APPENDIX A

Wasatch Front Region Small Area Socioeconomic Forecasts: 2007-2040 Technical Report #49

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Wasatch Front Regional Council
295 N. Jimmy Doolittle Road
Salt Lake City, UT 84116

P (801) 363-4250
F (801) 363-4230
E wfrc@wfrc.org
W http://www.wfrc.org

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Chapter 1: Introduction

Purpose of This Report

The Wasatch Front Regional Council (WFRC) maintains future year forecasts of demographic and economic data for the region. The purpose of this report is to present the methods used and the latest results from that forecast process. The Regional Council, as the Metropolitan Planning Organization (MPO) for the Salt Lake City and Ogden-Layton, Utah Urbanized Areas, is responsible for the transportation planning for the region. The socioeconomic forecasts that are contained in this report are used as part of the transportation planning process. Additionally, these forecasts are used by public and private industry planners for a variety of planning activities.

This report supersedes *Technical Report #45, Wasatch Front Region Small Area Socioeconomic Projections: 2002-2030.*

Variables Forecast

The forecasts contain data for population, households, and retail, industrial, and total employment.

Geography

The forecasts provide for a range of geographic units, from an aggregate of the entire region to the smallest unit of a Traffic Analysis Zone (TAZ). The levels of forecasts include counties, cities, and TAZs.

Counties

Responsibility for the county level forecasts lies with the staff of the Utah Governor's Office of Planning and Budget (GOPB). Council and GOPB staffs cooperate in the forecasts process. The cooperative process results in consistent forecasts for the region and the counties that are controls for the smaller geographic areas. Forecasts are made for the five counties that make up the Wasatch Front Regional Council. These are Davis, Morgan, Salt Lake, Tooele, and Weber Counties. The Urbanized Areas covered in this report include only Salt Lake, Davis, and Weber Counties.

Cities

In previous forecasts sets, the city boundaries were approximated using the TAZ boundaries. This led to a mismatch in the city population and employment forecasts. In this set of forecasts, the UrbanSim land use model developed forecasts at the gridcell level, enabling the city boundaries to be more accurately represented. Therefore, the city population and employment forecasts truly represent the actual city boundary. City totals and TAZ level forecasts are created separately, with the TAZ totals summing exactly to the County total, and loosely matching the forecast city totals.

TAZs
In anticipation of the 2010 Census, WFRC staff, with consultant assistance, redrew TAZ boundaries. These TAZ boundaries supersede all previous boundaries, however data represented in past TAZ structures will be maintained.

TAZs are the smallest unit of geography for which forecasts are made. TAZs are sub-Census Tract size and nest within tracts. TAZs are used for the travel demand modeling that WFRC is responsible for conducting. Given this, the TAZs are concentrated in the urbanized areas, but per Census Bureau requirements, they do cover the entire area of a county. Forecasts at the TAZ level are also controlled to the county total. TAZ boundaries are shown in the maps in Appendix B.

Horizon

This edition of socioeconomic forecasts has a horizon year of 2040. In this report, the base year is 2007 with forecasts presented for various intervening years. The CD at the back of this report contains spreadsheets all of the years. The data is also available from the WFRC website.

Socioeconomic Data Process Review

WFRC initiated a full review of the socioeconomic data process in late 2009. Recommendations from the review included renaming the data product “forecasts” rather than “projections”. This was done to differentiate data produced from a desired future land use (forecast) from data produced that reflects a likely future land use pattern (projection). It was also recommended that WFRC continue to utilize the UrbanSim land use model as the tool to generate its forecasts. The full recommendations can be found in the appendix of this document.

History

Socioeconomic forecasts at the TAZ level have been prepared for the Salt Lake and Ogden Urbanized Areas for more than thirty years. In December 1972, a study performed by the Center for Business and Economic Research at Brigham Young University for the Utah State Highway Department was the first to outline a methodology for disaggregating variables to small geographic areas in this region. In 1976 the Regional Council completed forecasts that extended to 1995. The 1995 projection was the first time that the forecasts relied on totals from the state’s Utah Process Economic and Demographic (UPED) model. Using county controls, TAZ level forecasts were developed by local planning officials based on land availability, current land use, zoning, etc. A similar process was followed in 1983, which extended the projection year to 2005.

In 1992, Technical Report 29 was published that forecast population, dwelling units, and employment to the year 2015. The process continued to rely on UPED for regional control totals. It also introduced the Stratified Iterative Disaggregation (SID) method of projecting socioeconomic data for small geographic areas. The idea behind the SID model is to make forecasts for each TAZ and then sum the TAZs to county and regional totals. TAZ forecasts were made by using density specific growth rates calculated from *Surveillance* data from the 1980s. In 1996, when GOPB produced a new series of county level totals to 2020, the SID model was modified to redefine growth rates using data from 1980 to 1992, and to use the totals from GOPB as hard control totals. The TAZ data were produced using the recalculated growth rates and then controlled using the totals from GOPB.

Organization of Report

Chapter 2 will discuss the methodology and assumptions in more detail. Chapter 3 will present the resulting forecasts. The data are grouped by variable and by year. Each variable is presented beginning with 2005, followed by five-year increments. A disk in the back contains data for each year for each variable for each geographic level.

Chapter 2: Methodology and Assumptions

This forecast set was created using the UrbanSim land use model as a tool in the process. This model, developed at the University of Washington, uses statistical modeling to calculate the probability of a certain piece of land developing or redeveloping and what that development may look like[1]. One of the variables considered is the accessibility of a piece of land to the transportation system. This feedback loop between the socioeconomic forecasts and the travel model is a new feature that WFRC has been and will continue to be developing. There are still four basic components to the forecasts methodology, base data, control totals, forecasts process, and review. These are discussed below.

Base Data

Two major data sets comprise the base data that was developed for the UrbanSim base data set. These are the parcel data from each county and employment data from the Utah Department of Workforce Services (DWS).

Data collection began in mid-2008 with the acquisition of 2007 parcel data from the County Assessors in Davis, Salt Lake, and Weber Counties. Parcel boundaries were also collected from each county as well. Data quality varied widely across the counties, making extensive data verification an essential task.

Employment data was collected from DWS for July 1, 2007. The employer points were geocoded to the street address of the worksite. 93% of the total employees were able to be located to a point. The rest were distributed to points based on a share of total methodology. The employment totals were adjusted to account for home-based and proprietor employment that is not included in the DWS data, but is in the GOPB control totals. This adjustment was done by calculating the share of each employment sector in the home-based and proprietor categories. Data from the Bureau of Labor Statistics (BLS) was used in this calculation. Home-based and proprietor employment was added to each sector based on proportions in the BLS data and controlled to the non-agricultural, non-construction totals from GOPB. Jobs data reported in Chapter 3 have had construction and agricultural jobs removed from the totals.

The parcel boundaries and assessor data needed cleaning and standardizing before they were usable. The parcel ID numbers needed to be standardized and the boundaries, especially at the county lines, were adjusted. The number and definition of land use categories varied from county to county. These categories were then standardized across the region.

Once the parcel and employment data were finished, they were converted to a grid matrix for use in UrbanSim. This was done by intersecting the parcels with the grids in ArcInfo. Data were assumed to be uniformly distributed across the parcel, so the share of the area of a parcel was used to calculate the share of the data in each gridcell. The data in each intersected polygon were summed to the gridcell. Each gridcell is 5.56 acres in size, thus, the small size of the gridcells (relative to the size of TAZs) makes for a more refined forecasts set.

[1] http://www.urbansim.org/

Control Totals

Control totals for the years 2007-2040 for population, households, and employment were generated at the county level by the Governor's Office of Planning and Budget (GOPB) and published in the *Economic Report to the Governor* in early 2008. These numbers were adjusted to be consistent with the output from the UrbanSim model, specifically; population was adjusted to incorporate only population in households. Both GOPB and WFRC staffs collaborate on the review of county level totals before their publication.

Vision Update

Owing to the amount of time that had passed since the previous RTP development, the land use vision, dubbed Wasatch Choices 2040, was revisited and updated to reflect recent development efforts. Several workshops were held with local planners and consultants to refine the Wasatch Choices land use layer. The resulting revision formed the land use inputs to the socioeconomic forecasts. As the resulting data are based on a land use vision, rather than the adopted land use plans of the cities, these data are referred to as forecasts (a desirable outcome) , rather than projections (a likely outcome if current trends are followed).

Figure 1 on the following page is the final result of the land-use visioning, entitled Wasatch Choice for 2040.

Forecasts Process

Base data and the control totals, as well as the Long Range Plan transportation network from the 2007 plan were all used by UrbanSim to produce a set of forecasts at the gridcell level. The gridcells were summed to the TAZ, City, and County level. As UrbanSim works at the regional level, the county level forecasts were controlled back to the county-level control totals from GOPB. City and TAZ level forecasts were analyzed internally for reasonableness and adjusted where necessary. Once all internal reviews were finished and adjustments made, the numbers were sent to the cities, counties, and consultants for their review and comment.

Review Process

The forecasts were subject to several rounds of review and revision. City staffs were asked to review and comment on the city and TAZ level forecasts. The scope and extent of comments from the cities varied widely. Comments and suggested changes were incorporated into the forecasts. Both the vision map and the data in this report have been thoroughly reviewed by cities, consultants, and other interested parties and were formally adopted by the WFRC Board on May 27, 2010.

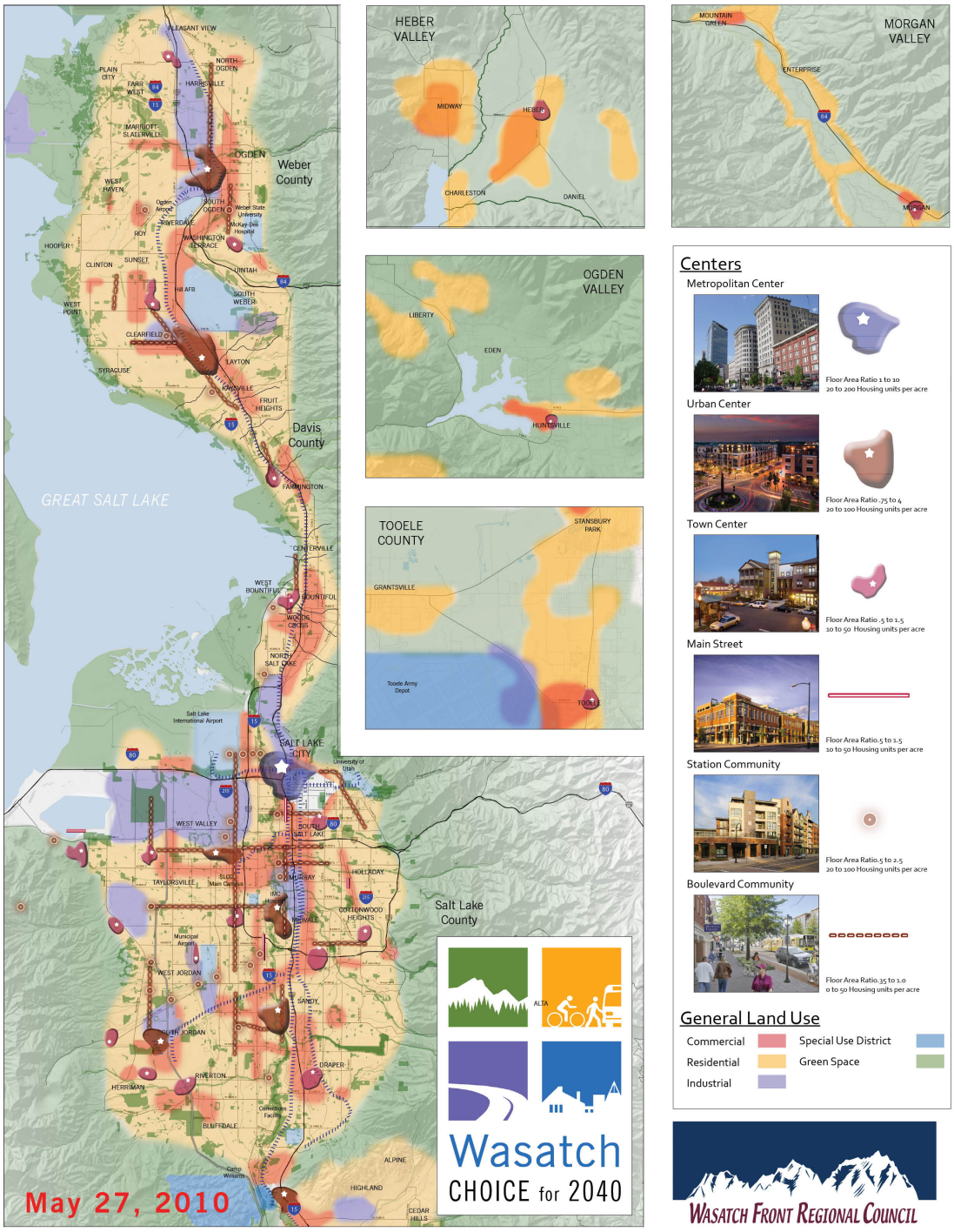

Figure 1: Wasatch Choice for 2040

Chapter 3: Results

Regional/County Forecasts

Household Population
The household population of the Urbanized Areas is forecast to grow by 59%, from 1.5 million in 2007 to approximately 2.4 million in 2040. The bulk of the state's population resides, and will continue to reside, in the Wasatch Front region. The region's population is dominated by Salt Lake County, with two-thirds of the region's population.

Davis County, at about 364,000, appears to be approaching buildout. According to Davis County studies, the buildout population is forecast at more than 400,000. Davis County has the smallest land area of any county in the state and will be the first in the state to have to deal with countywide buildout.

Table 1 shows the forecast county household populations.

Table 1

Population	2007	2015	2020	2025	2030	2035	2040	Growth	% Growth
Weber	217,471	251,938	273,916	294,710	315,243	337,814	363,671	146,200	67%
Davis	291,669	346,308	364,050	375,374	383,204	390,908	398,719	107,050	37%
Salt Lake	1,002,877	1,159,726	1,253,395	1,347,016	1,442,988	1,542,094	1,639,550	636,673	63%
	1,512,017	1,757,972	1,891,361	2,017,100	2,141,435	2,270,816	2,401,940	889,923	59%

Households
Table 2 shows the forecast number of households in each county. Utah is following the national trend toward smaller household sizes, shown in Table 3. This translates to faster household growth than population growth. Comparing Tables 1 and 2, the annual population growth rate through 2030 is approximately 1.7%, while the corresponding household growth rate for the same period is over 2%.

Table 2

Households	2007	2015	2020	2025	2030	2035	2040	Growth	% Growth
Weber	75,116	89,740	99,428	109,492	119,489	129,666	140,478	65,362	87%
Davis	92,239	113,879	122,029	129,204	135,759	141,791	146,646	54,407	59%
Salt Lake	343,982	411,589	453,993	498,875	544,378	588,446	629,950	285,968	83%
	511,337	615,208	675,450	737,571	799,626	859,903	917,074	405,737	79%

Table 3

Household Size	2007	2015	2020	2025	2030	2035	2040
Weber	2.90	2.81	2.75	2.69	2.64	2.61	2.59
Davis	3.16	3.04	2.98	2.91	2.82	2.76	2.72
Salt Lake	2.92	2.82	2.76	2.70	2.65	2.62	2.60
	2.96	2.86	2.80	2.73	2.68	2.64	2.62

Employment

The total, non-agricultural, non-construction employment in the region is forecast to grow 50%, or 1.5% annually, from 915,000 in 2007 to 1,374,000 in 2040. Table 4 below shows the county employment totals. Salt Lake County clearly dominates the economic landscape of the region, with 73% of the employment in the base year. Salt Lake's share of the employment remains steady throughout the forecast period.

Recent analysis[2] of data from the 2000 Census by the Bureau of Economic and Business Research shows the impact on commuting of the amount of employment in Salt Lake County. Additionally, about 70,000 workers commute to Salt Lake County each day for work. The majority of these commuters are from Davis (33,850), Utah (18,150), Tooele (7,050), Weber (6,450), and Summit (4,500) counties. As these counties continue to grow, these numbers will also increase.

Table 4

Employment	2007	2015	2020	2025	2030	2035	2040	Growth	% Growth
Weber	108,647	129,138	139,530	150,030	162,148	174,910	188,395	79,748	73%
Davis	134,918	166,499	175,583	181,062	184,437	186,840	188,990	54,072	40%
Salt Lake	671,732	764,384	804,049	843,993	892,183	942,882	996,611	324,879	48%
	915,297	1,060,021	1,119,161	1,175,085	1,238,768	1,304,632	1,373,996	458,699	50%

[2] http://www.business.utah.edu/bebr/bebrFiles/May_Jun2003.pdf

City Forecasts

Population
Table 5 below presents the city population forecasts. The south Davis County cities exhibit the signs that they are approaching buildout. Layton City is forecast to remain the largest city in Davis County and, likewise, Ogden in Weber County.

The fastest growing cities will be in areas with limited development today. Bluffdale, Herriman, Syracuse, North Ogden, South Jordan, and Riverton all are forecast to grow at high rates. On the other hand, cities such as Bountiful, Holladay, South Salt Lake, Centerville, Riverdale, and Washington Terrace all are at or approaching buildout and are not forecast to grow much. As is shown in the vision on page 8, much of the forecast growth in these cities is anticipated to come from infill, redevelopment, and/or neighborhood recycling, where young families move in as the elderly population passes away.

Table 5

NAME	2007 Population	2040 Population
Alta	351	390
Bluffdale	8,579	35,740
Bountiful	43,713	46,074
Centerville	15,353	24,145
Clearfield	27,444	30,937
Clinton	19,589	25,864
Cottonwood Heights	35,871	43,590
Draper	38,673	62,903
Farmington	17,136	30,409
Farr West	2,726	7,859
Fruit Heights	5,638	6,353
Harrisville	3,575	7,435
Herriman	14,600	55,555
Holladay	26,609	32,778
Hooper	4,975	22,515
Huntsville	554	716
Kaysville	25,555	35,527
Layton	63,023	81,000
Marriott-Slaterville	2,038	5,021
Midvale	25,001	55,943
Murray	44,108	75,015
North Ogden	18,000	38,416
North Salt Lake	15,700	20,378
Ogden	78,589	106,186
Plain City	3,725	11,126
Pleasant View	7,022	16,258
Riverdale	8,475	9,047
Riverton	38,906	62,648
Roy	34,623	38,261

Salt Lake City	179,204	245,838
Sandy	96,351	120,602
South Jordan	46,096	102,436
South Ogden	15,350	17,208
South Salt Lake	23,255	34,684
South Weber	6,000	13,900
Sunset	5,196	5,408
Syracuse	21,044	38,000
Taylorsville	60,534	74,671
Uintah	858	1,820
Unincorporated Davis	5,207	5,315
Unincorporated Salt Lake	146,279	342,949
Unincorporated Weber	25,433	40,660
Washington Terrace	10,984	14,000
West Bountiful	5,183	8,772
West Haven	4,853	33,995
West Jordan	101,065	165,885
West Point	9,415	23,399
West Valley City	126,000	160,000
Woods Cross	7,853	11,757

TAZ Forecasts

The data at the TAZ level is included on the CD-ROM at the end of this report, as well as from the WFRC webpage (www.wfrc.org).

Households
Figure 2 shows the forecast change in households between 2007 and 2040. Major development projects proposed for north and western Salt Lake County are reflected in these forecasts using the most recent data available.

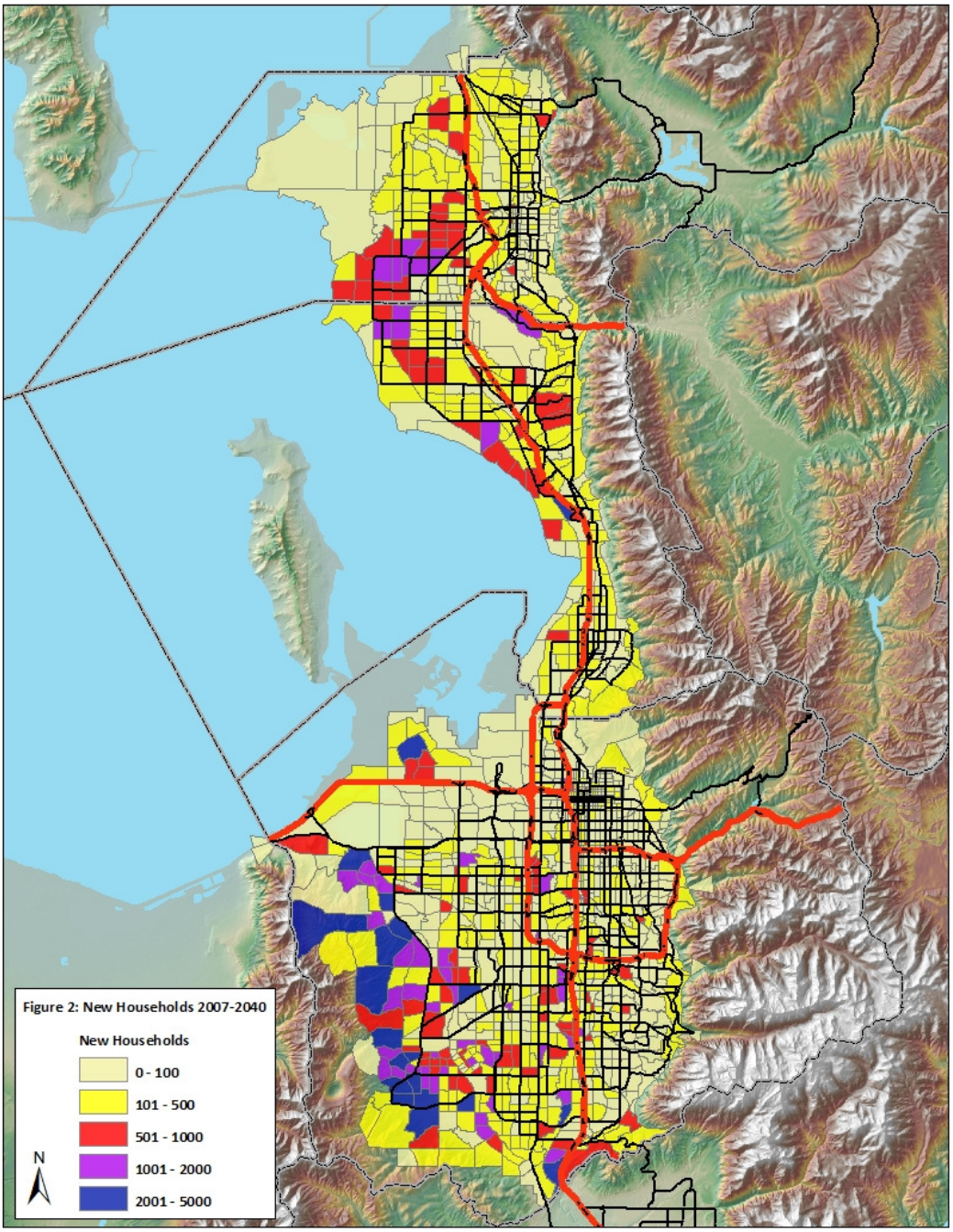
Figure 2: New Households 2007-2040
New Households
0 - 100
101 - 500
501 - 1000
1001 - 2000
2001 - 5000
N

Employment

Figure 3 shows the forecast change in employment at the TAZ level. Employment is forecast to increase, along the I-15 corridor, the industrial areas of Salt Lake and Weber Counties, as well as in the proposed Falcon Hill development on the west side of Hill AFB.