

APPENDIX D  
LAND USE METHODOLOGY

## Land Use Analysis – Methodology

### *Comparisons*

Since the metropolitan model was updated recently in 2004, the objective for this update was to review land use numbers in that model currently and make adjustments where major inconsistencies were identified. Comparisons of dwelling units and employees were made between the transportation models' figures and Yakima County Assessor data, county jurisdictions' Future Land Use Maps (FLUMs), and State Office of Financial Management (OFM) estimates and projections for 2006 and 2025. Methods used for these comparisons are explained in greater detail below.

### Base Year (2006) Comparisons

#### Dwelling Unit Comparisons

Dwelling unit data in the metropolitan and regional models were aggregated into three residential categories representing single-family (LU1), duplex through four-plex (LU2), and multi-family (LU3) residential as defined below:

**LU1 Single Family Residential** includes those lands occupied by either a single family home or a manufactured home on a single lot. Measured in dwelling units.

**LU2 Duplex through Four-Plex** uses are lots which contain two to four residences on a single parcel of land. Measured in dwelling units.

**LU3 Multi-Family Residential** uses contain five or more residential units on a parcel of land. Also, this category includes mobile home parks, apartment buildings, and some condominiums. Occupied motel rooms, hotels, and camp areas. Measured in dwelling units.

To check the current model's baseline figures for dwelling units in 2006, two comparisons were made. The first was between the metropolitan model's figures and County Assessor data by metropolitan TAZ (MM\_TAZ); the second was between the regional model's figures and OFM dwelling unit estimates for each jurisdiction. Explanations of the methods used for each comparison are described below.

#### *Comparison between Model and Assessor land use data*

Using ArcMap, a geographic information system (GIS) software program by ESRI, the number of dwelling units existing currently within each metropolitan TAZ were estimated from Yakima County Assessor parcel data using the following conversion factors:

<u>Existing Land Use</u>	<u>Assessor Use Code</u>	<u>Operand</u>	<u>Conversion Factor</u>
Single-family residential	11	parcel count	1 unit / parcel
Duplex-four-plex residential	12	parcel count	2.5 units / parcel
Multi-family residential	13	acreage sum	15 units / acre
Mobile Home Parks residential	15	acreage sum	7 units / acre

Dwelling unit totals for each residential land use category were then compared with the metropolitan model figures for each TAZ. TAZ's with discrepancies of over 100 units were highlighted for further analysis, which consisted of examining 2005 aerial photography to determine which dwelling unit estimates were more likely correct.

#### *Comparison between Model and OFM dwelling unit estimates*

TAZs from the regional transportation model were aggregated into districts to approximate geographically the different jurisdictions within the county. Dwelling units within each district were then summed and compared to 2006 OFM population estimates for each jurisdiction. A second check against assessor data was made where large discrepancies existed and adjustments were made accordingly.

#### Employment Comparisons

Employment data in the metropolitan and regional models were aggregated into four categories representing industrial and manufacturing (LU4), retail trade (LU5), services, offices (LU6), and public use (LU7) as defined below:

- LU4 Industrial and Manufacturing** uses are included in assessor use codes: 16, 20-39, within a broad range of general or specialty contractors: the production of food, textile, wood, furniture, paper, printing, metal, machinery, electrical and other products. **Wholesale Trade** facilities are described in SIC categories: 51 and include the storage of durable or non-durable goods. Measured in employees.
- LU5 Retail Trade** includes those uses identified in assessor use codes: 52-59 and motels and hotels 16. Retail uses include a broad range of establishments which sell goods directly to the general public, such as restaurants, automotive dealers, home furnishings, food stores or other products. Measured in employees.
- LU6 Services, Offices** includes those uses in assessor use codes: 60-66. Services and offices include banks or other financial institutions, real estate and insurance offices, personal services, such as laundry or cleaning services, business services such as advertising, automotive repairs, health care, legal services and other assorted services. Measured in employees.
- LU7 Public Use** are those land uses which are owned, or operated by units of government and provide the administration of public programs, which are identified in assessor use codes of 67-68. Measured in employees.

To check the current model's baseline figures for employees in 2006, two comparisons were made. The first was between the metropolitan model's figures and County Assessor data by metropolitan TAZ (MM\_TAZ); the second was between total employment shown in the regional model and an employment estimate calculated from the OFM population estimate for the county. Explanations of the methods used for each comparison are described below.

*Comparison between Model and Assessor land use data*

Using ArcMap, rough estimates of commercial and industrial employees existing currently within each metropolitan TAZ were calculated from Yakima County Assessor parcel data using the following conversion factors:

<u>Existing Land Use</u>	<u>Assessor Use Code</u>	<u>Operand</u>	<u>Conversion Factor</u>
Industrial	21-39, 51	acreage sum	5 employees / acre
Commercial	16, 52-69	acreage sum	6 employees / acre

Conversion factors used above were estimated from employment density studies completed in other areas. The figures used used to estimate approximate employment densities are similar to other similar counties. Acreages used in the calculation are gross parcel acres.

Employment totals for each category were then compared with metropolitan model figures for each TAZ (industrial (LU4) and commercial (LU5 + LU6)). TAZ’s with discrepancies of over 100 employees were highlighted for further analysis. 2005 aerial photography and assessor information on parcel ownership were examined further to determine where more information was needed.

*Comparison between Model and OFM projections*

The regional model’s figure for county employment (LU4-LU7) was compared with a 2006 employment security department (ESD) estimate for non-agricultural employees within Yakima County and adjustments to each employment category were made proportionately.

**Forecast Comparisons**

Dwelling Unit Comparisons

To check the current model’s figures for dwelling units in 2025, two comparisons were made. The first was between the metropolitan model’s figures and future land use map (FLUM) designations by metropolitan TAZ (MM\_TAZ); the second was between the regional model’s figures and Countywide Planning Policy (CPP) dwelling unit allocations for each jurisdiction. Explanations of the methods used for each comparison are described below.

*Comparison between Model and FLUM designations*

Future residential land use designations within the different jurisdictions were categorized generally as either rural, transitional, low-density, medium-density, high-density or mixed-use. The number of potential dwelling units in 2025 within each metropolitan TAZ was estimated using the following market and conversion factors for each future land use designation:

<u>Future Land Use Designation</u>	<u>Market Factor</u>	<u>Conversion Factor (Units / Acre)</u>
Rural Residential	0.5	0.05
Transitional Residential	0.5	0.20
Low-density Residential	0.8	5.00
Medium-density Residential	0.8	7.00
Mixed-Use	0.8	10.00
High-density Residential	0.8	20.00

#### *Comparison between Model and CPP dwelling unit allocations*

TAZs from the regional transportation model were aggregated into districts to approximate geographically the different jurisdictions within the county. Dwelling units within each district were then summed and compared to 2025 CPP population allocations for each jurisdiction.

#### Employment Comparisons

To check the current model's figures for employees in 2025, two comparisons were made. The first was between the metropolitan model's figures and future land use map (FLUM) designations by metropolitan TAZ (MM\_TAZ); the second was between the regional model's figure for total county employment and an estimate calculated from the OFM's population forecast for 2025 and an employment ratio. Explanations of the methods used for each comparison are described below.

#### *Comparison between Model and FLUM designations*

Future employment land use designations within the different jurisdictions were categorized generally as either industrial or commercial. Metropolitan model TAZs that showed both employment growth **and** employment densities greater than 5 employees per acre were flagged for further analysis.

#### *Comparison between Model and OFM projections*

The regional model's figure for total county employment was compared with an estimate calculated from the OFM's population forecast for 2025 and an employment ratio of 34.3 employees per 1,000 population and adjustments to each employment category were made proportionately. This ratio was based on the current employment to population ratio for the county.

#### *Local Knowledge*

County and city staff in the local jurisdictions reviewed and commented on maps highlighting those TAZs where major inconsistencies existed between the transportation models' figures and Yakima County Assessor data, county jurisdictions' Future Land Use Maps (FLUMs), and State Office of Financial Management (OFM) estimates and projections for 2006 and 2025. Adjustments to the numbers of existing dwelling units and employees and future buildout in TAZs were made according to feedback given by local officials.