



Population, Housing, and Employment Forecast 2050 Report



**Prepared by the Bannock Transportation
Planning Organization**

Population, Housing, and Employment 2020 Conditions and 2050 Forecast

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INTRODUCTION

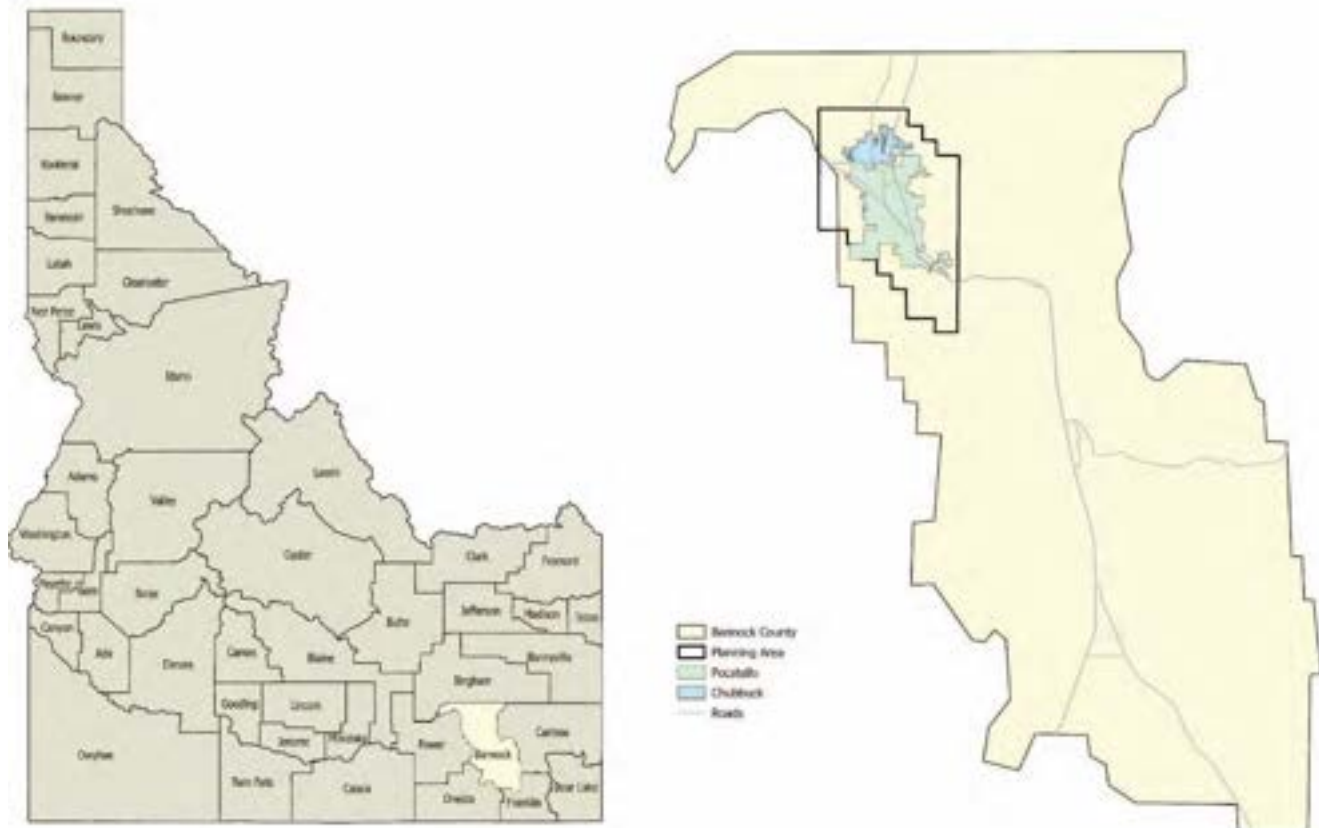
Planning for the future transportation system requires existing and projected conditions. Existing conditions range from traffic counts to the operational level of service of traffic signals. The Bannock Transportation Planning Organization (BTPO) uses a travel demand model to replicate the current traffic patterns and conditions using housing units and employment data.

The U.S 2020 Census allows BTPO to update population, housing units, and employment data. Every four years, BTPO updates the long-range transportation plan (LRTP), which sets the direction for transportation within the planning area for twenty-plus years. This report provides the methodology BTPO used to determine the location of population, housing units, and employment in 2020 and 2050.

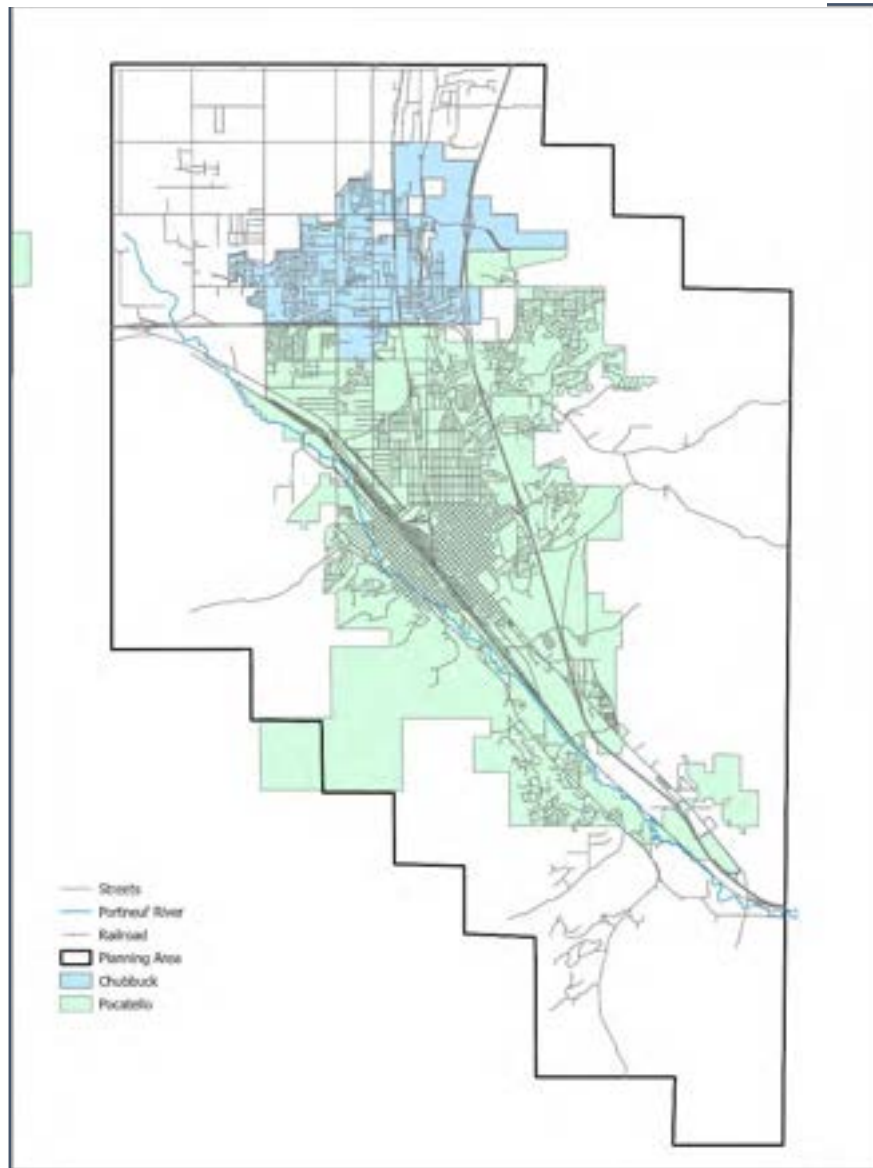
GEOGRAPHIC COLLECTION AREAS

BTPO collects data at five geographic levels: Bannock County, the BTPO planning area, Planning Districts, Travel Demand Model Area, and Traffic Analysis Zones (TAZ). The Bannock County and the planning area data provide regional totals. Figure 1 shows the location of Bannock County in Idaho and the BTPO planning area in the County.

Figure 1 Bannock County and BTPO Planning Area



The BTPO planning area covers most of northern Bannock County and includes the cities of Pocatello and Chubbuck (Figure 2). The BTPO boundaries are the same as the Portneuf Valley Non-Attainment Area.

Figure 2 BTPO Planning Area

The TDM requires data at a finer level than the County or planning area. The planning area has eight districts established during the 2010 household travel survey (Figure 3). The districts provide information related to travel in and between districts. TAZs are constructed using U.S. Census block information and are used in transportation models by providing socio-economic data. The BTPO planning area has 643 TAZs (Figure 4). The planning area does not contain all the TAZs. The TAZ boundaries are too fine to allow easy viewing in map form. As a companion to this document, BTPO provides online maps that allow visitors to zone into the area of interest. Some TAZs are in Power County or just north of the planning area. The travel demand model uses these zones to improve the model performance.

Figure 3 BTPO Planning Districts

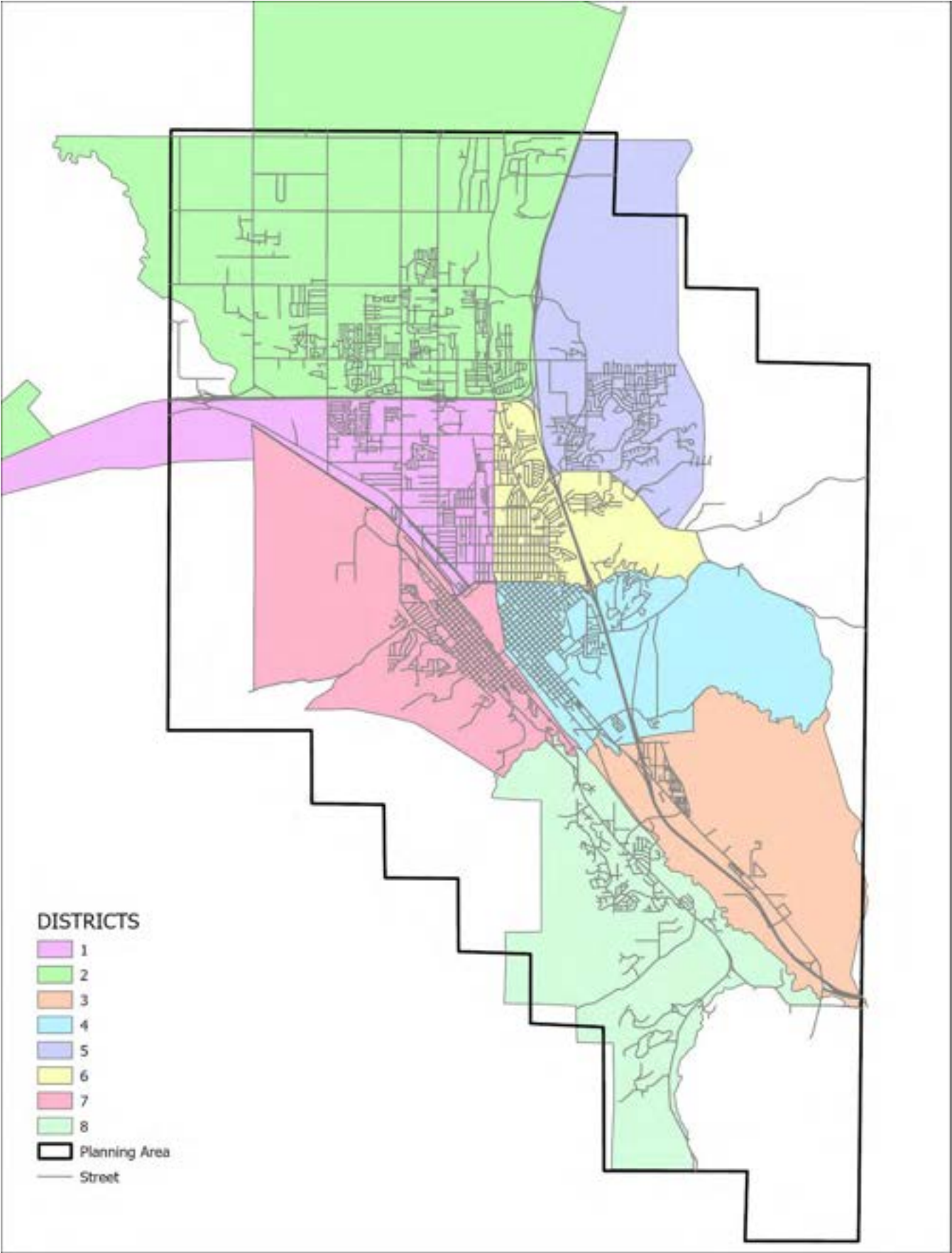
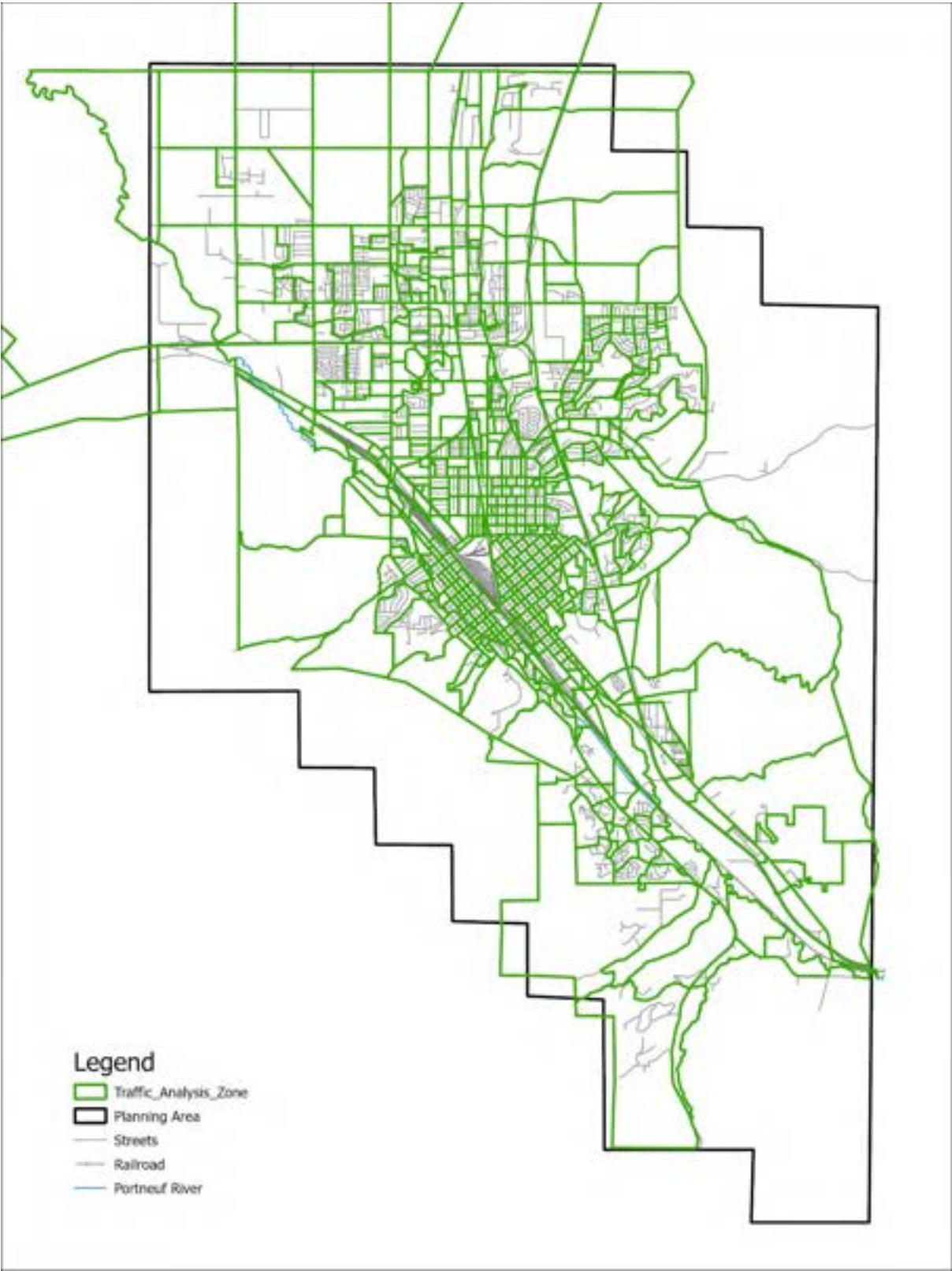


Figure 4 Traffic Analysis Zones for the BTPO Travel Demand Model



EXISTING CONDITIONS POPULATION AND HOUSING

Table 1 lists the 2020 population and housing units for Bannock County and the BTPO Planning Area. The BTPO Planning Area contains 89.36% of the Bannock County Population. Power County is a small portion of the TDM area.

Table 1 2020 Population and Housing Units

Area	Population	Housing Units
Bannock County	87,024	34,903
Planning Area Total	77,947	31,147
Planning Area Bannock County	77,766	31,068
Planning Area Power County	181	79
Source: 2020 Census (P.L. 94-171) Redistricting Data Summary Files. BTPO Planning Area population was calculated using the population of the Census blocks within the planning area.		

Mapping Census 2020 Blocks to Districts and Traffic Analysis Zones

The Census blocks divided the entire country. The Census Bureau uses visible boundaries like roads and railroads and nonvisible boundaries like city limits and property lines to create blocks. Census blocks are not uniform in size, nor do they represent specific population levels. Some blocks do not have a population, but the block is the smallest unit available for population and housing data. The conversion from block to TAZ data has many steps. The result is a crosswalk table that identifies the block or percentage within each TAZ.

A summary of the development of the Crosswalk Table:

- All blocks are assigned a TAZ
- The percentage of each block that is in the TAZ is calculated (Figure 5)
- Validate the data with 2020 aerial
 - Determine if the housing units within the block have an even distribution
 - Adjust the percentage to match the visual data
- A lookup table assigns the demographic data from the block to the TAZ. (Percent of the block in the TAZ * Block demographics = TAZ demographics)
- The TAZ data are combined to get the final TAZ demographic information.

Figure 5 Process used to assign blocks to TAZs.

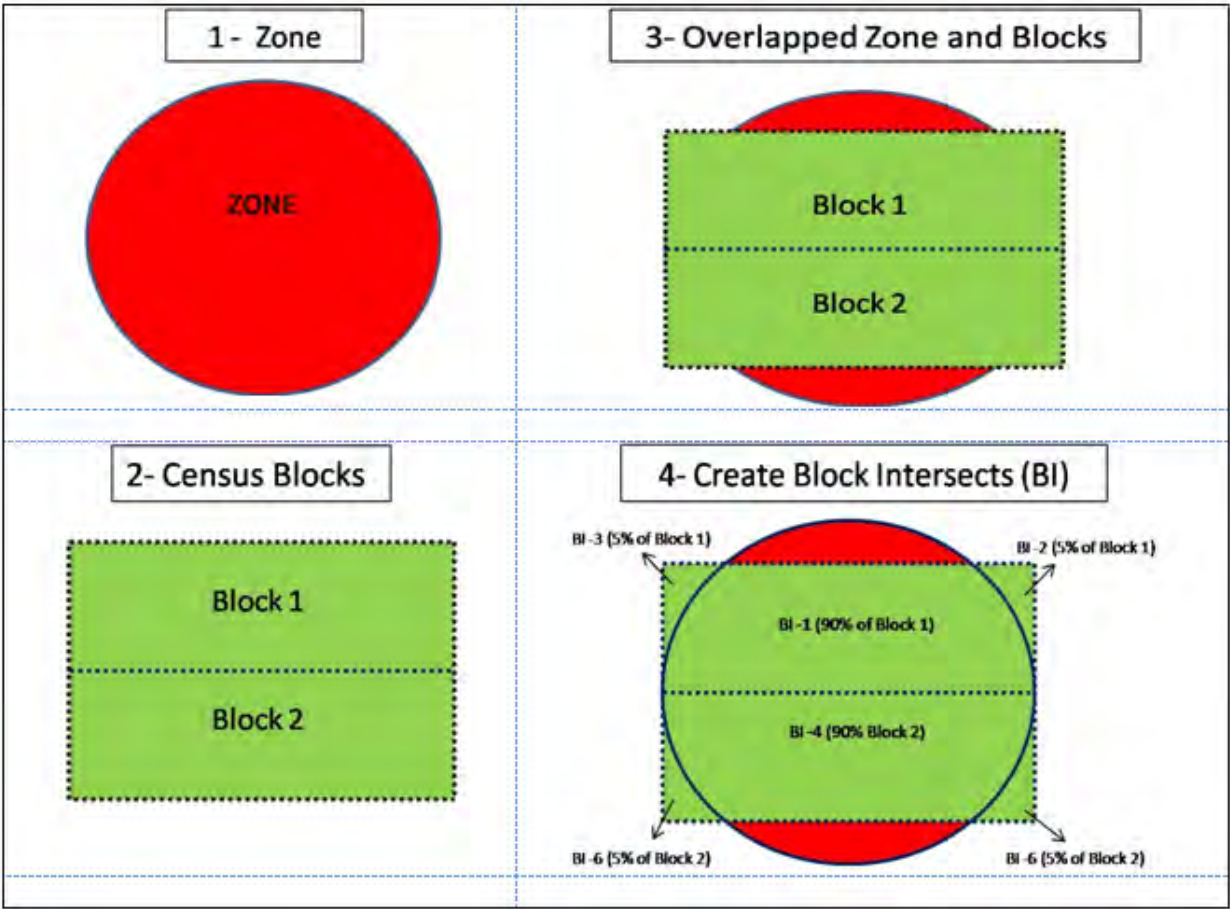


Figure 6 shows the 2020 Census number of housing units in each TAZ, and Figure 7 shows the population.

Figure 6 2020 Housing Units by Traffic Analysis Zone

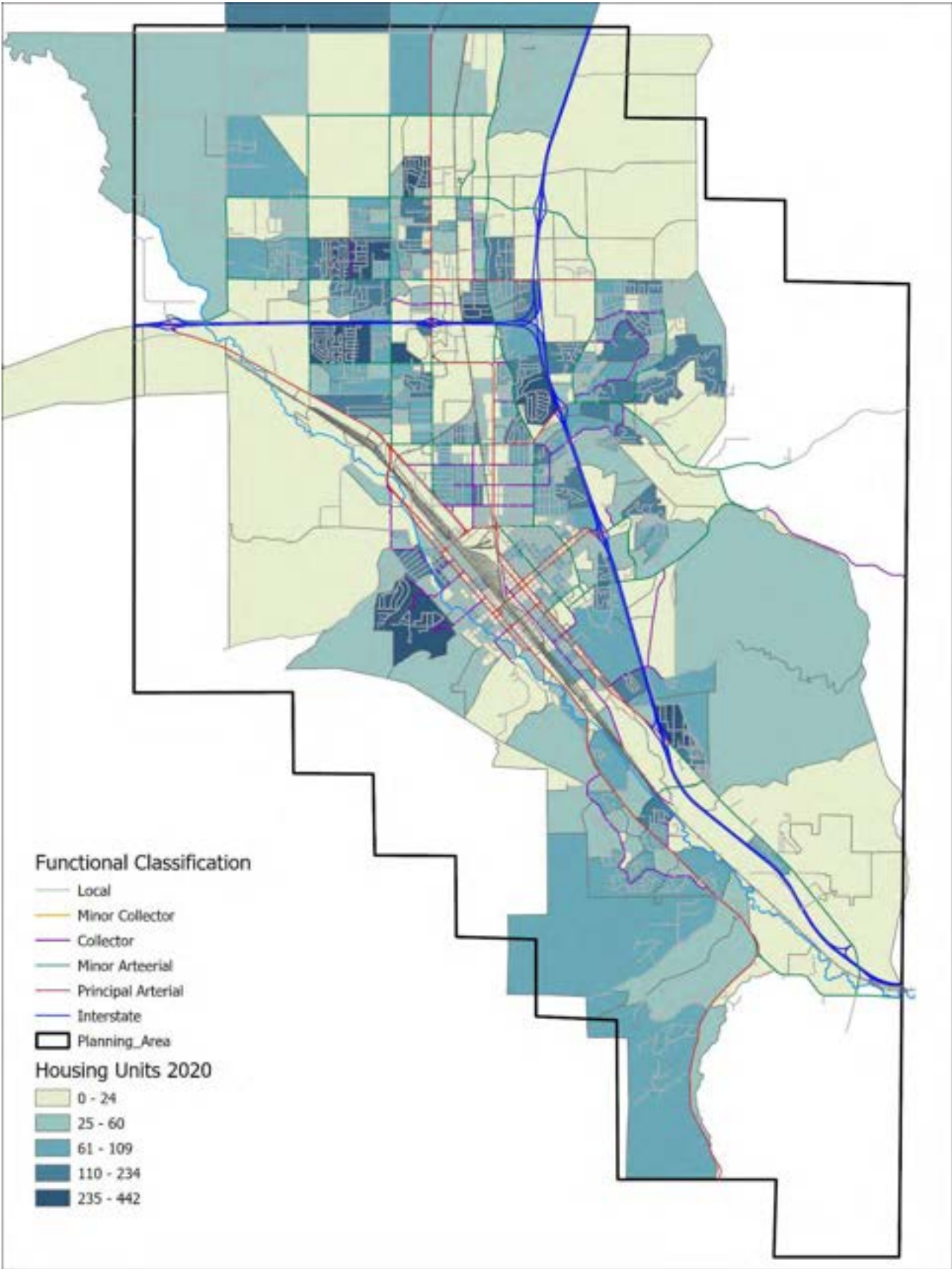
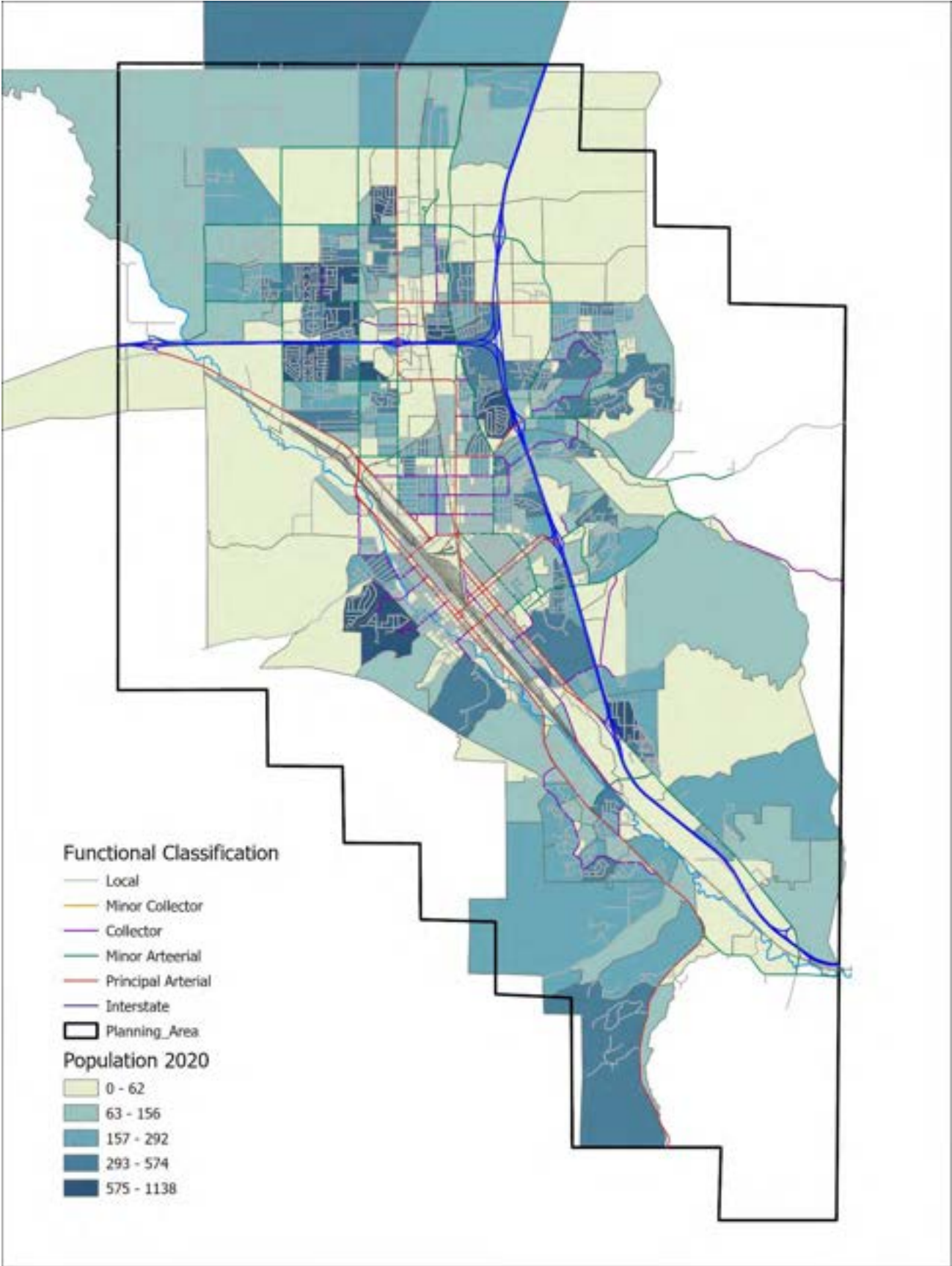


Figure 7 2020 Population by Traffic Analysis Zone



EXISTING EMPLOYMENT CONDITIONS 2020

The absence of a mandatory employment census makes employment projections more challenging than housing units. The Bureau of Economic Analysis (BEA) employment data is the best estimate of county employment data. BEA counts the jobs in the County using the U.S. Bureau of Labor Statistics and the Internal Revenue Service data. BEA also uses additional not disclosed data sources to make other adjustments to account for jobs not captured in those data.

The BEA's total employment includes full-time and part-time employment, including proprietor and farm employment. Proprietor and farm employment is based on residence, not the place of work. The Travel Demand Model requires the place of employment data. Therefore BTPO uses the BEA's wage and salary employment that measures the average annual number of full-time and part-time jobs in each area by place of work. BTPO used table CAEMP25N Total Full-Time and Part-Time Employment by NAICS Industry. Table 2 provides the 2020 employment total for Bannock County and the BTPO planning area using 2019 BEA data.

Table 2 Bannock County and BTPO Planning Area Employment totals

Area	Employment 2020
Bannock County	39,366
Planning Area Total	36,951
Planning Area Bannock County	36,296
Planning Area Power County	655
Power county control comes from the IDOL employment data set.	

The 2020 BEA 2020 wage and salary employment was much lower than the 2019 data. BTPO attributes this decrease to the COVID 19 pandemic.

The BEA data does not provide the employment location within the County. Location-specific employment data come from the Idaho Department of Labor and Data Axle USA. The employment data from these sources is georeferenced, identifying where employment is located in the County. The Idaho Department of Labor employment data fourth quarter of 2020 showed 33,417 employees. The BTPO planning area has 30,803 or 92.2 percent. BTPO planning area employment in Bannock County has varied from 90 to 92 percent. The 2050 analysis used 92.2 percent. The employment control total for the BTPO planning area is 36,950 employees.

Idaho Department of Labor Data and Data Axle USA are the two sources of employment data. The Idaho Department of Labor data includes only employees covered by unemployment insurance. The file contains covered employment. The data provided is from the Idaho Unemployment Insurance Tax System, enhanced by the Quarterly Census of Employment and Wages program, establishment data (for multiple sites), and various other data. A covered employer is any individual, partnership, corporation, limited liability company, association, trust, organization, or political subdivision with one or more individuals performing services. In 2017, the Idaho Department of Labor changed its network security requirements for outside agencies. BTPO could no longer meet the requirement to get the raw data set. Instead, BTPO receives a data set with the geographic location of the business, the North American Industry Classification Code (NAICS), and the number of employees. The IDOL data set for the 4th quarter of 2020 included 31,169 employees within the BTPO planning area and a total of 33,417 for Bannock County. The number of employees that could not be geolocated is 727, or 2.17 percent of the IDOL data set. Figure 8 shows the 2020 employment by TAZ.

Data Axle USA is a private company that provides employment data. The employment data includes the business name, address, geographic location, NAICS code, and the average number of employees. The October 2020 employment data for the BTPO planning area included 31,237 employees. Data Axle data comes from many sources, but they do not disclose the exact data sources.

Figure 8 shows differences in the IDOL and Data Axle employment data. One major difference is that the Data Axle data includes proprietor data. The BTPO control does not include the place of resident employment data.

Figure 8 Comparison of Employment Data Sources.



BTPO uses a manual process to combine the

IDOL and Data Axle employment. The process used to combine the employment sources included:

Base Data

- The IDOL data set was used as the primary data set. Modifications to the primary set create a combined data set.

- For each Traffic Analysis Zone, compare the employment totals for each source.
- When the employment total varies by ten or more employees, the data was evaluated to determine if a business was not included in both data sets.
 - Compare NAICS codes and employment to ensure employment is not double-counted.
 - Missing employment is moved into the combined data set.
 - BTPO reviewed each TAZ against previous employment data and local knowledge. The review included removing or moving employment that was not correct.

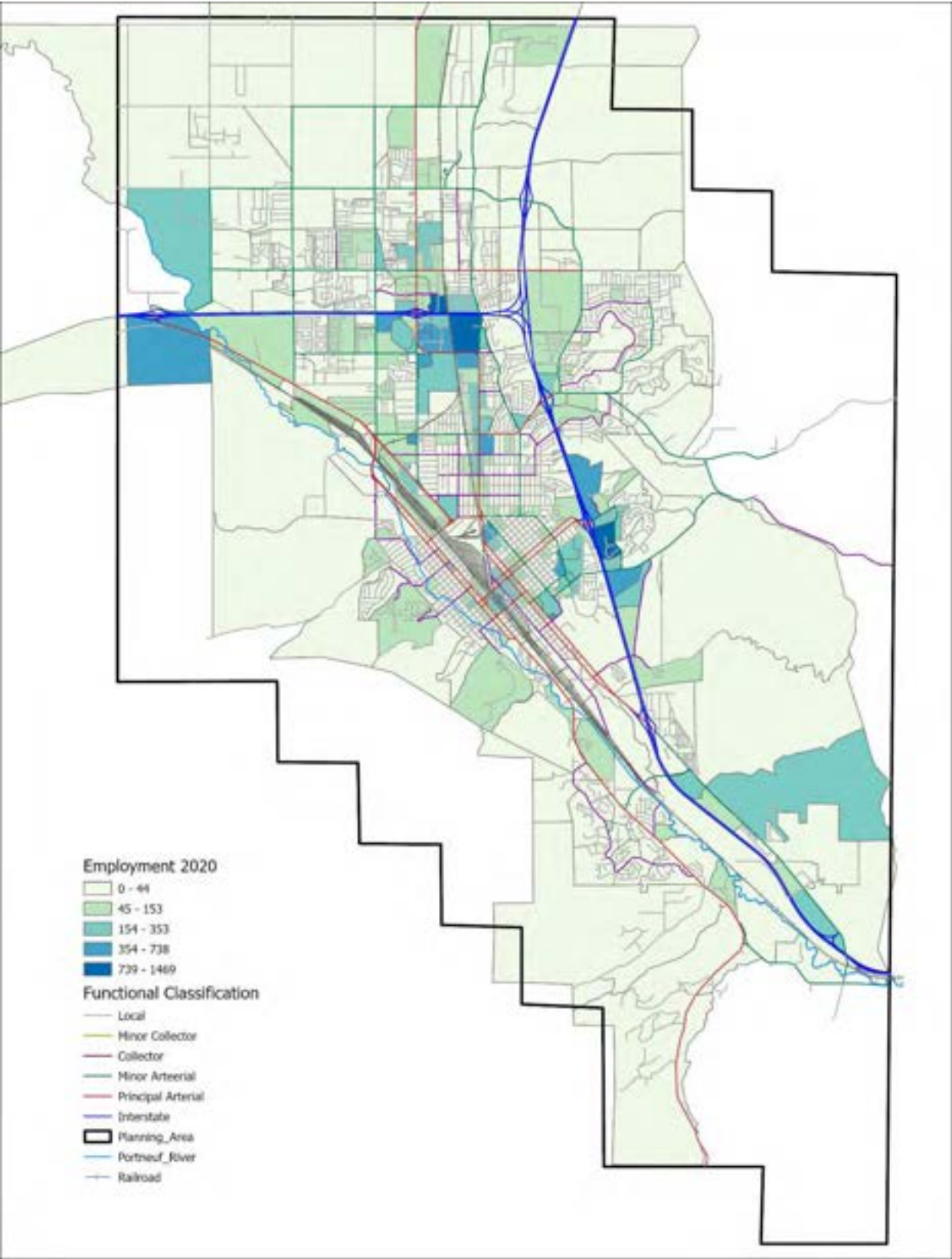
Adjustment for the City of Pocatello and Idaho State University

- The City of Pocatello and Idaho State University have several employment sites throughout the planning area. The employment data allocates all the employment to the official address.
- BTPO staff contacted the City of Pocatello to get location and employment for the various sites.
- ISU work locations are scattered in several locations. BTPO used the percentages from the 2015 employment update.

Control Total

- The total employment from IDOL and Axle Data were compared to the control total
- Adjustment of the allocated total to control included:
 - Percent of Total - Divide the TAZ total employment by the Bannock County total
 - Additional Employment – Multiply the percent of the total by the number needed to meet the control total.
 - Allocations to Sector – Multiply the percent of each sector's employment by the additional employment number.
 - Whole Numbers – To ensure whole numbers, the employment data was rounded. BTPO staff made manual adjustments to remove differences in totals due to the rounding.

Figure 9
2020



Employment by Traffic Analysis Zone

Employment Sectors

Travel demand models divided employment into retail, other, and service categories. Different types of employment attract different levels of traffic. A retail business has more trips in and out of business than an office. BTPO added education and university to these three employment types.

Table 3 Employment Sectors by North American Industry Classification System.

Category	Sector	NAICS
Educational Services	Education	61
Colleges, Universities, and Professional Schools	University	6113
Administrative and Support and Waste Management and Remediation Services	Other	56
Agriculture, Forestry, Fishing, and Hunting	Other	11
Construction	Other	23
Information (newspapers)	Other	51
Management of Companies and Enterprises	Other	55
Other Services (except Public Administration)	Other	31-33
Mining	Other	21
Public Administration	Other	92
Real Estate and Rental and Leasing	Other	53
Transportation and Warehousing	Other	48-49
Utilities	Other	22
Wholesale Trade	Other	42
Government	Other	92
Retail Trade	Retail	44-45
Accommodation and Food Service	Service	72
Arts, Entertainment, and Recreation	Service	71
Finance and Insurance	Service	52
Health Care and Social Assistance	Service	62
Other Services (except Public Administration)	Service	81
Professional, Scientific, and Technical Services	Service	54
NAICS - North American Industry Classification System 1997 major sectors numbers		

Table 4 provides a breakdown of the 2020 sector employment by district.

Table 4 2020 District Employment by Sector

District	Education	Other	Retail	Service	University	Total
1	358	5,333	2,609	2,749	-	11,049
2	276	3,001	760	1,501	-	5,538
3	113	857	34	250	-	1,254
4	171	2,272	528	3,050	2,374	8,395
5	233	216	46	469	5	969
6	262	480	1,015	4,176	32	5,965
7	398	1,119	333	1,477	-	3,327
8	90	130	55	179	-	454
Total	1,901	13,408	5,380	13,851	2,411	36,951

2050 POPULATION AND HOUSING UNITS FORECAST

Following the 2020 U.S. Census release, BTPO evaluated the population projections developed in 2012 to the actual 2020 numbers. The 2012 projections for 2020 were 4,105 persons lower than the 2020 Census number. A potential reason for the error is the migration rate. The U.S. Census Bureau's population estimates program uses the same cohort method to estimate the county population. The migration rate is determined by analyzing tax returns, medicare enrollment, social security information, and other factors. For most of the 2010s, the migration to Bannock County was negative.

Three options for developing the 2050 population projections were analyzed. The options were:

- Use the 2012 population forecasts rate for 2035 to 2040 to project the 2045 and 2050 populations.
- Conduct an updated population projection using the Cohort-survival method.
- Use population projections from Woods and Poole.

Conducting a Cohort-survival method is challenging and time-intensive. The hardest number to predict is the migration rates. As seen in 2010 to 2020 Census numbers, a negative migration rate slows the population growth while a positive rate increases population growth.

The last option and the option selected for the 2050 projections are from Woods and Poole Economics, a firm specializing in long-term economic data projections. The company has been around since the 1980s and projects county populations based on a top-down approach. Table 5 shows the Woods and Poole 2025 through 2050 population projections.

Table 5 2025- 2050 Population Projections from Woods and Poole

Year	Bannock County			BTPO Planning Area		
	Population	Numerical Change	Percentage Change	Population	Numerical Change	Percentage Change
2020	87,018			77,766		
2025	90,727	3,709	4.3%	80,747	2,981	3.8%
2030	93,126	2,399	2.6%	82,882	2,135	2.6%
2035	95,292	2,166	2.3%	84,810	1,928	2.3%
2040	97,151	1,859	2.0%	86,464	1,655	2.0%
2045	98,859	1,708	1.8%	87,985	1,520	1.8%
2050	100,613	1,754	1.8%	89,546	1,561	1.8%
Change 2020 -2050	13,595			11,780		

Source: Woods and Poole 2020 Demographic Data for Bannock County. 2020 Census data used for Bannock County and BTPO Planning Area. The percentage of Bannock County Population in the BTPO Planning area is 89%. The 2020 percentage is used to calculate BTPO Population for 2025 - 2050.

Housing Units and Households

The Census defines a housing unit as a house, an apartment, a group of rooms, or a single room occupied or intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants do not live and eat with other persons in the structure and have direct access from the outside of the building or through a common hall. For vacant units, the criteria of separateness and direct access are applied to the intended occupants whenever possible.

The projected gain in population from 2020 to 2050 divided by the 2020 Census average persons per household determined the additional housing units needed in the region.

Table 6 estimates housing unit gains based on the Woods and Poole population projections. The projections assume that average household sizes will be the same in the future. Once the U.S. Census releases the summary data, the actual household size and the number of households could change the calculations.

Table 6 2050 Housing Unit and Households Based on Woods and Poole Population Projections

Housing Units		Planning Area		
Year	Bannock County	Bannock County	Power County	Total
2020	34,903	31,068	79	31,147
2025	36,399	32,268	89	32,358
2030	37,366	33,129	101	33,231
2035	38,239	33,907	115	34,021
2040	38,989	34,574	130	34,704
2045	39,678	35,187	147	35,334
2050	40,385	35,816	166	35,983
Change 2020 -2050	5,482	4,748	87	4,836
Percent Change 2020 -2050	13.57%	13.26%	52.50%	13.44%
Households		Planning Area		
Year	Bannock County	Bannock County	Power County	Total
2020	31,068	29,116	73	29,189
2025	32,268	30,262	83	30,345
2030	33,129	31,085	94	31,178
2035	33,907	31,827	106	31,933
2040	34,574	32,464	120	32,584
2045	35,187	33,049	136	33,185
2050	35,816	33,651	154	33,804
Change 2020 -2050	4,748	4,535	81	4,615
Percent Change 2020 -2050	13.26%	13.48%	52.50%	13.65%
Source is the 2020 Census data used for Bannock County, Power County, and the BTPO Planning Area. Woods and Poole is the source of future housing data. The percentage of Bannock County Housing Units in the BTPO Planning area is 89%. The 2020 percentage is used to calculate BTPO Housing Units for 2025 -2050. The estimated household size is 2.62 people per household. The vacancy rate is .955 percent. Power County housing information is only for the BTPO modeling area.				

2050 EMPLOYMENT FORECASTS

BTPO used Excel's linear forecast formula. The function predicts a future value based on historical values. The historical data used is the BEA wage and employment data from 1969 to 2019.

The BEA released the 2020 employment numbers during the development of this report. BTPO has chosen to exclude the actual and to use the predicted number. The 2020 employment for Bannock County was down from the 2019 data. The pandemic was the primary cause of the decrease.

Power County has three traffic analysis zones in the travel demand model. The control totals come from the Idaho Department of Labor employment data. Power County's growth rate was assumed to be the same as Bannock County.

Table 7 Employment Control Total for BTPO Planning Area

Year	Bannock County	Planning Area		
		Bannock County	Power County	Total
2020	39,366	36,296	655	36,951
2025	43,509	38,051	686	38,737
2030	43,130	39,807	715	40,522
2035	45,420	41,562	746	42,308
2040	47,292	43,318	777	44,095
2045	49,231	45,073	807	45,881
2050	50,791	46,829	838	47,667
Change 2020 -2050	11,424	10,533	183	10,716
Percent Change 2020 -2050	22.49%	22.49%	21.85%	22.48%
Note: the BTPO Planning Area employment is calculated as 92.2% of the Bannock County employment. The percentage is consistent over the forecast period. Power County employment was increased a similar percentage as Bannock County				

ALLOCATION OF FUTURE DEMOGRAPHICS TO THE TRAFFIC ANALYSIS ZONES

The travel demand model uses the future population, housing, and employment projections to estimate traffic patterns and volumes. Current TAZ conditions are determined by the number of housing units and employment within the boundary. The 641 TAZs need to have future households and employment by sector. BTPO has chosen to use a CommunityViz software package to allocate the employment and housing units to the TAZs. Figure 10 shows the process CommunityViz uses to allocate employment and housing to the TAZs.

Figure 10 CommunityVis Allocation Process

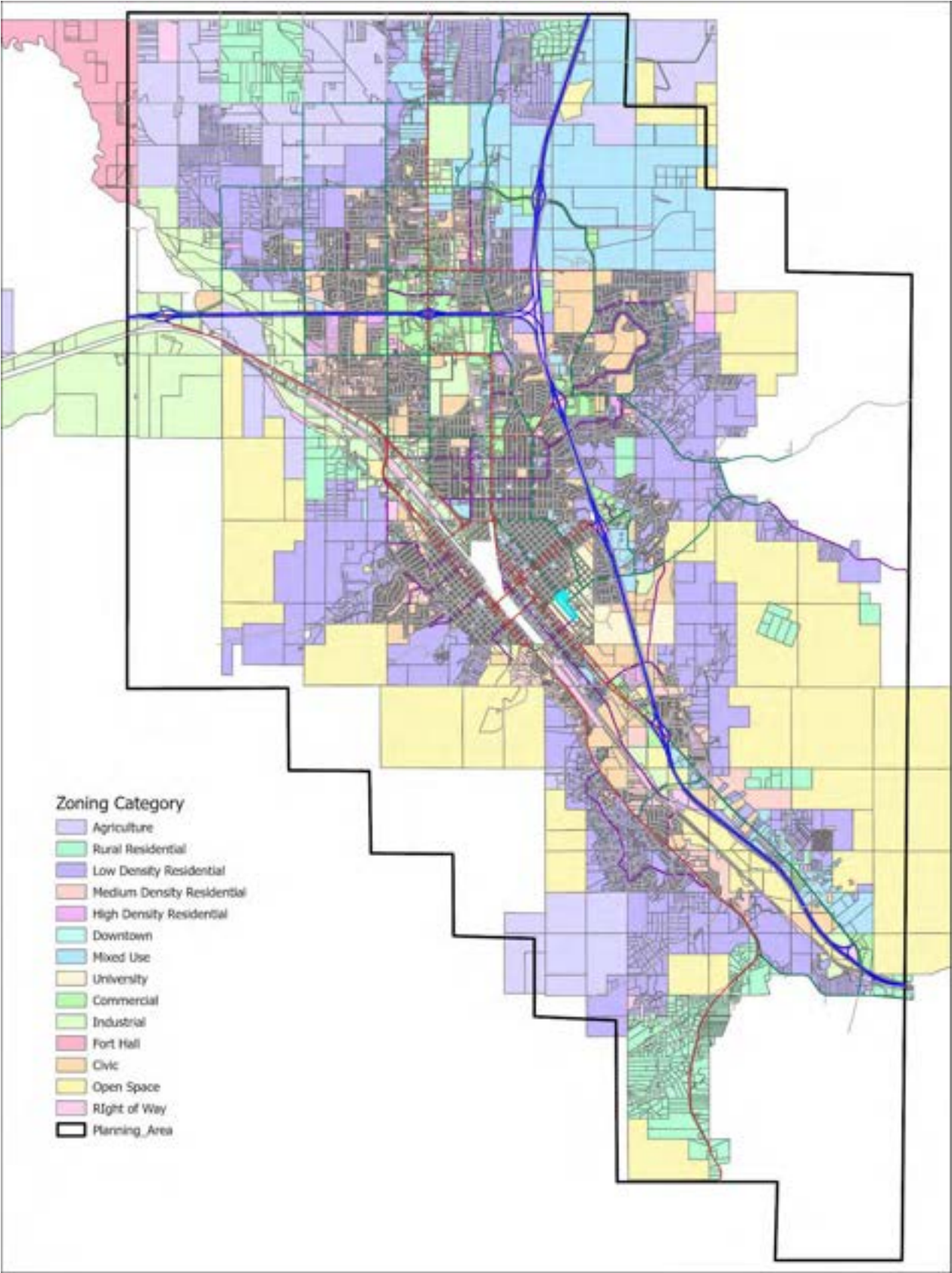


Parcel and the traffic analysis zones are the two geographic levels. Aerial imagery was used to determine changes from 2020 to 2021. Bannock County provided the 2021 parcel information.

Land Uses

The current zoning and input of the agency planning departments on potential changes for the next 10-years established the land use for each parcel. The various zoning types for each agency were combined to simplify the process. The zoning provides what type of development can occur within each area. Figure 11 provides the zoning types within the planning area.

Figure 11 Consolidated Agency Zoning



Capacity – The zoning determines what can be built on that parcel. The development status determines whether the parcel is developed, undeveloped, underdeveloped/redeveloped, or public. The status determines the parcel's capacity for development. The initial parcels development status was determined using the improvement value of the parcel and historic designation.

- Parcels with an improvement value of fifty percent of the land value are developed
- Parcels with no improvement value are undeveloped
- Parcels with an improvement value below fifty percent of the land value are underdeveloped or have redevelopment potential
- Public agency parcels are considered developed
- Agriculture is considered undeveloped

Figure 12 provides the development status in 2020 for the BTPO Planning Area. The region has 38 percent of the acres available for development (Figure 13). Developed and public ownership comprises 64 percent of the planning area. The undeveloped acres do not include agriculturally zoned land.

Figure 14 provides the percentage of undeveloped land for residential, commercial, and industrial zoning. Rural Residential represents the highest percentage of undeveloped acres in the planning area, and Commercial represents the lowest percentage at 3.13 percent.

Figure 12 Development Status

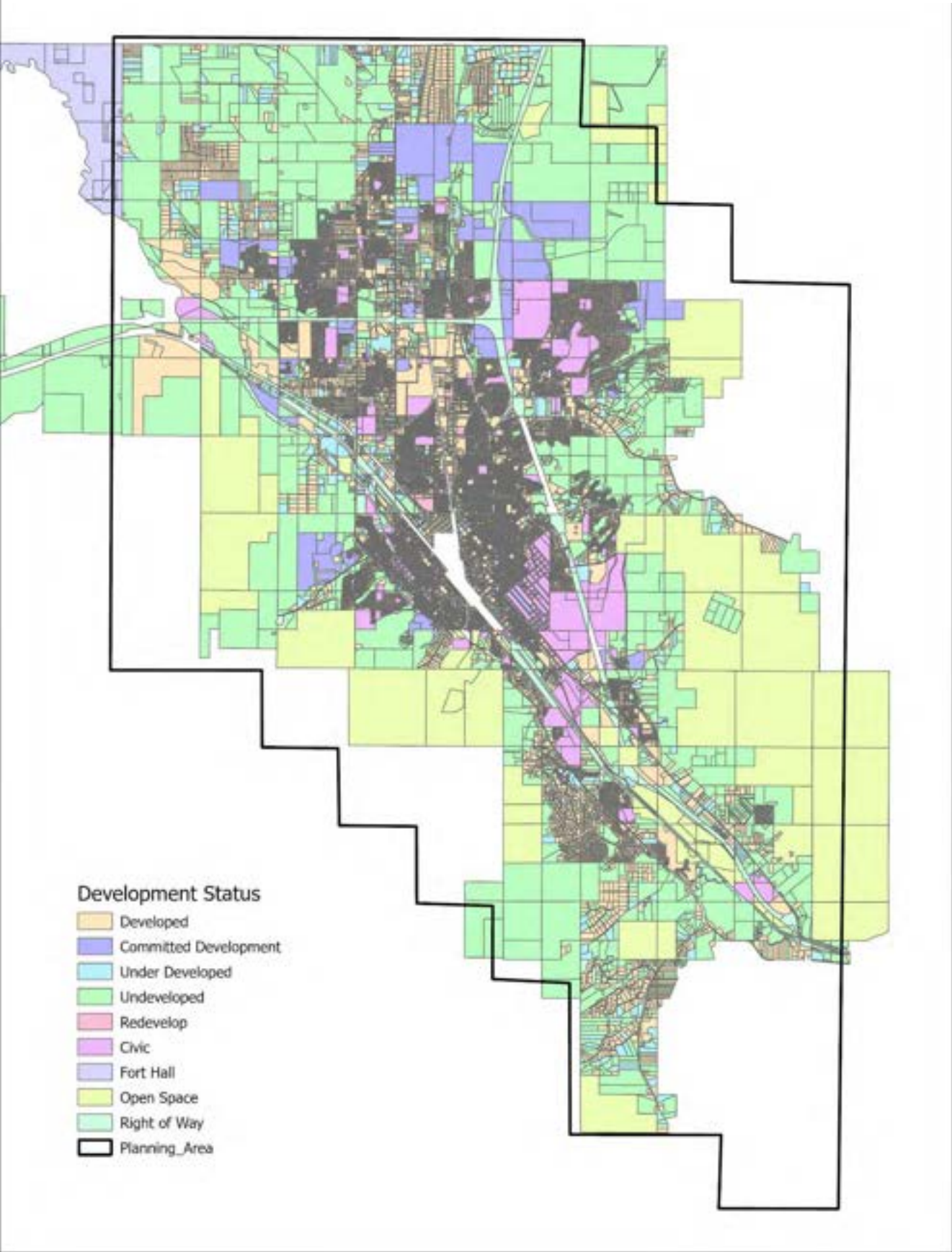


Figure 13 Percentage of Acres by Development Type

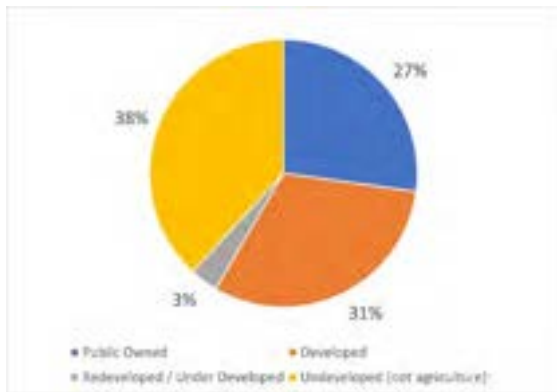
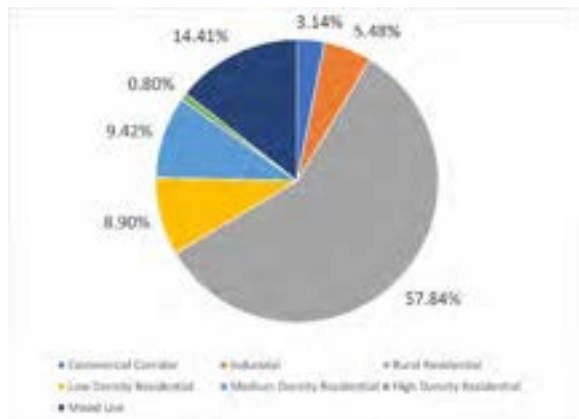


Figure 14 Undeveloped Acres By Land Use



Desirability

The model uses factors to determine how likely development will occur on the site over the next 25 years. The factors include proximity to development, Northgate interchange, other interchanges, arterial roads, and parks.

Growth

Tables 6 and 7 provide the control totals for both housing and employment. By 2050, the planning and modeling areas will add 4,818 housing units and 10,716 employees.

Allocation

The CommunityViz allocator model uses land use, development status, and desirability to allocate the housing units and employment. The model process has randomness built into the process. The BTPO staff and Technical Advisory Committee reviewed the initial allocation and made adjustments based on local knowledge.

The committed development status identifies

developments that have occurred since 2020 or those currently underway. Figure 11 provides the location of the committee category.

Figure 15 provides the housing units allocated from 2020 to 2050, and Figure 16 provides the total number of housing units by TAZ.

Figure 17 provides the employees allocated from 2020 to 2050, and Figure 18 provides the total number of employees by TAZ.

Figure 15 Allocated Housing Units by Traffic Analysis Zone 2020 -2050

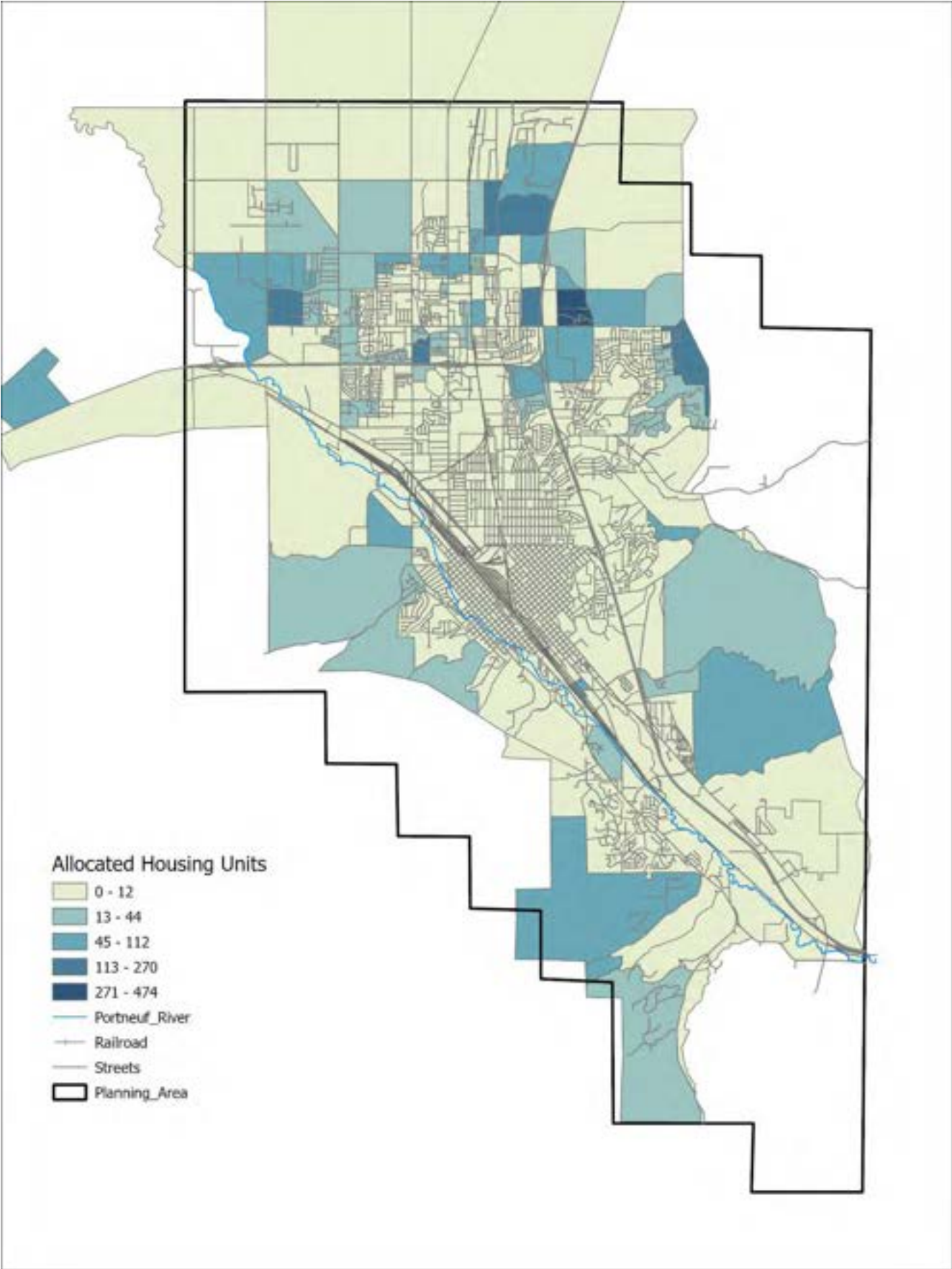


Figure 16 Total Number of Housing Units by Traffic Analysis Zone 2050

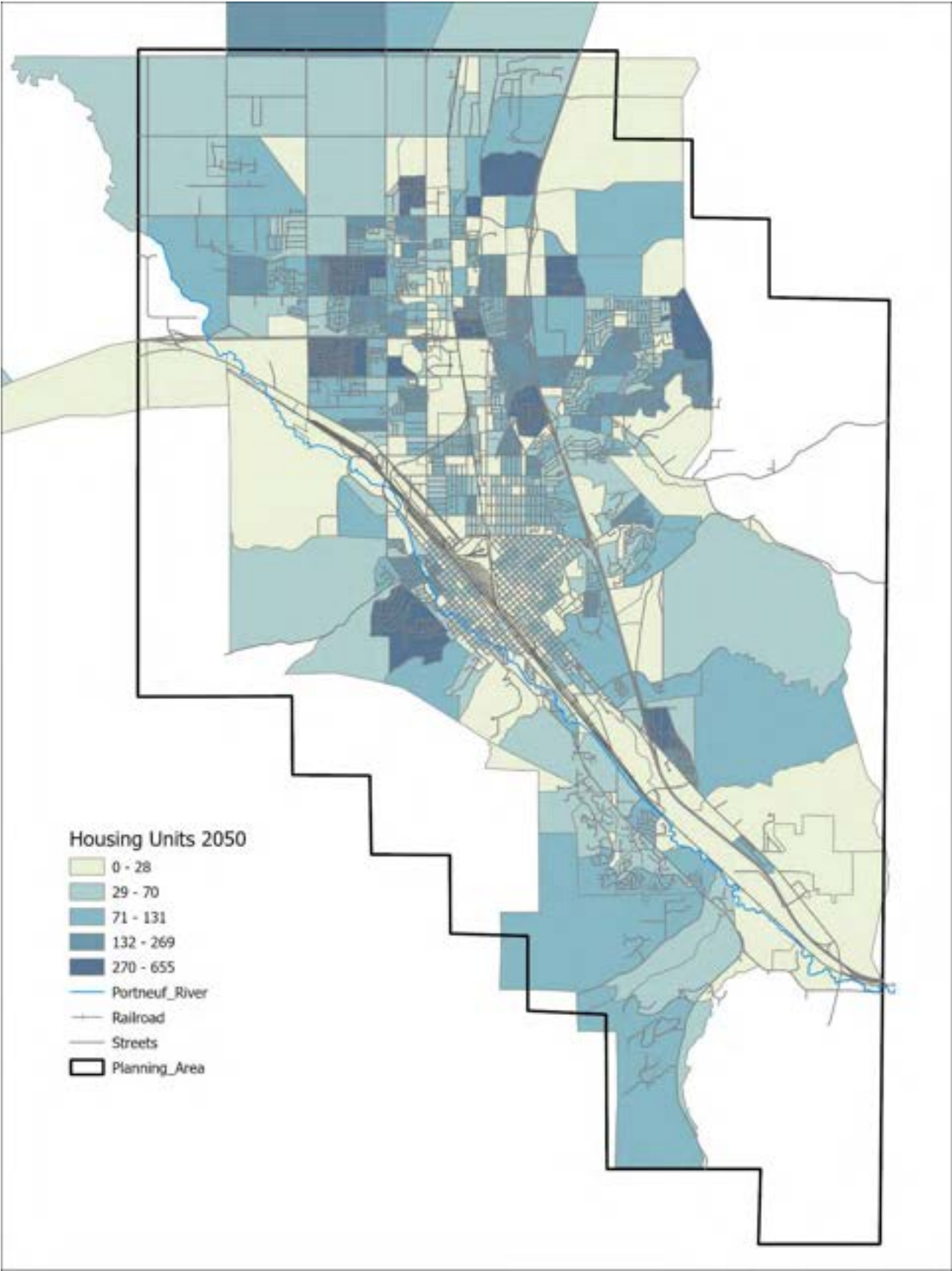


Figure 17 Allocated Employees by Traffic Analysis Zone 2020 -2050

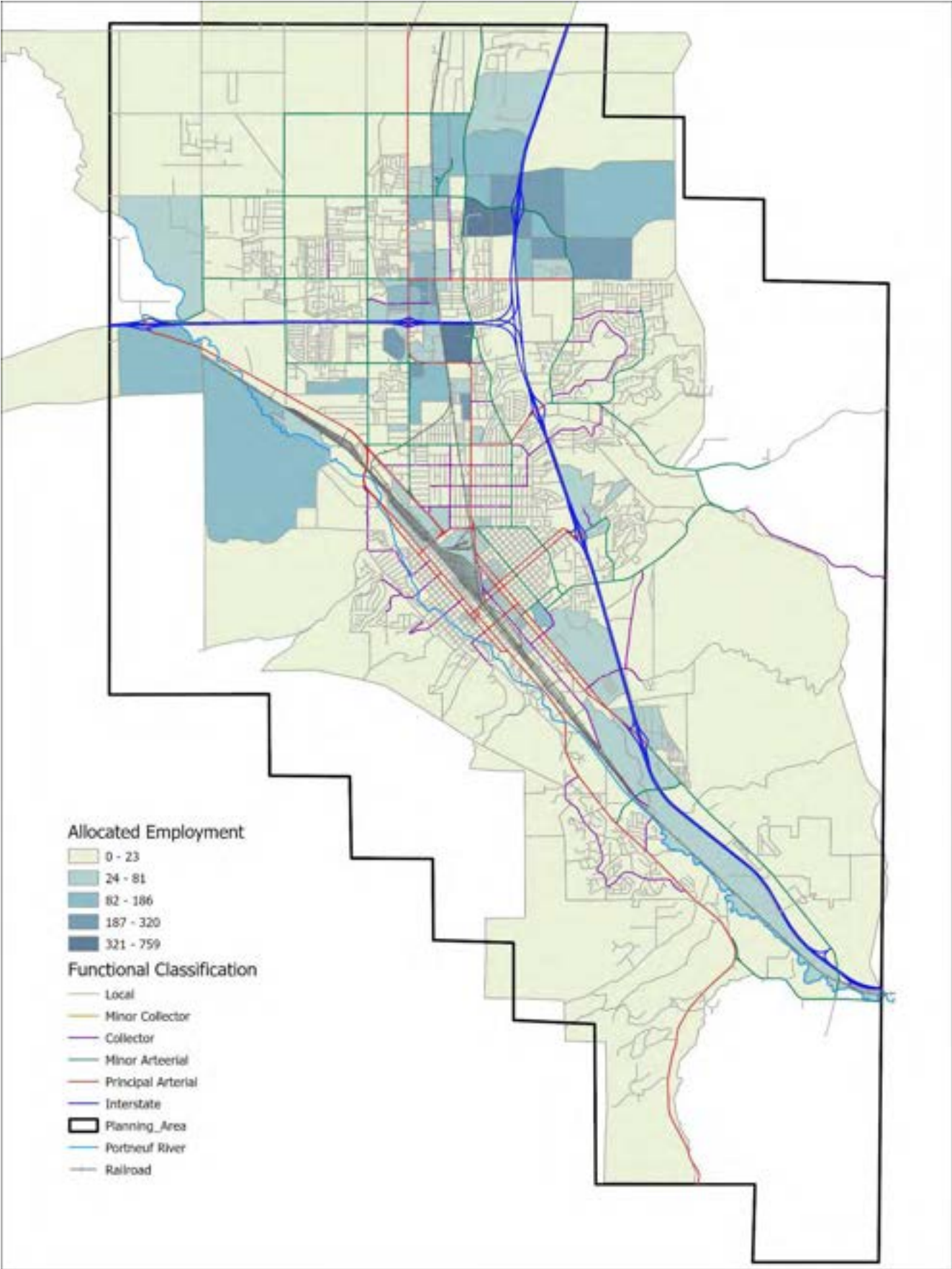


Figure 18 Total Number of Employees 2050 by Traffic Analysis ZONE

