ITE Code 710 – General Office Building
  - b. ITE Code 750 – Office Park
  - c. ITE Code 770 – Business Park
  - d. ITE Code 110 – General Light Industrial
3. Services/Recreational
  - a. ITE Code 912 – Drive-in Bank
  - b. ITE 445 – Movie Theater
4. Restaurant
  - a. ITE Code 926 – Food Cart pod
  - b. ITE Code 930 – Fast Casual Restaurant
  - c. ITE Code 932 – High-Turnover (Sit-Down) Restaurant
  - d. ITE Code 934 – Fast-Food with Drive-Through/Indoor Seating
  - e. ITE Code 936 – Coffee/Donut shop without Drive-Through
  - f. ITE Code 938 – Coffee/Donut shop with Drive-Through – no seating
  - g. ITE Code 939 – Bread/Donut/Bagel Shop without Drive-Through
5. Other
  - a. ITE Code 310 – Hotel
  - ii. For existing dwelling units, consider using the applicable residential ITE Code (data permitting) or a selection of single-family, duplex, or multifamily ITE Codes, as applicable.
  - iii. For proposed dwelling units, consider using the applicable multifamily or low/mid-rise residential with commercial (ITE codes 220-222, 230-231) due to the assumed unit size of 900 sq ft and density of the CFA and Metro Region 2040 centers
  - d. List selected ITE Codes and associated weekday average daily trip generation rate by land use zone and dwelling units (as listed in the most recent version of the ITE Trip Generation Manual).
  - e. Multiply development capacity by Percentage Combination (as listed in the most recent version of the ITE Trip Generation Manual) for each land use zone and dwelling units

- f. Multiply development capacity by weekday average daily trip generation rate (as listed in the most recent version of the ITE Trip Generation Manual) for each land use zone and dwelling units
    - Non-Residential* weekday average daily trip =  $(\text{Development Capacity}/1,000^{12}) \times \text{trip generation rate}$
    - Residential* weekday average daily trip =  $\text{Number of Dwelling Units} \times \text{trip generation rate}$
  - g. Calculate total weekday average daily trip for all categories
2. Difference in Trip Generation of Existing and Proposed Development Capacity Weekday Average Daily Trips
- a. Summarize total existing and proposed development capacity weekday average daily trips
  - b. Apply a 10% internal capture reduction<sup>13</sup> for proposed weekday average daily trips for mixed-use, pedestrian-friendly development
    - weekday average daily trips - (development capacity x 0.1)
  - c. Subtract existing development capacity weekday average daily trips from proposed development capacity weekday average daily trips
  - d. Calculate percent change between existing and proposed trip generation

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<sup>12</sup> Many ITE non-residential ITE Codes require the land use square footage to be divided by 1,000 sq ft to obtain the value by which the trip generation rate is multiplied. This does not apply to every ITE Code. Verify the appropriate formula by ITE Code in the most recent version of the ITE Trip Generation Manual.

<sup>13</sup> As provided by [OAR 660-012-0060\(6\)\(a\)](#): “Absent adopted local standards or detailed information about the vehicle trip reduction benefits of mixed-use, pedestrian-friendly development, local governments shall assume that uses located within a mixed-use, pedestrian-friendly center, or neighborhood, will generate 10 percent fewer daily and peak hour trips than are specified in available published estimates, such as those provided by the Institute of Transportation Engineers (ITE) Trip Generation Manual that do not specifically account for the effects of mixed-use, pedestrian-friendly development.”

Additional Motor Vehicle Traffic Summary Tables

Table 3. Existing Trip Generation (weekday average daily trips)

a	b	c	d	e	f
Land Use Zone	Percentage	Development Capacity (sq ft) or Number of Dwelling Units	ITE Code	Average Daily Trip Generation Rate	Existing Average Daily Trips
Formula (data input by column letter)					non-residential: (c/1,000) x e [or as dictated by ITE Code]; residential: c x e
Example: CMU-2	55%	665,831	822 Strip Retail Plaza (<40k)	54.45	36,254
Example: CMU-2	10%	121,060	710 General Office Building	10.84	1,312
Example: CMU-2	10%	121,060	151 Mini-Warehouse	1.45	176
Example: CMU-2	23%	278,438	930 Fast Casual Restaurant	97.14	27,047
Example: CMU-2	2%	24,212	850 Supermarket	93.84	2,272
Example: MUE	60%	1,452,722	822 Strip Retail Plaza (<40k)	54.45	79,101
Example: MUE	20%	484,241	151 Mini-Warehouse	1.45	702
Example: MUE	20%	484,241	930 Fast Casual Restaurant	97.14	47,039
Example: Single-Family Detached Housing		12	210 Single-Family Detached Housing	9.43	113
Single-Family Attached housing		2	220 Single-Family Attached Housing	7.2	14
				<b>Total</b>	<b>194,031</b>

Table 4. Proposed Trip Generation (weekday average daily trips)

a	b	c	d	e	f	g
Land Use Zone	Percentage	Development Capacity (sq ft) or Number of Dwelling Units	ITE Code	Average Daily Trip Generation Rate	Proposed Average Daily Trips	Total Average Daily Trips Including 10% Internal Capture Reduction
Formula (data input by column letter)					non-residential: (c/1,000) x e [or as dictated by ITE Code]; residential: c x e	f - (f x 0.1)
Example: Commercial Mixed-Use (CMU)-2	50%	2,190,103	822 Strip Retail Plaza (<40k)	54.45	119,251	107,326
Example: Commercial Mixed-Use (CMU)-2	20%	876,041	710 General Office Building	10.84	9,496	8,547
Example: Commercial Mixed-Use (CMU)-2	10%	438,021	151 Mini-Warehouse	1.45	635	572
Example: Commercial Mixed-Use (CMU)-2	18%	788,437	930 Fast Casual Restaurant	97.14	76,589	68,930
Example: Commercial Mixed-Use (CMU)-2	2%	87,604	850 Supermarket	93.84	8,221	7,399
Example: Residential		1,882	221 Multifamily Housing (Mid-Rise) Not Close to Rail Transit	4.54	8,544	7,690
					<b>Total</b>	<b>200,463</b>

Table 5. Difference Between Existing & Proposed Trip Generation (weekday average daily trips)

<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>
<b>Existing Average Daily Trips</b>	<b>Proposed Average Daily Trips</b>	<b>Difference in Average Daily Trips</b>	<b>Percent Change</b>
(e of Table 3)	(f of Table 4)	b - a	(b-a)/a x100
194,031	200,463	6,431	3.3%

### Additional Motor Vehicle Traffic: Difference between Existing & Proposed Trip Generation

- Summarize difference between existing and proposed trip generation
- Discuss any potential operational and/or safety implications
- Highlight potential impacts to State system

### Traffic Related Deaths & Serious Injuries

#### Crash Data

Utilizing the crash data provided in the CFA ODOT Impacted Areas map, provide a summary of fatal and serious injury crashes, within the five most recently reported years (currently 2016-2021). Provide summary table and map and describe any hot spots or trends.

Create a map displaying crashes within the CFA or Metro Region 2040 center using the [CFA ODOT Impacted Areas map](#). Use the [CFA ODOT Impacted Areas map](#) screening tool to query the crash layer. Download the resulting report. Use the following data fields to compile the crash data into a summary table:

- Crash Date
- Crash Hour Description
- Road Description
- Intersecting Road Description
- Crash Type Description
- Collision Type Description
- Weather Description
- Road Surface Condition Description
- Traffic Control Device Description
- Cause
- Highest Injury Severity Description

Safety Priority Index System (SPIS) Data (Optional Section; Not Required)

Safety Priority Index System (SPIS) data, five most recent years of crash data available (currently 2015-2021); include top 10% (90%-100%). Use the CFA ODOT Impacted Areas map to query the SPIS sites within the CFA or Metro Region 2040 center. Describe any hot spots or trends.

Financially Constrained Projects Within or Abutting the CFA or Metro Region 2040 Center (Optional; Not Required)

List financially constrained projects within or abutting the CFA or Metro Region 2040 Center from the Transportation System Plan, Regional Transportation Plan, State Transportation Improvement Plan (STIP), and locally adopted plans. This section is optional and not required by OAR 660-012-0325.



## Data Sources

<b>Data Required for Each CFA or Metro Region 2040 Center Triggering a Highway Impacts Summary</b>	<b>Data Geography/ Organization</b>	<b>Data Source</b>
Boundaries of the final CFAs or Metro Region 2040 center proposed for adoption in shapefile (zipped) format	CFA or Metro Region 2040 center	City or County
CFA or Metro Region 2040 center area by land use zone, excluding:	Land use zone	City or County
<i>Existing rights-of-way</i>		
<i>Land area set aside to protect natural resources or to prevent natural hazards as specified by land use rule or statute (e.g., Goal 7 or Goal 5 protected areas)</i>		
<i>Land area planned for public uses, such as parks or open space areas</i>		
Allowed building height by land use zone (both existing and proposed)	Land use zone	City or County
<i>(If available and/or calculated in the CFA Study)</i>		
Development standards reduction factor applied by land use zone for non-buildable portions of parcels, such as setbacks, required landscaping and open space, and parking	Land use zone	City or County
(Optional) Rail crossings within 500 ft of the CFA or Metro Region 2040 center	CFA or Metro Region 2040 Center	<a href="#">ODOT TransGIS</a>
(Optional) Freight routes within the CFA or Metro Region 2040 center	CFA or Metro Region 2040 Center	<a href="#">ODOT TransGIS</a>
Existing number of dwelling units	CFA or Metro Region 2040 Center	City or County
Projected housing capacity (percent residential or number of dwelling units)	CFA or Metro Region 2040 Center	City or County
Institute of Transportation Engineers (ITE) Codes & trip generation rates	CFA or Metro Region 2040 Center	ITE, Trip Generation Manual, 11th Edition (Region Traffic staff)
Fatal & serious injury crashes	CFA or Metro Region 2040 Center	<a href="#">CFA ODOT Impacted Areas map</a> ; Layer: Crashes 2016-2021
(Optional) Safety Priority Index System (SPIS)	CFA or Metro Region 2040 Center	<a href="#">CFA ODOT Impacted Areas map</a> ; Layers: SPIS 2018-2022 (listed separately by year)

## Local Data Gathering Worksheet

<b>CFA Data Category</b>	<b>Example Data</b>	<b>CFA 1</b>
CFA name	<i>Site A, Downtown</i>	
Gross area	<i>79.4 acres</i>	
Net developable area by land use zone (if proposing a zone change, detail by existing and proposed)	<i>Central Business (CB): 15.51 acres Historic District (HD): 6.11 acres Lyons Ellsworth (LE): 4.49 acres</i>	
Development standards reduction factor applied by land use zone for non-buildable portions of parcels, such as setbacks, required landscaping and open space, and parking (If available and/or calculated in the CFA Study)	<i>0.1</i>	
Existing allowed building height by land use zone	<i>CB: 65 ft HD: 85 ft LE: 60 ft</i>	
Proposed allowed building height by land use zone	<i>CB: 65 ft HD: 85 ft LE: 60 ft</i>	
Existing number of dwelling units (if available, list by land use zone)	<i>Total: 107 CB: 80 HD: 26 LE: 1</i>	
Projected number of dwelling units (high and low, if calculated as such; if available, list by land use zone)	<i>Total: 107 CB: 80 HD: 26 LE: 1</i>	
Proposed zoning changes	<i>Detail changes to allowed uses and/or density requirements</i>	
Final CFA boundary proposed for adoption in shapefile format (provide each in separate zipped file)	<i>Provide boundary file</i>	

## Resources

- [CFA ODOT Impacted Areas](#) (Interactive map)
- [Climate-Friendly Area Methods Guide](#), Version 3, April 2023, Department of Land Conservation & Development (DLCD)
- [Climate-Friendly Areas Phase I Studies and DLCD Comments](#) (scroll down to Climate-Friendly Areas header), DLCD
- [Designation of Climate-Friendly Areas fact sheet](#), DLCD
- [Development Review Guidelines](#), 2017, ODOT
- Institute of Transportation Engineers, Trip Generation Manual, 11<sup>th</sup> Edition
- [OAR 660-012](#) (Transportation Planning Rules)
- [ODOT TransGIS](#) (Interactive map)
- [Oregon Highway Plan](#), adopted 1999, includes May 2015 and January 2023 amendments

## Attachment 1. Example Highway Impacts Summary: City of Corvallis South Corvallis Climate-Friendly Area (CFA)

### Planning Context

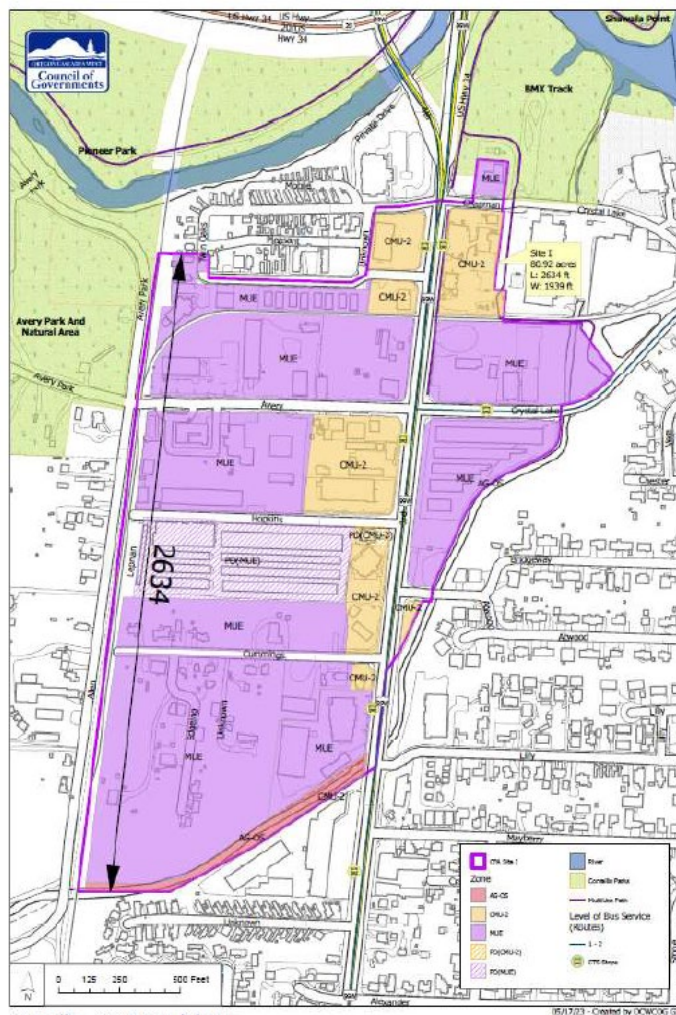
#### Location Description

The CFA is located in south Corvallis, north of SE Lilly Ave, south of the Pacific Highway West No. 091 (99W)/Corvallis-Newport Hwy No. 033 (20) interchange, east of SE Allen St, and west of SE Crystal Lake Dr.

#### CFA Acreage

80.9 gross acres; 33.2 net acres

Figure 1. South Corvallis CFA



### Highway Impacts Summary Trigger

Highway 99W traverses the South Corvallis CFA.

### Key Destinations and Services

Transit stops, grocery store, and adjacent to Avery Park. Multi-use path along northeast side.

### Existing Land Uses

Commercial development, some vacant area, storage unit complex

### Rail Crossings within 500 ft of the CFA

The CFA abuts Portland & Western Railroad rail line which has one at-grade crossing at the intersection of SW Allen Street and SW Avery Park Drive.

Figure 2. At-Grade Rail Crossing at Intersection of SW Allen Street & SW Avery Park Drive



Source: Google Street View, Image capture Aug. 2022

### Freight Routes

Highway 99W, which traverses the CFA, is identified as a freight route in the Oregon Highway Plan.

## Existing Conditions & Proposed Changes

### Existing Zoning

- Commercial Mixed-Use 2 (CMU-2), 6.64 acres
- Mixed-Use Employment Center (MUE), 26.56 acres

### Proposed Zoning

- CMU-2, 33.2 acres

### Existing and Proposed Allowed Building Height by Land Use Zone

- CMU-2, 75 ft (six floors); no change
- MUE, 45 ft (three floors); no change

### Proposed Land Use Regulations Changes

The city proposes to impose minimum CMU-2 residential density standards. CMU currently lacks a minimum or maximum residential density standard. MUE and CMU-2 have similar allowed uses; thus, the zone change is not anticipated to result in a greater intensity of land uses. The main difference between the development standards between the zones is the greater building height of the CMU-2 zone, 75 ft or six floors, in comparison the MUE zone which allows for a maximum of 45-ft tall buildings, three floors.

Estimated Existing Dwelling Units

14 dwelling units (12 single-family homes and one duplex)

Projected Housing Capacity

- Low – 1,882 units
- High – 2,825 units

## Development Capacity: Difference between Existing Conditions & Proposed Changes

Table 1. Existing Development Capacity (sq ft)

Land Use Zone	Net Developable Area (acres)	Net Developable Area (sq ft)	Development Standards Reduction Factor	Total Net Developable Area	Allowed Building Height	Maximum Number of Floors	Development Capacity (Sq Ft)	Percent Residential based on Existing Dwelling Units	Development Capacity without Dwelling Units (Sq Ft)
<i>Example: Commercial Mixed-Use (CMU)-2</i>	6.64	289,238	0.3	202,467	75	6	1,214,801	0.35%	1,210,601
<i>Example: Mixed-Use Employment Center (MUE)</i>	26.56	1,156,954	0.3	809,868	45	3	2,429,603	0.35%	2,421,203

Table 2. Proposed Development Capacity (sq ft)

Land Use Zone	Net Developable Area (acres)	Net Developable Area (sq ft)	Development Standards Reduction Factor	Total Net Developable Area	Allowed Building Height	Maximum Number of Floors	Development Capacity (Sq Ft)	Percent Residential Dwelling Units	Development Capacity without Proposed Dwelling Units (Sq Ft)
<i>Example: Commercial Mixed-Use (CMU)-2</i>	33.2	1,446,192	0.3	1,012,334	75	6	6,074,006	27.89%	4,380,206

## Additional Motor Vehicle Traffic: Difference between Existing & Proposed Trip Generation

Table 3. Existing Trip Generation (weekday average daily trips)

Land Use Zone	Percentage	Development Capacity (sq ft) or Number of Dwelling Units	ITE Code	Average Daily Trip Generation Rate	Existing Average Daily Trips
<i>Example: CMU-2</i>	55%	665,831	822 Strip Retail Plaza (<40k)	54.45	36,254
<i>Example: CMU-2</i>	10%	121,060	710 General Office Building	10.84	1,312
<i>Example: CMU-2</i>	10%	121,060	151 Mini-Warehouse	1.45	176
<i>Example: CMU-2</i>	23%	278,438	930 Fast Casual Restaurant	97.14	27,047
<i>Example: CMU-2</i>	2%	24,212	850 Supermarket	93.84	2,272
<i>Example: MUE</i>	60%	1,452,722	822 Strip Retail Plaza (<40k)	54.45	79,101
<i>Example: MUE</i>	20%	484,241	151 Mini-Warehouse	1.45	702
<i>Example: MUE</i>	20%	484,241	930 Fast Casual Restaurant	97.14	47,039
<i>Example: Single-Family Detached Housing</i>		12	210 Single-Family Detached Housing	9.43	113
<i>Single-Family Attached housing</i>		2	220 Single-Family Attached Housing	7.2	14
			<b>Total</b>		<b>194,031</b>



Table 4. Proposed Trip Generation (weekday average daily trips)

Land Use Zone	Percentage	Development Capacity (sq ft) or Number of Dwelling Units	ITE Code	Average Daily Trip Generation Rate	Proposed Average Daily Trips	Total Average Daily Trips Including 10% Internal Capture Reduction
Example: Commercial Mixed-Use (CMU)-2	50%	2,190,103	822 Strip Retail Plaza (<40k)	54.45	119,251	107,326
Example: Commercial Mixed-Use (CMU)-2	20%	876,041	710 General Office Building	10.84	9,496	8,547
Example: Commercial Mixed-Use (CMU)-2	10%	438,021	151 Mini-Warehouse	1.45	635	572
Example: Commercial Mixed-Use (CMU)-2	18%	788,437	930 Fast Casual Restaurant	97.14	76,589	68,930
Example: Commercial Mixed-Use (CMU)-2	2%	87,604	850 Supermarket	93.84	8,221	7,399
Example: Residential		1,882	221 Multifamily Housing (Mid-Rise) Not Close to Rail Transit	4.54	8,544	7,690
					<b>Total</b>	<b>200,463</b>

Table 5. Difference Between Existing and Proposed Trip Generation (weekday average daily trips)

Existing Average Daily Trips	Proposed Average Daily Trips	Difference in Average Daily Trips	Percent Change
194,031	200,463	6,431	3.3%

## Summary of Difference Between Existing & Proposed Trip Generation

- Summarize difference of existing and proposed development capacity and trip generation
- Discuss potential operational and/or safety implications
- Highlight potential impacts to State system

## Safety

### Fatal & Serious Injury Crashes

Figure 3. Fatal and Serious Injury Crashes in the South Corvallis CFA, 2016-2021

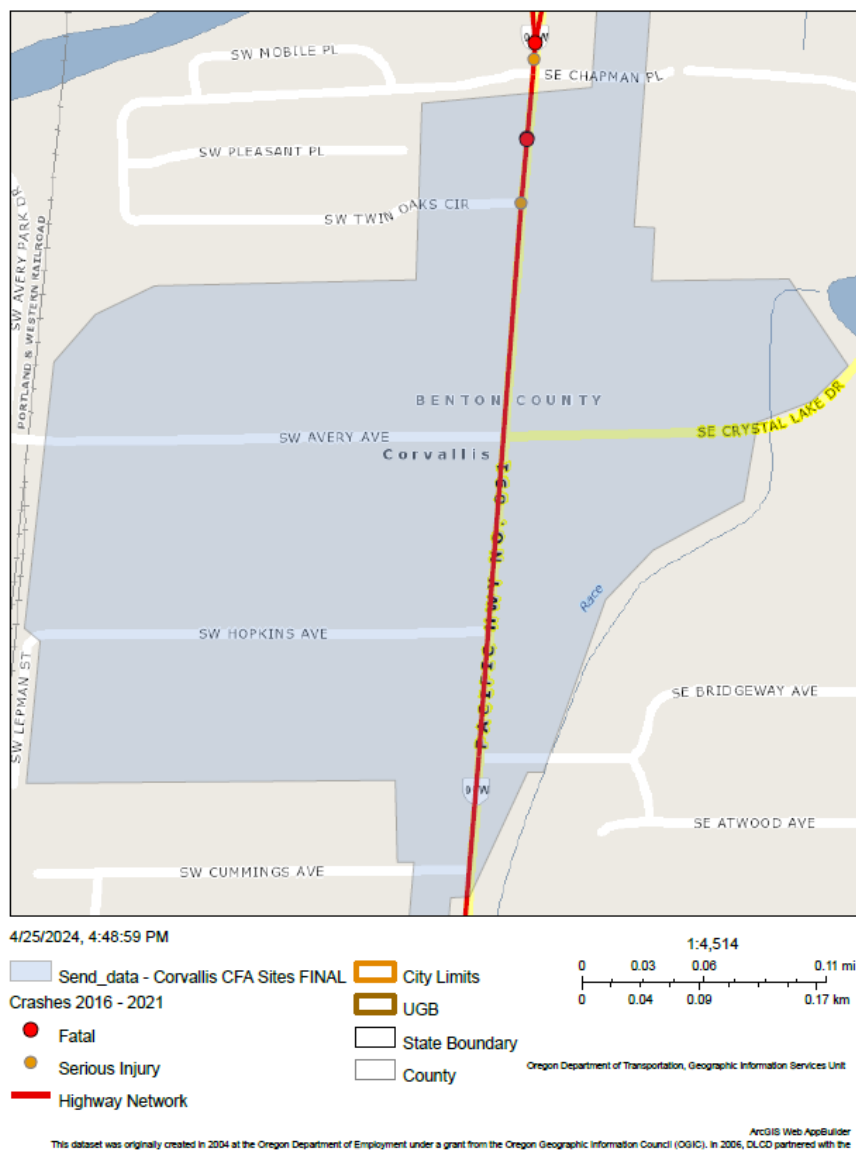


Table 6. Fatal & Serious Injury Crashes in the South Corvallis CFA, 2016-2021

Date	Time	Road & Intersecting Road	Crash Type Desc	Collision Type Desc	Weather & Road Surface Description	Traffic Control Device Description	Cause	Highest Injury Severity Description
10/5/2016	6:00 PM	HWY 99W/TWIN OAK CIR	From opposite direction-one left turn, one straight	Turning movement	Cloudy & wet	Stop Sign	Did not yield right-of-way	Suspected Serious Injury (A)
6/27/2018	7:00 PM	HWY 99W/CHAPMAN PL	Pedalcyclist	Angle	Rain & wet	Special Pedestrian Signal	Inattention; did not yield right-of-way	Fatal Injury (K)
1/8/2020	6:00 PM	HWY 99W/TWIN OAK CIR	Pedestrian	Pedestrian	Unknown	Special Pedestrian Signal	Did not yield right-of-way	Fatal Injury (K)

Within the past five years of reported data (between January 1, 2016 and December 31, 2021), there have been two fatal crashes and one serious injury crash within the South Corvallis CFA. These crashes are concentrated along Highway 99W north of its intersection with SW Twin Oaks Circle (southern segment) along the CFA's northern boundary. The fatal crashes involved a pedestrian and a cyclist. All three crashes involved a failure to yield right-of-way.

#### Safety Priority Index System (SPIS)

This data includes the five most recent years of crash data available (currently 2015-2021); include top 10% (90%-100%). The SPIS sites are located within the South Corvallis CFA are concentrated along Highway 99W north of its intersection with SW Twin Oaks Circle (southern segment) along the CFA's northern boundary.

- 2022: Mileposts 84.34, 84.35, 84.37, and 84.36; 5%
- 2021: Mileposts 84.34, 84.36, 84.37, 84.35; 5%; Mileposts 84.38, 84.39; 10%
- 2020: Mileposts 84.34, 84.35, 84.37, and 84.36; 5%
- 2019: Mileposts 84.34, 84.35, 84.36, 84.37, and 84.39; 10%

#### Safety Narrative

- Discuss any existing intersections or segments within the study area with existing or known safety deficiencies and any potential impact of future trips generated by the CFA on those intersections/segments.
- Discuss any at-grade rail crossings and potential freight traffic conflicts.

#### Financially Constrained Projects Within or Abutting the CFA

Three financially constrained projects are within the CFA, as detailed below. PB86 has been partially addressed. The upcoming ODOT facility plan calls for more long-term improvements (protected intersection). Oregon Community Paths project refinement between Avery and Butterfield has been funded.

Table 7. Financially Constrained Projects Within or Abutting the CFA

PB15	New Multi-Use Path	South Corvallis Multi-Use Path	\$2,614,000	ODOT	High	Stakeholder Request
	Construct a 3.5-mile multi-use path parallel to the railroad in Southeast Corvallis, between Marys River south to Airport Avenue. The preferred alignment should be on top of the planned sewer line easement that's being acquired east of the track with development. Coordinate with Project PB25 and PB26. Extend the path east along the south side of Marys River to the existing pedestrian and bicycle bridge. The existing bridge and PB17 bridge would provide connections to the Corvallis-Philomath Multi-Use Path.					
PB25	Pedestrian/Bicycle Crossings	SW Cummings Avenue Railroad Crossing	\$500,000	City/ODOT/Railroad	High	Stakeholder Request
	Develop connection over railroad to SW Allen Street for pedestrians/bicycles. Coordinate with Project PB26 depending on final alignment of the South Corvallis Multi-Use Path (PB15).					
PB86	Bicycle/Pedestrian Safety Improvements	3rd Street/OR 99W/Crystal Lake Drive/Avery Avenue	\$861,600	ODOT	High	Stakeholder Request
	Intersection Improvements (safety): Safety improvements to address known right hook conflicts for bicyclists in the bike lanes. Options may include bike boxes, improved curb cuts to provide better bicycle access between multi-use path and Crystal Lake Drive or, the installation of flexible bollards or other cost efficient methods of increasing turning radius and slowing vehicles to improve pedestrian and bicycle safety. Project is subject to ODOT approval.					

Figure 4. Financially Constrained Projects with the CFA



## Attachment 2. CFA ODOT Impacted Areas Map Guide

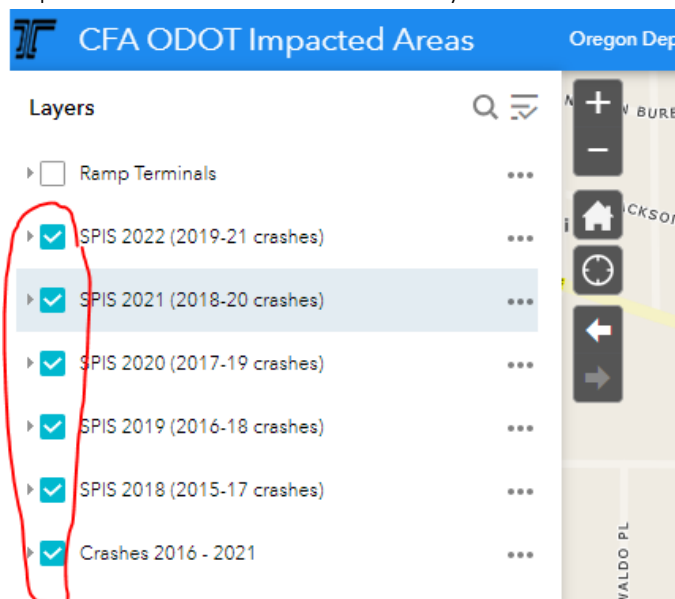
This guide explains how to use the [CFA ODOT Impacted Areas Map](#) screening tool, add spatial data, and download a map.

### Screening Tool

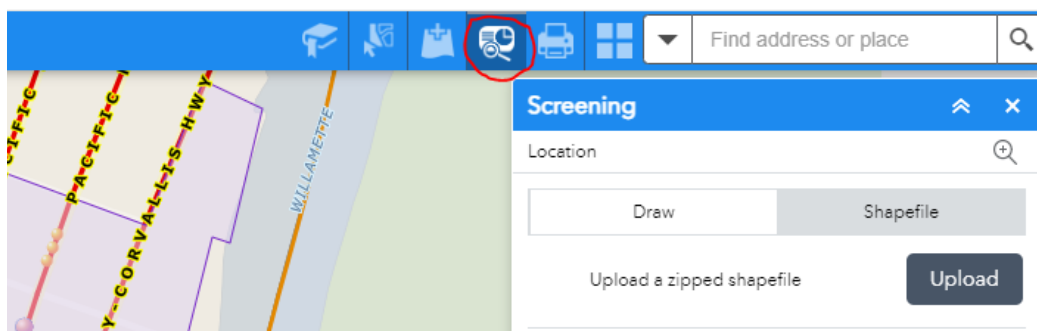
The Screening Tool provides two options to query crash and Safety Priority Index System (SPIS) data. One option is to use a zipped shapefile of the CFA or Metro Region 2040 center. The other option is to draw the boundary of the CFA or Metro Region 2040 center. Step-by-step instructions for both options are described below.

### Zipped Shapefile Option

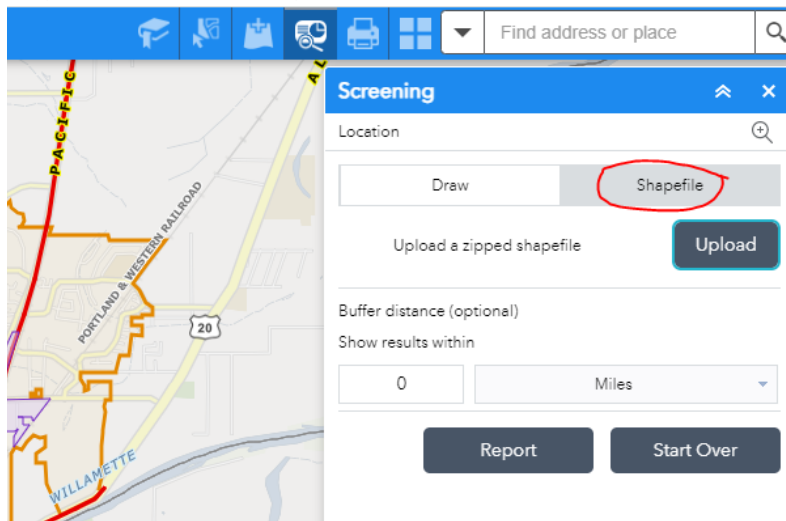
Step 1. Ensure the SPIS and Crashes layers are clicked on.



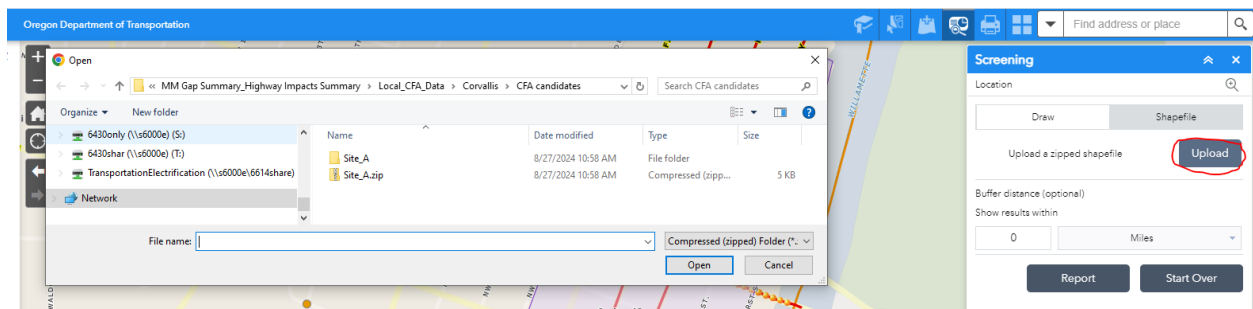
Step 2. Click on the screening icon on the top right side of the map toolbar.



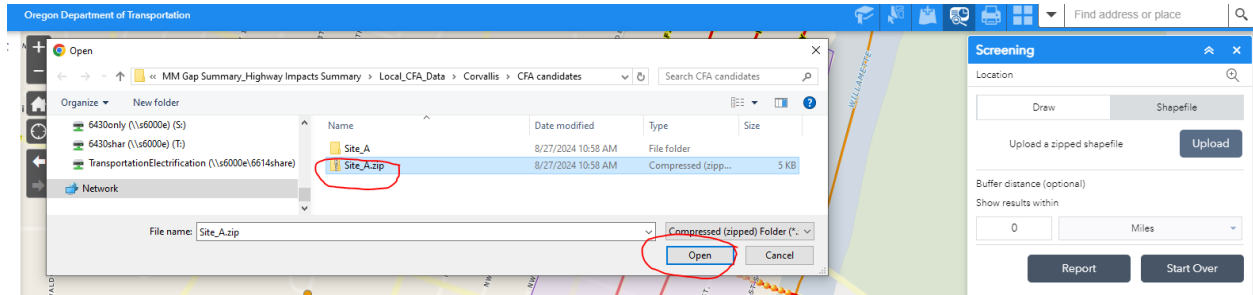
Step 3. Click on the “Shapefile” tab in the screen tool.



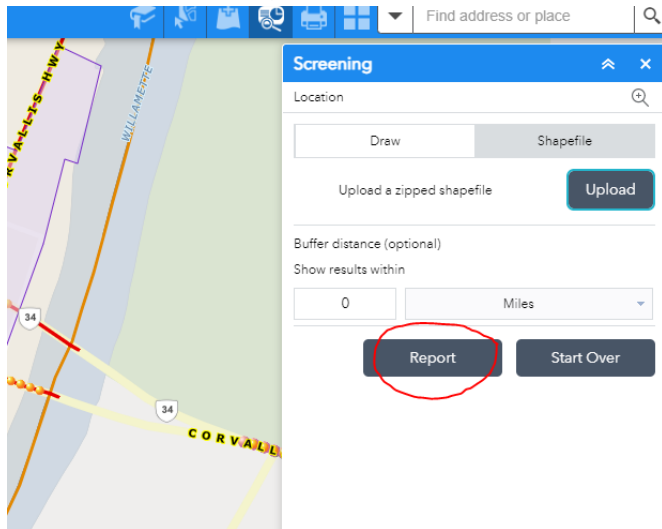
Step 4. Click on the “Upload” button in the screening tool interface.



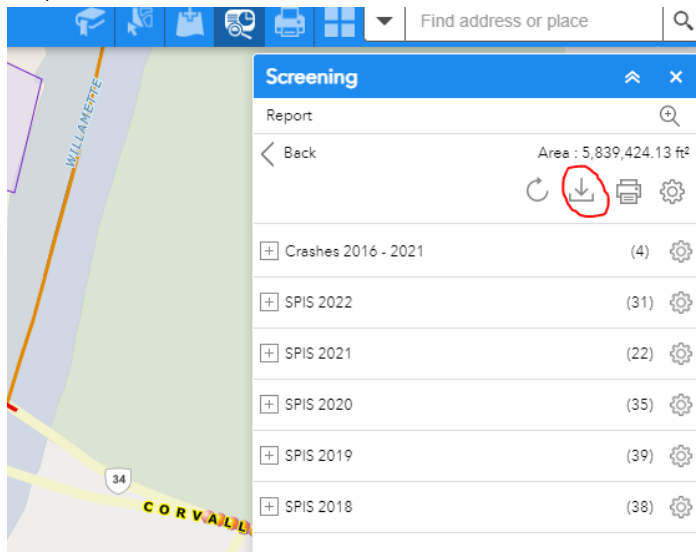
Step 5. Navigate to the zipped shapefile, select the zipped shapefile, and click on the open button.



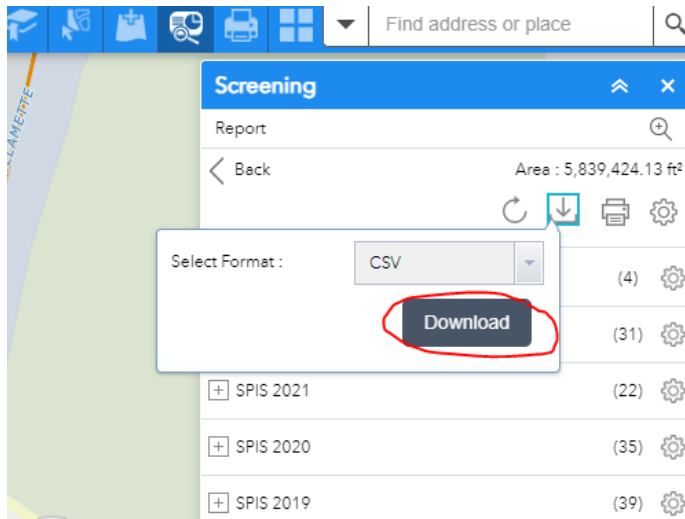
Step 6. Click on the Report button in the screen tool interface.



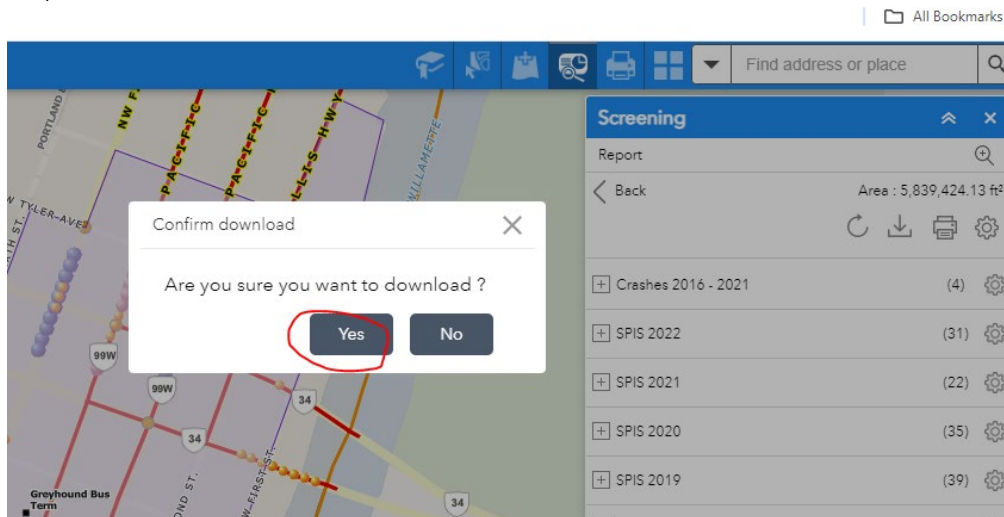
Step 7. Click on the download icon.



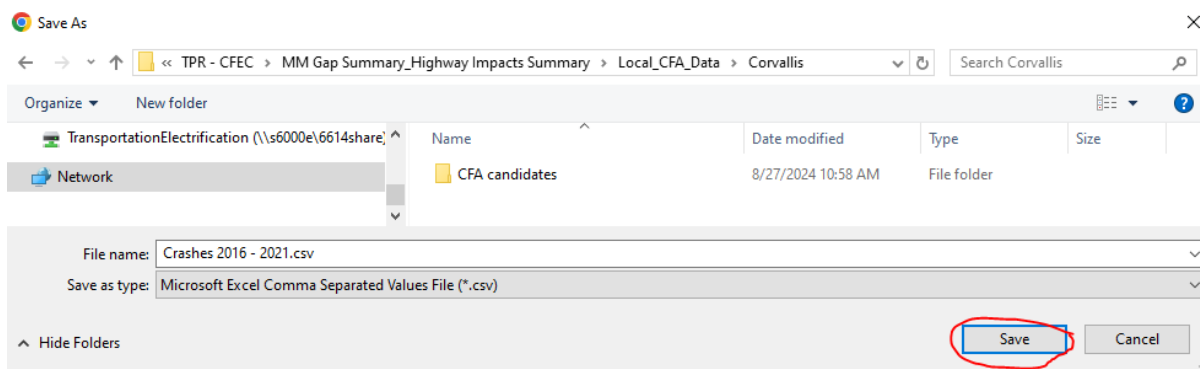
Step 8. Click on the Download button.



Step 9. Click on Yes to confirm download.



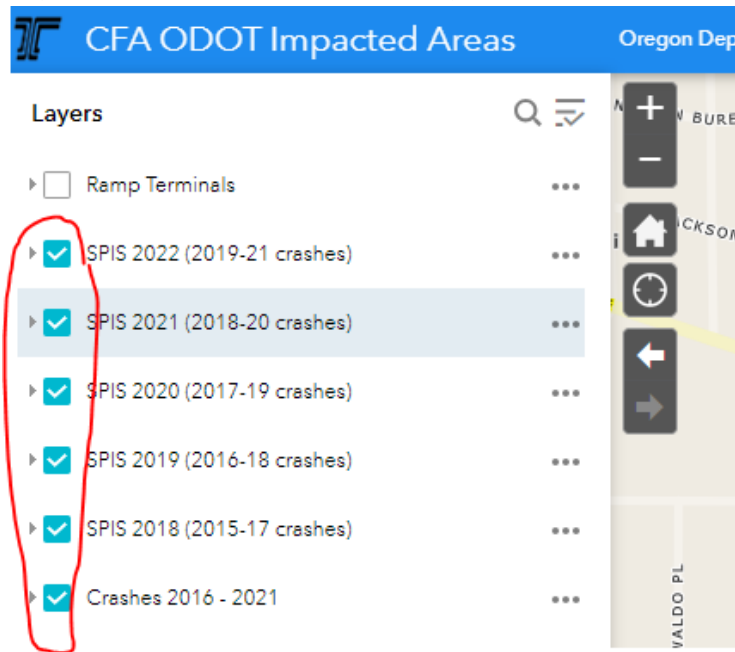
Step 10. Navigate to folder where you plan to save the files and click on the save button. Repeat for each file download.



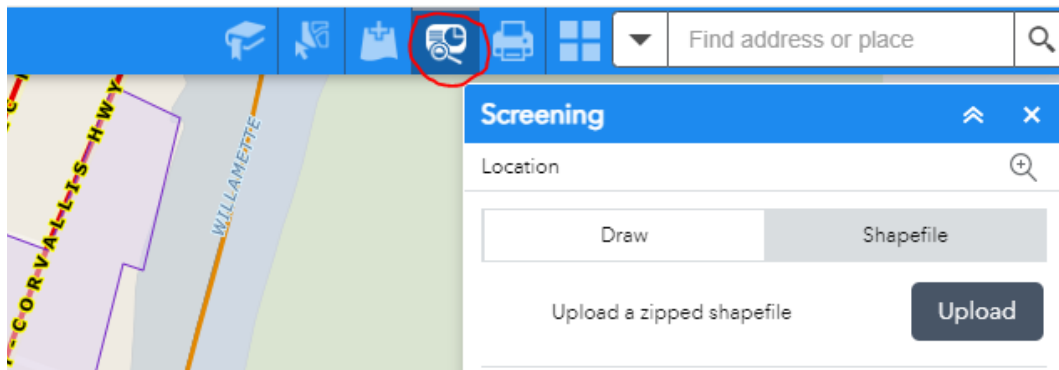


## Draw CFA Boundary Option

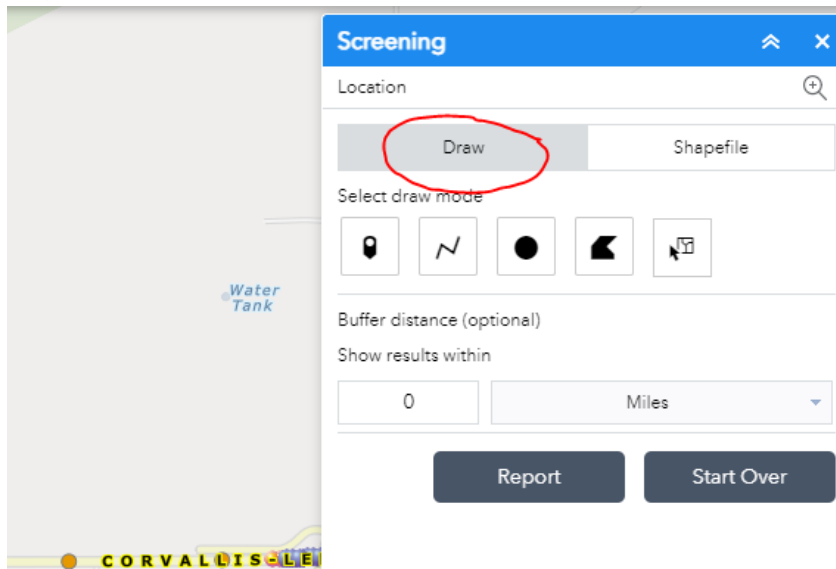
Step 1. Ensure the SPIS and Crashes layers are clicked on.



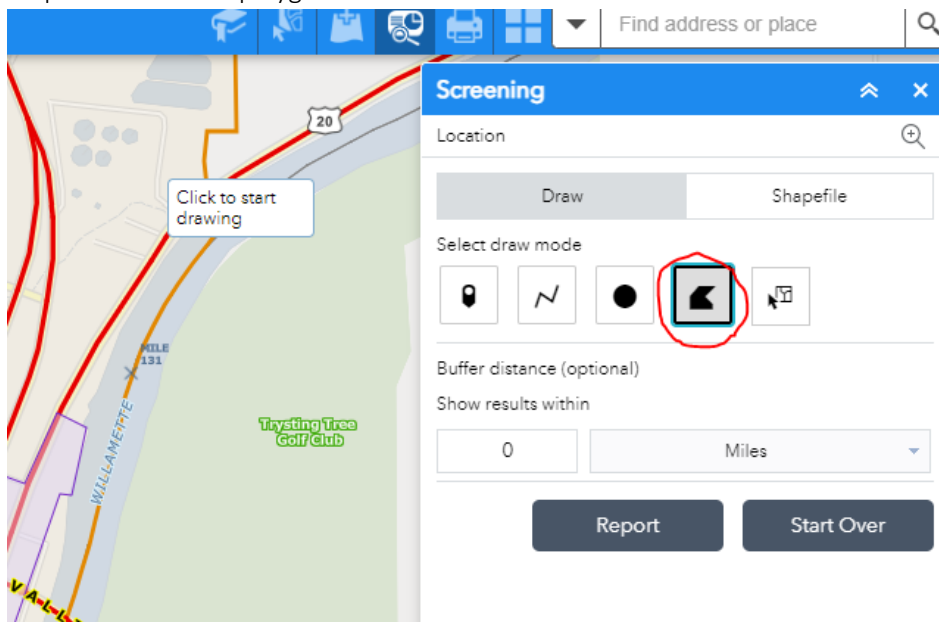
Step 2. Click on the screening icon on the top right side of the map toolbar.



Step 3. Click on the Draw button.



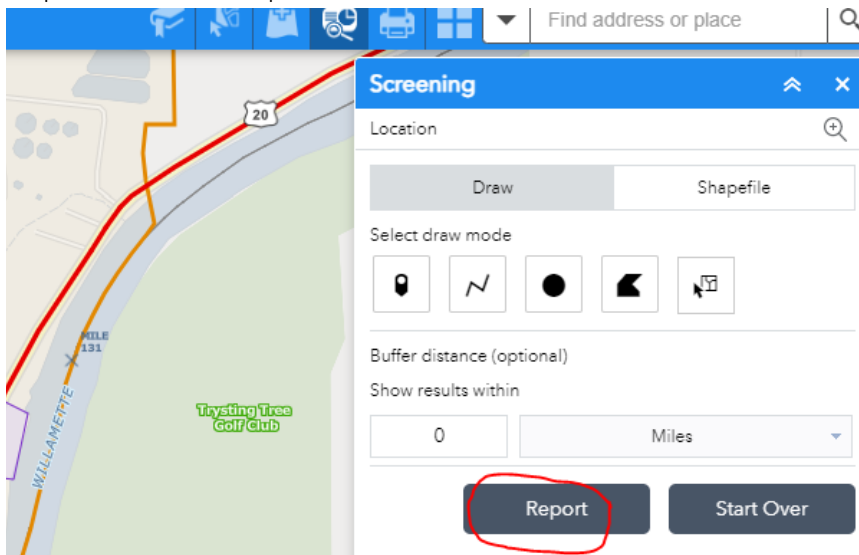
Step 4. Click on the polygon icon.



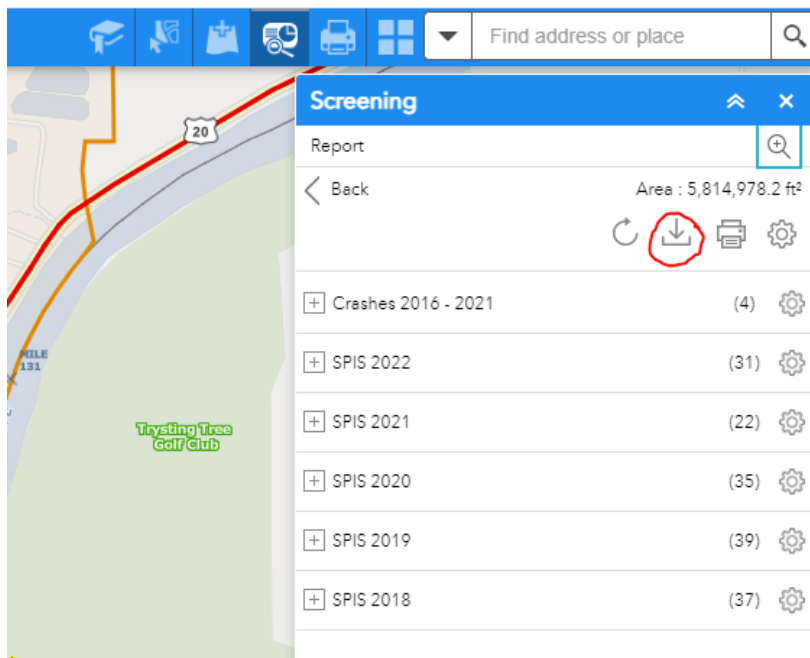
Step 5. Use your cursor to draw the CFA boundary.



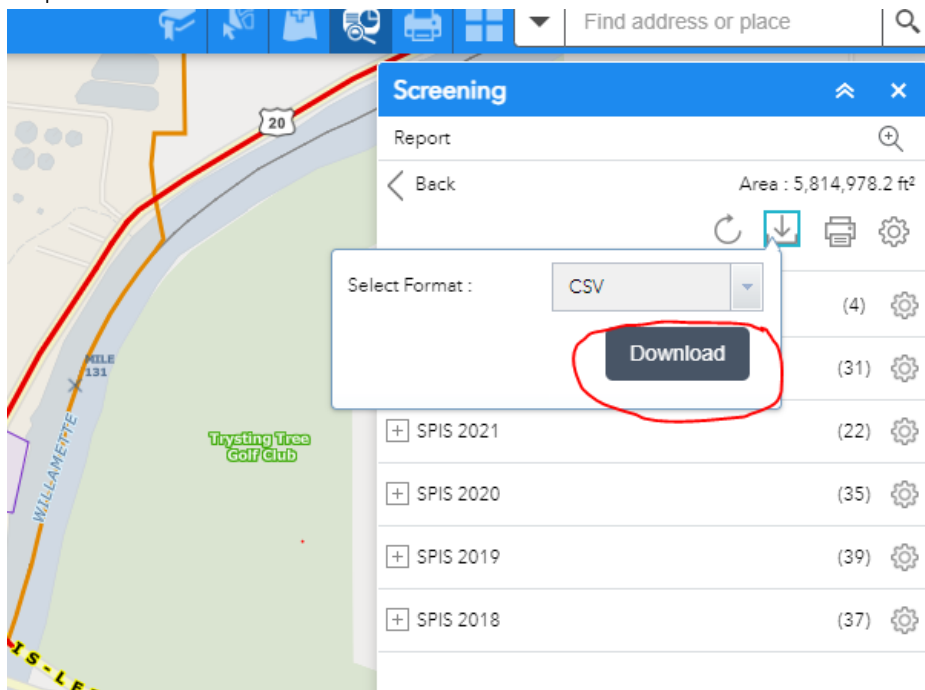
Step 6. Click on the Report button.



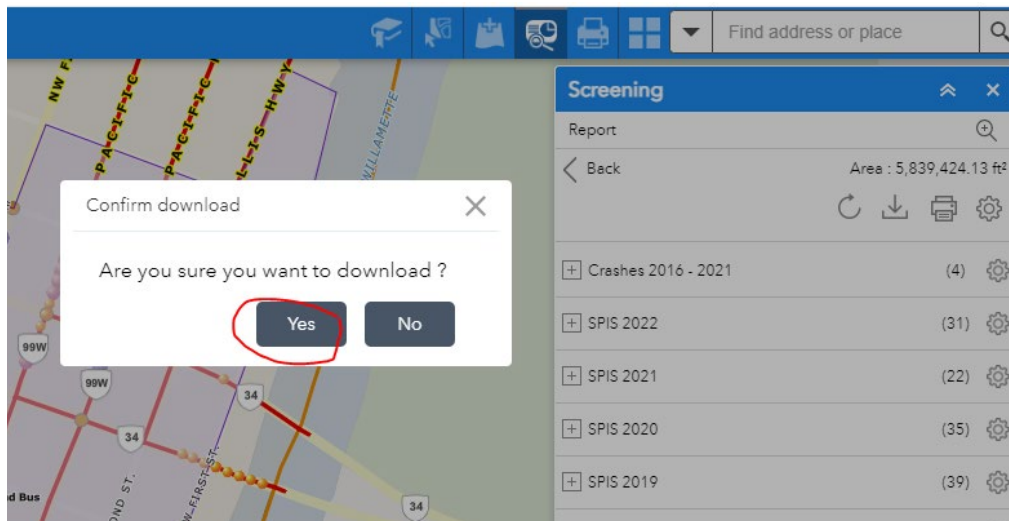
Step 7. Click on the download icon.



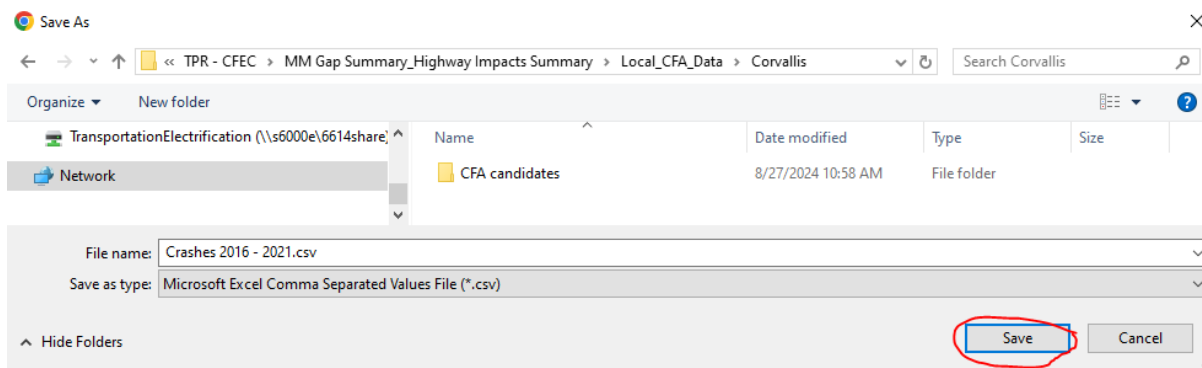
Step 8. Click on the Download button.



Step 9. Click on Yes to confirm download.

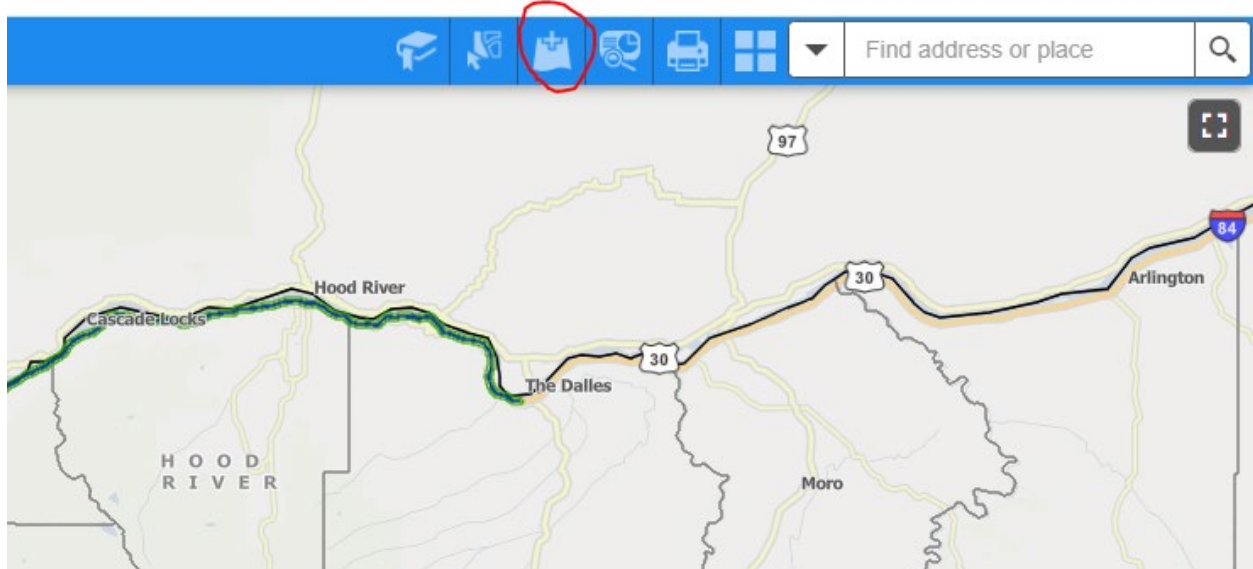


Step 10. Navigate to folder where you plan to save the files and click on the save button. Repeat for each file download.

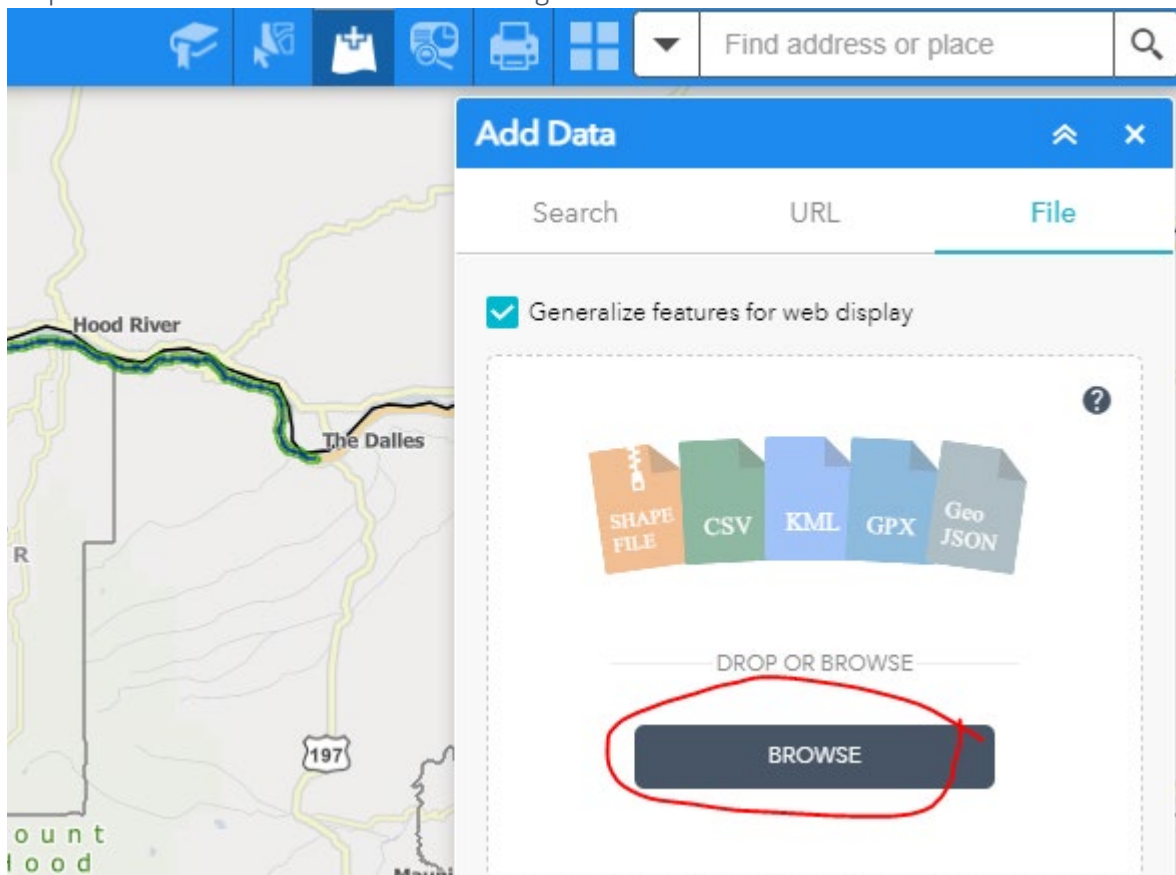


## Add Spatial Data

Step 1. Click on the Add Data icon on the top right side of the map toolbar.



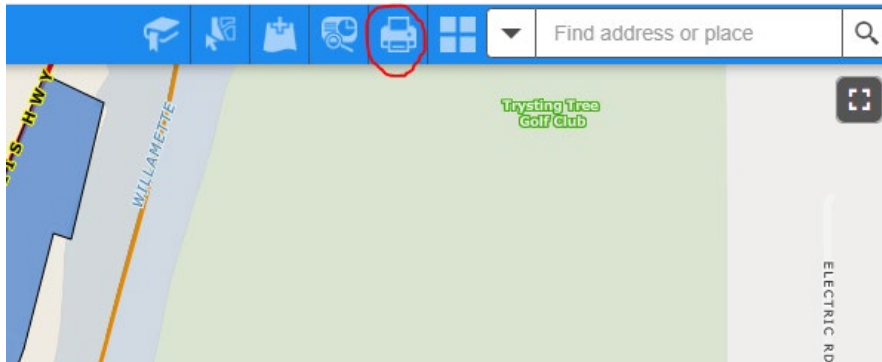
Step 2. Click on the Browse button or drag the file into the Add Data window.



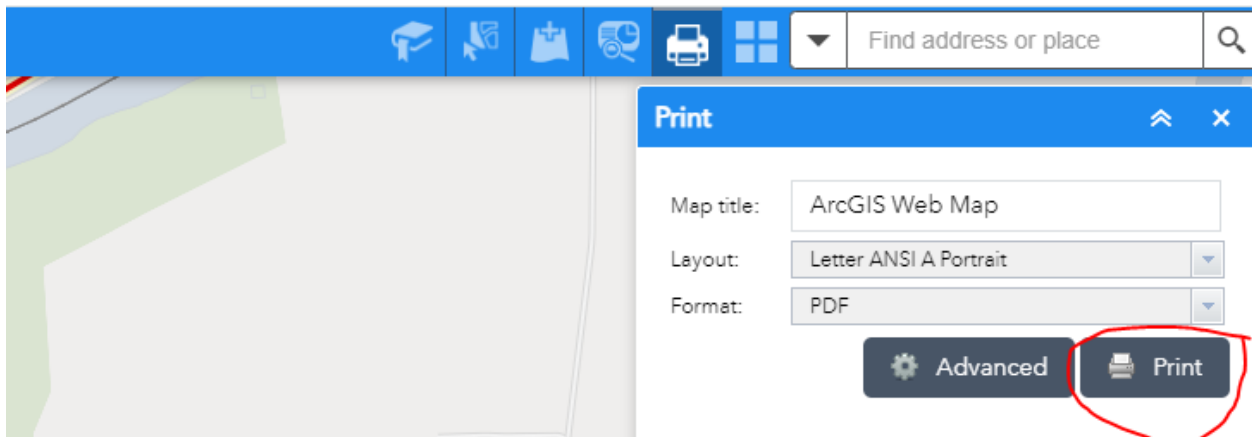
The map displays a section of the Willamette Valley, Oregon, with a focus on the proposed Pacific Highway No. 99 and Albany-Corvallis Highway. The map is titled "Oregon Department of Transportation" in the top left corner. The main road shown is the Pacific Highway No. 99, which runs diagonally from the bottom left towards the top right. To its right, the Albany-Corvallis Highway is shown, running parallel to it. The map includes several major roads and streets, such as NW Van Buren Ave, NW Monroe Ave, NW Jefferson Ave, NW Washington Ave, NW Western Blvd, and NW Adams Ave. It also shows the Willamette River and the city of Corvallis. The map is overlaid with a grid of streets and highways, with labels for each. The map is titled "Oregon Department of Transportation" in the top left corner. The main road shown is the Pacific Highway No. 99, which runs diagonally from the bottom left towards the top right. To its right, the Albany-Corvallis Highway is shown, running parallel to it. The map includes several major roads and streets, such as NW Van Buren Ave, NW Monroe Ave, NW Jefferson Ave, NW Washington Ave, NW Western Blvd, and NW Adams Ave. It also shows the Willamette River and the city of Corvallis. The map is overlaid with a grid of streets and highways, with labels for each.

## Create a Map

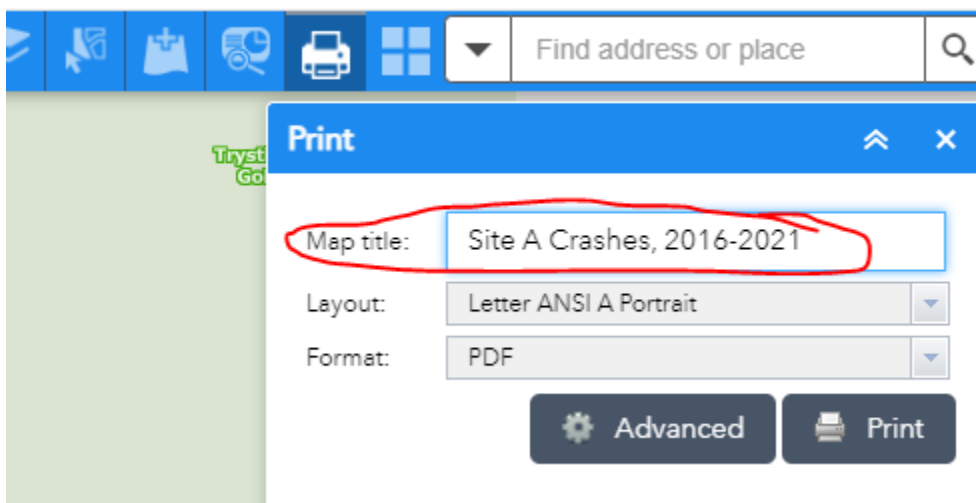
Step 1. Click on the printer icon on the top right side of the map tool bar.



Step 2. Click on the Print button.



Step 3. Revise map title as necessary.





Step 4. Click on the PDF icon.

