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Daniel S. Little, Executive Director

February 6, 2014

Ms. Mary Nichols
Chair
California Air Resources Board (ARB)
1001 I Street
Sacramento, CA 95812

Subject: Shasta Regional Transportation Agency (SRTA) Sustainable Communities Strategy Technical Methodology

Dear Ms. Nichols:

Please find enclosed a summary of SRTA's technical methodology for estimating Sustainable Communities Strategy greenhouse gas emissions as required under California Government Code 5080(b)(2)(I)(i), for your review and approval as part of our coordination required under Senate Bill 375.

If you have questions on SRTA's Technical Methodology, please contact Dan Wayne, Senior Planner, at (530) 262-6186 or Sean Tiedgen, Associate Planner, at (530) 262-6185.

Sincerely,

Daniel S. Little, AICP, Executive Director
Shasta Regional Transportation Agency (MPO)

DSL/SMT/DTW/jac

Enclosure

c: Cari Anderson, Air Resources Engineer, ARB

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Daniel S. Little, Executive Director

DATE: February 6, 2014

TO: Cari Anderson, Air Resources Engineer, California Air Resources Board

FROM: Sean Tiedgen, Associate Transportation Planner, Shasta Regional Transportation Agency

SUBJECT: Methodology for estimating greenhouse gas emission reductions from the 2015 Regional Transportation Plan for Shasta County

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This memorandum outlines the Shasta Regional Transportation Agency's (SRTA) draft technical methodology for forecasting change in per capita greenhouse gas (GHG) emissions as a result of the 2015 Regional Transportation Plan (RTP), including 'Sustainable Communities Strategy' (SCS). This information has been compiled in compliance with California's Senate Bill 375 (SB 375), the Sustainable Communities and Climate Protection Act of 2008.

The following elements describe the purpose, intentions, and general parameters of the planning process in commonly understood terms.

BACKGROUND – i.e. why this memo is being prepared
REGIONAL SETTING AND CONTEXT – i.e. baseline conditions and conceptual approach
MODELING APPROACH – i.e. how vehicle miles traveled (VMT) and resulting GHG emissions are calculated
SCS PLANNING PROCESS – i.e. tasks/steps, regional/local roles, and public engagement activities

Technical appendices, including documentation of travel demand and air quality modeling, will be provided with the RTP at a later date.

I. BACKGROUND

SB 375 aims to reduce VMT and associated GHG emissions through the alignment of transportation and land use planning. Transportation-efficient land use patterns is one of several essential policy focus areas needed to achieve the state's climate action goals established by the California Global Warming Solutions Act of 2006 (AB 32). The California Air Resources Board (ARB) was charged with setting regional targets for per capita carbon dioxide (CO_2) emissions attributable to passenger

vehicles and light-duty trucks for the year 2020 and 2035. In February 2011, each of California's 18 metropolitan planning organization (MPO) regions received a per capita target. Shasta County received a target of 0% change in CO_2 emissions for the year 2020 and 2035. All targets are based on a percentage change from a 2005 emissions baseline.

Each MPO region must prepare a 'Sustainable Communities Strategy' (SCS) as a component of its regional transportation plan (RTP). An SCS contains coordinated land use, housing, and transportation strategies that, if implemented, would allow the region to meet its GHG emission reduction targets. Once adopted by the MPO, the RTP (including SCS) will guide transportation policies and investments for the region. ARB is charged with reviewing each regionally-adopted SCS and verifying that the underlying assumptions, methods, and travel demand/emissions modeling outputs are technically sound.

II. REGIONAL SETTING AND CONTEXT

Shasta County is home to approximately 177,000 residents, approximately 80% of which live in the south-central urbanized area along Interstate 5 (see Figure 1). The region is largely rural in character and geographically separated from other California metropolitan regions. It is one of the most dispersed counties in the state, having 49 persons per square mile compared to the statewide average of 239. Of California's 57 Urbanized Areas identified in the 2010 Census, Redding has the fewest persons per square mile. Average annual growth rate for Shasta County between 2000 and 2010 was <0.9%, falling to <0.3% in more recent years.

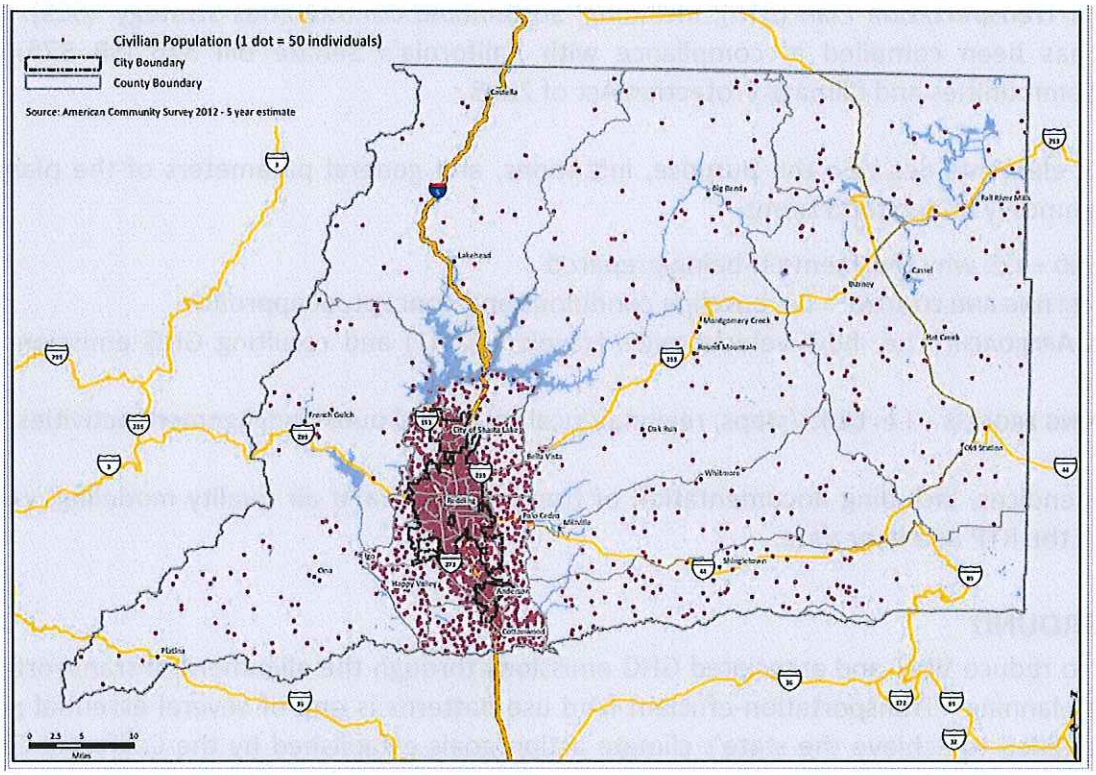


Figure 1 – Population density of Shasta County

Even under the most conservative assumptions, however, business-as-usual growth and development will affect the form, function, and livability of Shasta County over time. To help plan for the orderly growth of the region, SRTA led development of the Shasta*FORWARD*>> Regional Blueprint. A comprehensive assessment of community values and priorities was performed and three growth and development scenarios identified:

A) Scenario A: Rural & Peripheral Growth;
B) Scenario B: Urban Core & Corridors; and
C) Scenario C: Distinct Cities & Towns.

Scenarios were further developed and tested using the UPlan urban growth model. UPlan geographically allocates forecasted growth and development throughout the region based on numerically weighted growth 'attractors' (such as transportation accessibility, infrastructure capacity, and enterprise zones); growth 'discouragers' (such as flood zones, severe topography, and environmentally sensitive lands); and growth 'masks' (e.g. such as bodies of water). Land area is developed and populated within the model in order of highest attraction value, until all forecast growth has been accommodated within the region.

GIS-based performance measures, travel demand modeling, and vehicle emissions modeling were then used to evaluate each scenario in the following areas:

- Land Developed Ratio – i.e. among those lands in combined general plans designated for development, the percentage of which is needed to accommodate new growth.
- Environmentally Sensitive Lands Impacted – i.e. areas of environmentally sensitive land over which development may occur.
- Air Quality – i.e. Smog forming gases and particulate emissions from cars and trucks.
- Fuel Consumption – i.e. gas and diesel fuel used in Shasta County (intra-regional trips only)
- Greenhouse Gas Emissions – i.e. CO_2 emissions from on-road vehicles (passenger cars and light-duty trucks).
- Infrastructure Costs for New Development – i.e. cost of streets, water, sewer, and utilities infrastructure.
- Walkability/Transportation Choices – i.e. percent of households within ¼ mile of shopping and transit service.
- Average Commute Time – i.e. average per capita drive time from home to employment.
- Vehicle Miles Traveled – i.e. daily VMT per household (based on 2.43 persons per household).
- Prime Agricultural Land Impacted – i.e. lands having prime soil for agriculture over which development may occur.
- Water Consumption – i.e. based on primary land-use related consumption categories.

Following an extensive public engagement effort, during which approximately one in seventy adult residents in Shasta County participated, near-equal preference was expressed for Scenario B (Urban Core & Corridor) and Scenario C (Distinct Cities & Towns) as shown in Figure 2. Viewed together, these two scenarios captured nearly 90% of the community's votes. The final report recommends that a melding of Scenario B and Scenario C be used to inform implementation efforts.

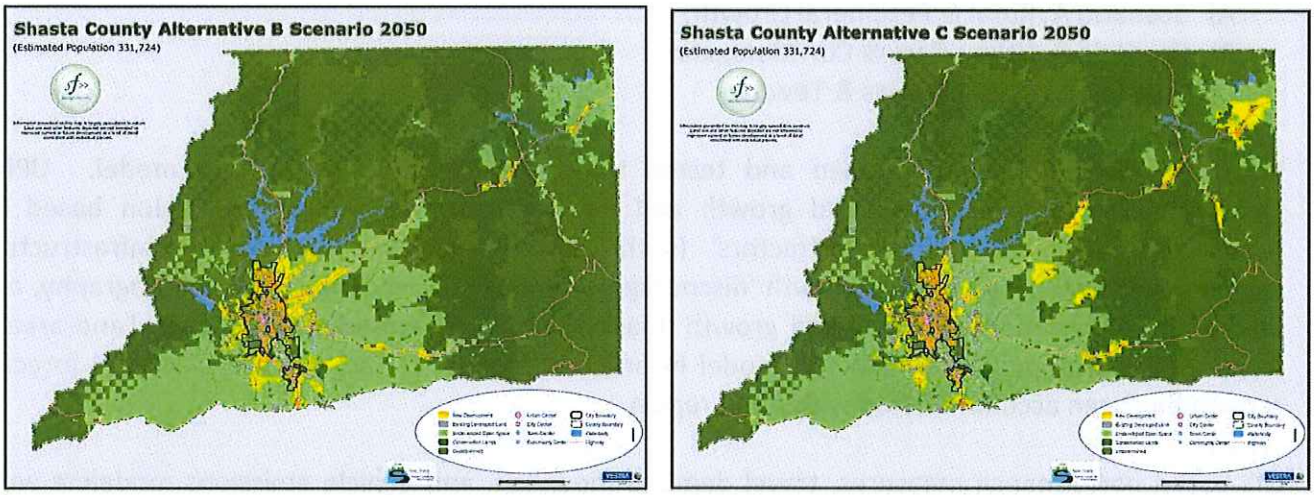


Figure 2 – ShastaFORWARD>> Regional Blueprint preferred regional growth scenario

The completion of the Shasta*FORWARD*>> Regional Blueprint in March of 2010 aligned with the arrival of Sustainable Communities Strategy (SCS) planning requirements under SB 375. It was determined that the preferred regional growth vision and associated public input from the Shasta*FORWARD*>> Regional Blueprint would serve well as the building blocks for development of the SCS. Further public consultation regarding specific land use and transportation strategies, policies, and project priorities will be conducted in stages as highlighted in Section IV of this document.

III. Modeling Approach

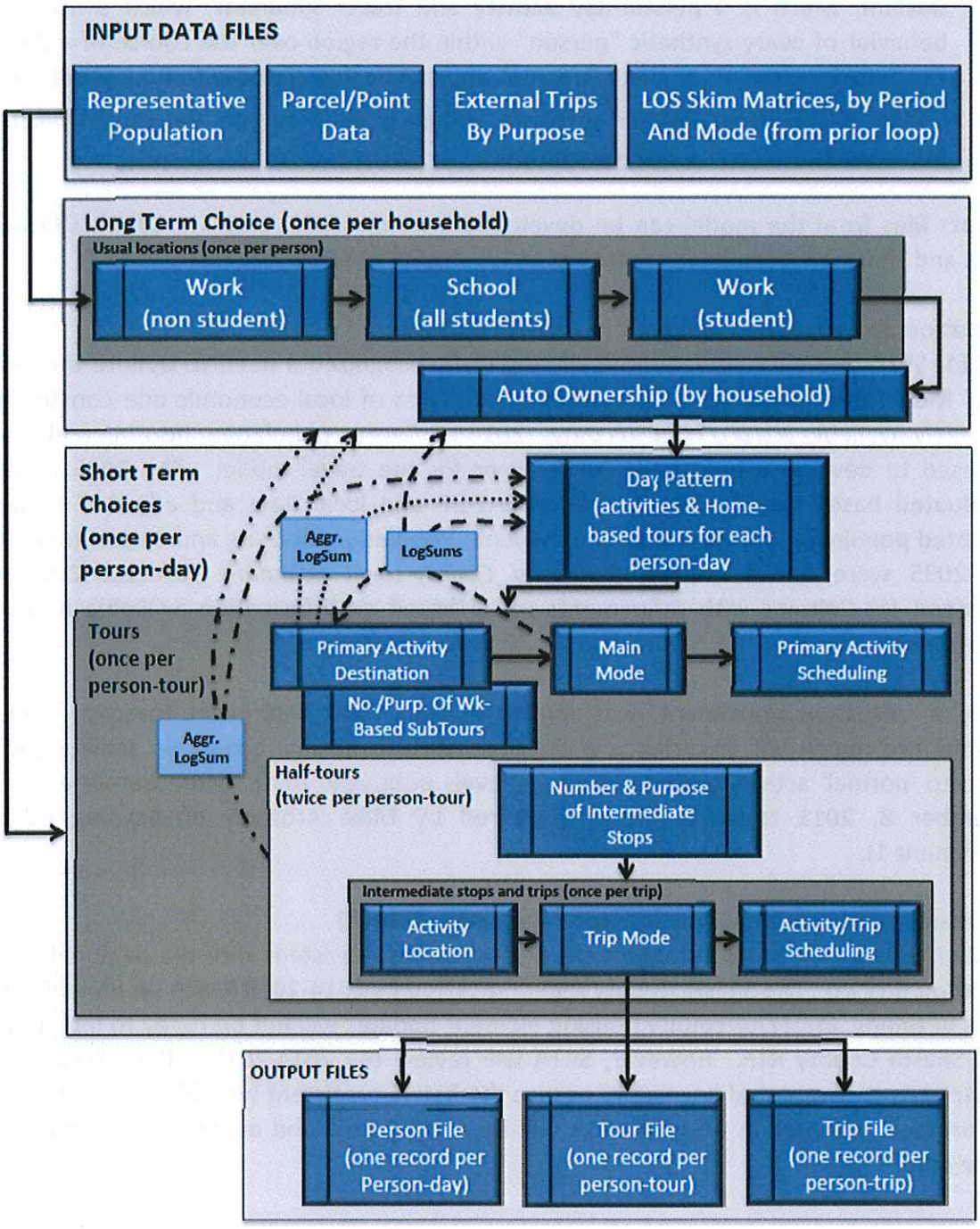
Model Background

For the last two decades, a traditional 4-step travel demand model has been utilized to forecast impacts of transportation projects in the region. With passage of recent federal and state laws requiring increased analysis and an emphasis on performance-based planning, SRTA recognized a need to enhance the agency's technical capabilities. SRTA received Prop 84 Modeling Incentive grant funds from the Strategic Growth Council in order to improve SRTA's travel demand modeling abilities. After considerable research and discussions with the Shasta Model Users Group, SRTA decided to embark on developing an activity-based model for the region. SRTA and consultant staff has spent over two years developing the new model and anticipate adoption in April 2014.

SRTA will utilize the agency's new activity-based model for land use modeling of strategies aimed at reducing regional VMT and associated GHG emissions. The new activity-based travel demand model will be the primary tool to calculate VMT and GHG impacts related to the existing and proposed

transportation network, land use patterns, and basic transit networks. Similar to the Sacramento Area Council of Government's (SACOG) SACSIM model, this new model is an advanced forecasting tool that simulates individual's' travel patters as a series of "trip-legs," connecting activities during the course of a 24-hour day. Travel behavior analysis is no longer limited at a Traffic Analysis Zone (TAZ) level, but can now be simulated at the parcel level. A graphical representation of the activity-based modeling process is illustrated below (Figure 3).

Figure 3 – DaySim Hierarchy and Flow Chart



Components of the model include:

- A Microsoft Excel parcel database table utilizes a macro to allocate specific types of households to parcels (based on the allowable household types in the model), for each model year. Allocations are based on general plan land use data, local city/county anticipated projects, and US Census Block Group occupancy rates.
- A built-in population synthesizer within DaySim, which creates a synthetic population with similar characteristics of the region and allocates persons to households.
- DaySim, which is a person-day activity and travel simulator, which simulates the travel behavior of every synthetic "person" within the region over the course of a 24-hour period. Outputs are created for every "person" and can be associated with households in the region.
- Citilabs CUBE Base/Voyager software, which is used to run the model via the Scenario Manager interface and generate outputs.

Outputs files from the model can be developed into an ArcGIS map via Cube's GIS window or as tables and charts that can be formatted in CUBE, ArcGIS or Microsoft Excel.

Population, Housing and Employment Growth Forecast

In 2011, SRTA and local city/county planning staff recognized a need to update the Shasta County Travel Model due to the 2008 "Great Recession," loss of local economic and construction activity, and newly available 2010 US Census data. 2010 US Census population, housing and economic data was used to develop a new 2010 "base" year for the travel model. The 2005 model year was reevaluated based on US Census, California DOF and local data and adjusted to better match estimated population, housing and employment. Population, housing and employment forecasts for 2011-2035 were based on the *California County-Level Economic Forecast 2010-2035* report developed for Caltrans with refinements made based on information available by local planning departments.

Finally, a "recession adjustment" was applied to years 2010-2030 in the forecast. The adjustment assumes the region will experience a slow recovery to normal economic activity and would not return to 'normal' activity and vacancy rate levels until year 2030. More details are provided in a November 8, 2011 technical memo prepared by Mike Aronson of Dowling Associates (see Attachment 1).

Consistency with Regional Housing Need Allocation (RHNA)

SB 375 requires that the SCS component of the RTP be consistent with the Regional Housing Needs Allocation (RHNA). The Shasta County region received its 2014-2019 RHNA on June 30, 2012. Due to issues of timing, local city/county housing element updates will not be ready to incorporate into the 2015 Shasta County RTP. However, SRTA will review the 2014-2019 RHNA allocations and make adjustments to forecasted housing to ensure the RTP is consistent with RHNA. Any changes made to the forecasts assumed in Attachment 1 will be documented and made available with the RTP at a future date.

Validation and Sensitivity Testing

SRTA is conducting validation and sensitivity testing of the activity-based model. Validation testing will be conducted on the following components:

- Mode choice
- Traffic assignment
- Transit assignment
- Time of day
- Synthetic population
- Trip distribution
- External/nonresidential travel (X-I and X-X trips)

Sensitivity testing will include looking at the following metrics:

- Density – increased or decreased density testing.
- Mode share – evaluate the impact of certain policies to increase mode share in non-automobile modes of transportation.
- Fuel cost – adjust fuel cost up and down to evaluate travel behavior.
- Transit – evaluate the impact of increasing headways on various transit routes and impact on travel behavior.

Calculating VMT

In accordance with SB 375, year 2005 will be used to compare the change in per capita GHG emissions against forecasted years. Data originally submitted to ARB was based on SRTA's existing four-step travel demand model. The new activity-based model, planned for adoption in April 2014, will be used to conduct travel modeling for the 2015 RTP, and SCS component.

Using the new activity-based model for all model years – including the 2005 base year – will allow for consistency and efficiency moving forward during future planning cycles and/or when ARB reevaluates regional targets. SRTA's activity-based model "base year" is 2010, with a 2013 base year for EIR analysis. For SB 375 purposes, the activity-based model will be used to back cast to 2005, using the updated population, housing and employment information shown in Attachment 1.

Modeling of Interregional Trips

SRTA follows the 2009 "*Recommendations of the Regional Targets Advisory Committee (RTAC) Pursuant to Senate Bill 375*" report on modeling interregional trips and calculating VMT[1]. Interregional trips are described as follows:

1. Internal-External (I-X) trips are trips that originate within Shasta County and have a destination outside of the region.
2. External-Internal (X-I) trips are trips that originate outside Shasta County and have a destination within the region.

[1] See page 26 of the report *Recommendations of the Regional Targets Advisory Committee (RTAC) Pursuant to Senate Bill 375* - http://www.arb.ca.gov/cc/sb375/rtac/report/092909/finalreport.pdf

3. External-External (X-X) or "through" trips are trips that travel through the region, but never stop.

Per the RTAC report, the following methodology is applied regarding interregional trips for purposes of GHG emissions estimation for the 2015 RTP:

- I-X trips – are modeled from their origin up to the Shasta County boundary.
- X-I trips – are modeled from the Shasta County boundary to their destination.
- X-X trips – are excluded from the SCS for GHG calculation.

VMT associated with interregional trips will be calculated for years 2005, 2010, 2013 (EIR baseline), 2020, and 2035. While the exclusion of interregional trips as described above will be used for calculating the region's effort to meet the SB 375 GHG reduction target, all VMT will be calculated to estimate the overall impact VMT has on the region's transportation system.

Greenhouse Gas Emissions Quantification and Reduction Estimation

For purposes of estimating GHG emissions for the 2015 RTP, SRTA will utilize the California Air Resources Board's EMFAC2011 air quality model. EMFAC2011 is the most current model available in California for estimating on-road vehicle emissions.

VMT outputs from the agency's activity-based model will serve as inputs into EMFAC2011. Emissions will be estimated for years 2005, 2010, 2013, 2020 and 2035 for purposes of evaluating whether SRTA's 2015 RTP will meet its specified target of 0% increase in per capita CO_2 (carbon dioxide) emissions from passenger vehicles and light-duty trucks (compared to 2005 levels).

IV. SCS Planning & Public Outreach Process

Achieving the necessary combination and critical mass of factors known to reduce VMT and associated GHG emissions (i.e. the Five 'D' Factors, as shown in Figure 4) will be a challenge in Shasta County given the region's dispersed development patterns, segregation of land uses, limited access to practical travel alternatives, and slow growth/rate of change.

Furthermore, no single 'D' factor by itself will substantially reduce automobile dependency; rather, it is the *combination* of factors and the *degree* to which they are present in a given area. Applying the 'D' factors a little here and a little there over the entire region would provide marginal return-on-investment. Layering many strategies within geographically small areas should, however, yield measurable transportation efficiencies while at the same time helping to meet local planning and economic development objectives. In the context of Shasta County, it is recognized that some the 'D' factors will be more appropriate and effective than others. Consultation and coordination with local agencies will be essential in selecting the right mix and intensity of strategies.

The most likely candidate locations for application of the five 'D' factors are existing urban centers and corridors – locations where some measure of the 'D' factors is present; where the necessary infrastructure is largely in place; where existing local plans permit a broad range and intensity of land uses; and where the community is more receptive to change.

The Five 'D' Factors

Affecting Automobile Dependency & Travel Mode Choice

***D**ensity – Number of persons, jobs, and dwellings*

***D**iversity – Balance of residential, retail, office, and other land uses*

***D**esign – Street network and non-motorized travel accommodations*

***D**estination Accessibility – Number of jobs and other attractions accessible via any travel mode*

***D**istance to Transit – Proximity of high quality public service to home and work*

Figure 4 – The Five 'D' Factors

To this end, SRTA is working with local agencies to identify small geographic areas known as 'Strategic Growth Areas' (SGAs). Within SGAs, it is intended that regional and local policies, programs, and investments be jointly focused, and private sector investments leveraged, to achieve measurable short-term progress – if not cumulatively across the region, at least within designated focus areas. Initially, only a select few SGAs are being tested. If SRTA and local agencies are able to demonstrate measurable benefits in the area of increased transit ridership; increased bicycle and pedestrian trips; reduced vehicle emissions; increased business and development activity; and/or other key areas, local agencies may wish to consider increasing the number and/or size of SGAs over time.

An initial public open house is scheduled for February 2014 in order to encourage early public and stakeholder input regarding the planning process and range of policy choices.

Whereas the regional blueprint is a conceptual visioning process, the SCS and accompanying travel demand modeling requires specific land use inputs and growth assumptions. At the onset of SB 375, local agencies in Shasta County were understandably concerned that the new law and regional planning requirement might infringe upon local land use authority. Sensitive to this perception, SRTA is facilitating a bottom-up process, wherein local jurisdictions will develop their own inputs and assumptions in consultation with SRTA for regional aggregation. Key steps in this process, including consultation with ARB and the public, are illustrated in Figure 5, and described in further detail below.

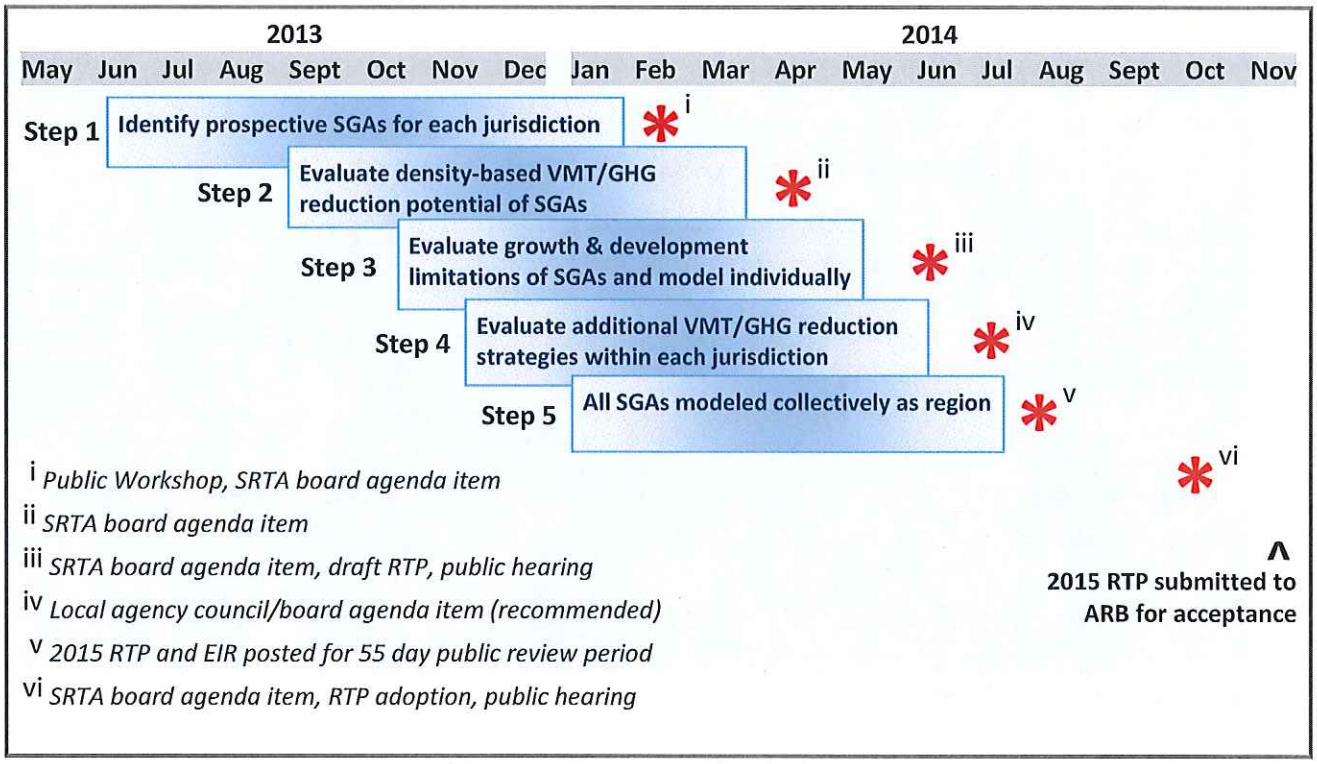


Figure 5 – Overview of Key Steps in the SCS Planning Process

STEP 1: IDENTIFY PROSPECTIVE STRATEGIC GROWTH AREAS (THROUGH FEB 2014)

SRTA will develop a series of objective, GIS-based spatial analysis tools to highlight prospective Strategic Growth Areas. Analysis tools include:

- Mobility Assessment Tool – A spatial measure of multi-modal connectivity between trip origins and destinations.
- Neighborhood Dynamic Scale – A spatial measure of economic activity (based on number of new business permits) and land use diversity.
- Exurban Growth Tool – A spatial measure of emergency response time and wildfire risk applied exclusively in rural unincorporated areas, to serve as a proxy indicator of transportation efficiency and ease of development.

Results of these analyses, in combination with locally-identified factors and considerations, will be used to identify a range of prospective SGAs within each jurisdiction for further testing.

Progress made shall be reported to the public as part of the February 2014 meeting of the SRTA Board of Directors.

STEP 2: MEASURE THE ELASTICITY OF VMT AS A VARIABLE OF DENSITY WITHIN EACH SGA (THROUGH APR 2014)

Once local jurisdictions have selected prospective SGAs, SRTA will test the elasticity of VMT as a variable of increased density therein. Utilizing total growth and development forecast figures for each jurisdiction, increments of residential, commercial, and office land use density will be theoretically loaded within each SGA and the affects tested via the agency's activity-based travel demand model. Three specific travel model runs will be performed for the years 2020 and 2035:

- 25% of all future growth assumed within the jurisdiction occurs within the SGA
- 50% of all future growth assumed within the jurisdiction occurs within the SGA
- 100% of all future growth assumed within the jurisdiction occurs within the SGA

The above model runs should not be interpreted as scenarios, but rather a simple exercise to evaluate the relationship between density and VMT and to compare the performance potential of SGAs against one another. Based on travel demand modeling results, local jurisdictions will determine which SGAs have the greatest potential for per capita VMT reduction, and which SGAs, if any, will be omitted from further modeling and analyses.

STEP 3: IDENTIFY POPULATION AND DEVELOPMENT LIMITATIONS WITHIN EACH SGA (THROUGH APR 2014)

Final assumptions for population and development capture rates (i.e. the portion of future growth that is expected to occur within each SGA, inclusive of all available incentives) must take into consideration practical limiting factors. The following analyses provide a method and justifiable basis for setting appropriate growth assumptions for each SGA:

1. Land availability – i.e. the number and land use zoning constraints of vacant and underutilized parcels suitable for infill or redevelopment. Analysis is based on the ratio of assessed structure value over land value, and ground-truthed by local agency planning staff;
2. Infrastructure capacity – i.e. available water and wastewater capacity (analysis initially limited to City of Redding SGAs);
3. Transportation capacity – i.e. available transportation network capacity while maintaining acceptable peak hour vehicle level of service; and
4. Market demand – i.e. number of new housing units by type (e.g. mixed use, multi-family, semi-detached, etc.) and square footage of non-residential building space (e.g., retail, office, etc.) that the market will demand over the planning horizon.

STEP 4: ADD SECONDARY STRATEGIES FOR VMT REDUCTION WITHIN EACH SGA (MAR 2014 – MAY 2014)

In addition to land use and housing-based VMT reduction strategies (i.e. densification within SGAs), local agencies may, at their discretion and within fiscal constraints of the RTP, employ additional strategies. If possible, the travel demand model will be used to measure VMT reduction resulting from such strategies. Off-model calculations, if necessary, will be documented and referenced. Categories and examples of such strategies include, but are not limited to:

- Balance of land uses – e.g. a more complete mix of housing, retail, office, etc.
- Public transit strategies – e.g. additional frequency and multi-modal connections, etc.

- Bicycle/pedestrian strategies – e.g. fix gaps in the network; expand network coverage, enhance connectivity with public transit, etc.
- Technology-based strategies – e.g. includes a variety of applications designed to increase the efficiency of traffic operations, enhance traveler information, etc.
- Policy strategies – e.g. sustainable development incentives, graduated traffic/development impact fee schedules, etc.

A progress report on development of the 2015 RTP will be made at the April 29, 2014 meeting of the SRTA Board of Directors.

STEP 5: MODEL ALL SGAS AND COLLECTIVE STRATEGIES AS A REGION (MAY 2014)

Initial testing of SGAs will be performed individually and independent of other SGAs. After inputs and assumptions for each individual SGA has been finalized, a combined region-wide travel forecast will be modeled. Air-quality model post-processing (EMFAC2011) will be used to calculate regional vehicle emissions for 2020 and 2035.

SRTA recommends that local agency staff present local inputs and assumptions contributed to regional SCS for respective council/board approval. Up to four additional jurisdictional presentations, with corresponding opportunities for public input, may occur at the discretion of local agencies.

The proposed final draft of the 2015 RTP, with SCS, will be made available for public review and comment. A public hearing will also be held at the June 24, 2014 meeting of the SRTA Board of Directors meeting.

The draft RTP, SCS, and EIR will be prepared and posted/distributed for the 55-day public comment period beginning July 2014.

V. 2015 ADOPTION AND APPROVAL PROCESS

Adoption of the 2015 RTP is scheduled to occur at the October 14, 2014 meeting of the SRTA Board of Directors, and will include a public hearing.

SRTA Board-adopted 2015 RTP will be submitted to ARB in November 2014 for determination of acceptance.

ATTACHMENT 1

SHASTA COUNTY FORECAST ASSUMPTIONS TECHNICAL MEMORANDUM
NOVEMBER 8, 2011

180 Grand Avenue, Suite 250
Oakland, CA 94612
www.dowlinginc.com

510.839.1742 x119
510.839.0871 fax
maronson@dowlinginc.com

Date: November 8, 2011

Memorandum

To: Sean Tiedgen, Shasta RTPA

cc:

From: Mike Aronson, Dowling Associates

Reference: Shasta RTPA Modeling On-Call Services P070116

Subject: Shasta County Forecast Assumptions

The Shasta County travel demand model is being updated to reflect the most current information on overall countywide growth rates, specific development assumptions and road improvement projects.

Countywide Land Use Forecasts

The land use forecasts for the current Shasta County travel demand model were developed in 2005 using the best information available at that time. Since 2005, economic conditions have changed significantly. The changes are affecting both the overall growth rates in Shasta County and the rate of construction for specific approved and proposed development projects.

Sources

The California Department of Finance (DOF) publishes forecasts of population for California counties. However, the most current DOF projections were completed in 2007, well before the effects of the current economic changes were known. Dowling Associates contacted DOF and verified that no newer projections have been released, and may not be released for some time. Because the DOF projections do not reflect current economic conditions, they are not recommended for use.

A more recent economic forecast for California has been prepared by The California Economic Forecast for the California Department of Transportation (Caltrans). The results were published as *California County-Level Economic Forecast 2010 – 2035*, The California Economic Forecast, Mark Schniepp, Director, prepared for Office of Transportation Economics, Division of Transportation Planning, California Department of Transportation, March, 2010. The Caltrans Economic Forecast reflects more current economic trends and is recommended as a basis for Shasta County forecasts.

Population

Population statistics and forecasts for Shasta County are listed in Table 1.

Table 1 : Shasta County Population Forecasts

Year	US Census (2000 & 2010)	CA DOF Estimates (2010)	CA Department of Finance Current (2011)	CA Department of Finance Forecast (2007)	Caltrans Economic Forecasts (2010)	Recommended Forecast	Shasta County Model (2005)
2000	163,256	163,256		164,794		163,256	
2005		177,944			178,724	173,029	165,430
2010	177,223	184,247	177,248	191,722	184,891	177,223	182,071
2015					191,098	183,173	198,875
2020				224,386	198,421	190,192	214,734
2025					206,303	197,747	230,231
2030				260,179	214,903	205,990	245,904
2035					223,639	214,364	
2040				295,281		222,738	

Persons per Year

Year	US Census (2000 & 2010)	CA DOF Estimates (2010)	CA Department of Finance Current (2011)	CA Department of Finance Forecast (2007)	Caltrans Economic Forecasts (2010)	Recommended Forecast	Shasta County Model (2005)
2000							
2005		2,938	-			1,955	
2010	1,397	1,261		2,693	1,233	839	3,328
2015					1,241	1,190	3,361
2020				3,266	1,465	1,404	3,172
2025					1,576	1,511	3,099
2030				3,579	1,720	1,649	3,135
2035					1,747	1,675	
2040				3,510		1,675	

Annual Rate Compared to 2010 Base

Year	US Census (2000 & 2010)	CA DOF Estimates (2010)	CA Department of Finance Current (2011)	CA Department of Finance Forecast (2007)	Caltrans Economic Forecasts (2010)	Recommended Forecast	Shasta County Model (2005)
2000							
2005		1.59%				1.10%	
2010	0.79%	0.68%		1.40%	0.67%	0.47%	1.83%
2015					0.67%	0.67%	1.85%
2020				1.70%	0.79%	0.79%	1.74%
2025					0.85%	0.85%	1.70%
2030				1.87%	0.93%	0.93%	1.72%
2035					0.94%	0.94%	
2040				1.83%		0.94%	

The population numbers in the current (2005 version) Shasta County model were based on the 2000 United States Census, supplemented by the annual population estimates provided by the California DOF and growth estimates based on a detailed review of actual building permits in each Shasta County jurisdiction between 2000 and 2004. The model estimates were 7 percent lower than actual population reported by DOF for 2005, but were only 2.7 percent higher than the recently released Census statistics for 2010 (182,071 model estimate versus 177,223 Census count).

The recommended population forecasts start with the 2010 value reported by the 2010 Census. The recommended population estimate for each forecast year up to 2035 is based on applying the growth rate from the Caltrans Economic Forecast to the prior forecast year. For example, the population estimate for 2030 is based on the 2025 population estimate increased by the Caltrans growth percentage from 2025 to 2030. The population growth from 2035 to 2040 is assumed to be similar to the growth rate from 2030 to 2035.

The resulting 2030 population forecast of 206,000 is 16 percent lower than the current model forecast of 245,900.

Housing

Statistics and forecasts for households or occupied housing units in Shasta County are listed in Table 2.

The household numbers in the current Shasta County model were based on the 2000 United States Census, supplemented by growth estimates based on a detailed review of actual building permits in each Shasta County jurisdiction between 2000 and 2004. The model estimates for 2010 were 6.8 percent higher than the recently released Census statistics for 2010.

The recommended housing forecasts start with the 2010 value reported by the 2010 Census. The recommended housing estimate for each forecast year up to 2035 is based on applying the growth rate from the Caltrans Economic Forecast to the prior forecast year. For example, the housing estimate for 2030 is based on the 2025 housing estimate increased by the Caltrans growth percentage from 2025 to 2030. The household growth from 2035 to 2040 is assumed to be similar to the growth rate from 2030 to 2035.

The resulting 2030 housing forecast of 85,900 is 15 percent lower than the current (2005 version) model forecast of 101,150.

Table 2 : Shasta County Housing Forecasts

Year	US Census (2000 & 2010)	CA DOF Estimates (2010)	CA Department of Finance Current (2011)	CA Department of Finance Forecast (2007)	Caltrans Economic Forecasts (2010)	Recommended Forecast	Shasta County Model (2005)
2000	63,426	63,426				63,426	
2005		68,220			68,200	67,392	68,220
2010	70,346	71,791	70,301		72,100	70,346	75,158
2015					75,800	73,956	81,658
2020					80,000	78,054	88,154
2025					84,100	82,054	94,670
2030					88,000	85,859	101,150
2035					91,500	89,274	
2040						92,689	

Households per Year

Year	US Census (2000 & 2010)	CA DOF Estimates (2010)	CA Department of Finance Current (2011)	CA Department of Finance Forecast (2007)	Caltrans Economic Forecasts (2010)	Recommended Forecast	Shasta County Model (2005)
2000							
2005						793	
2010	692	837			780	591	1,388
2015					740	722	1,300
2020					840	820	1,299
2025					820	800	1,303
2030					780	761	1,296
2035					700	683	
2040						683	

Annual Rate Compared to 2010 Base

Year	US Census (2000 & 2010)	CA DOF Estimates (2010)	CA Department of Finance Current (2011)	CA Department of Finance Forecast (2007)	Caltrans Economic Forecasts (2010)	Recommended Forecast	Shasta County Model (2005)
2000							
2005						1.03%	
2010	0.98%	1.17%			1.08%	1.03%	1.85%
2015					1.03%	1.03%	1.73%
2020					1.17%	1.17%	1.73%
2025					1.14%	1.14%	1.73%
2030					1.08%	1.08%	1.72%
2035					0.97%	0.97%	
2040						0.97%	

Employment

Statistics and forecasts for jobs in Shasta County are listed in Table 3.

The employment numbers in the current Shasta County model were based on a detailed inventory of 2004 employers, starting with a commercial database from InfoUSA and supplemented by manual review and checks of government employment locations and major missing employers.

The model estimates for 2005 were about 8 percent higher than the standard jobs report issued by the California Economic Development Department (EDD). However, this was deliberate, as the model intends to capture all employees who may make trips on a typical day, while the EDD reports are more oriented towards full-time equivalent employees and exclude some categories such as self-employed at home. The higher model base number is recommended as a basis for employment statistics rather than the EDD total jobs reports.

For 2010, the model forecast of 76,011 jobs was 30 percent higher than the EDD report of 58,500 jobs. As of 2005, the model forecasts assumed continued job growth consistent with trends at that time and planned development in each community. In reality, jobs in Shasta County decreased by over 9 percent between 2005 and 2010.

The recommended employment forecasts start with the 2010 value reported by the EDD, adjusted up by the 8 percent established to account for the additional job types in the model database (part-time retail workers, self-employed, etc...). The recommended employment estimate for each forecast year up to 2035 is based on applying the growth rate from the Caltrans Economic Forecast to the prior forecast year. For example, the employment estimate for 2030 is based on the 2025 employment estimate increased by the Caltrans growth percentage from 2025 to 2030.

The resulting 2030 employment forecast of 80,400 is 23 percent lower than the current (2005 version) model forecast of 103,843.

Recession Adjustment

Land use inputs for travel models generally assume that there is a base year inventory, and then new development is added to that base year inventory. However, actual employment decreased between the 2004 base year inventory and 2010. An additional set of assumptions were required to represent this recession condition.

The first assumption is that existing buildings were operating at lower occupancies in 2010 than in 2004. The change may not directly correlate to leasing rates, as employment spaces could still be actively leased but occupied by lower numbers of employees. A factor was developed for each type of employment space to account for lower occupancy in 2010 than in the 2004 base year. The factors were based on the relative number of employees in various categories in Shasta County for each year as reported by EDD (Table 4).

Table 3 : Shasta County Employment Forecasts

Year	US Census (2000 & 2010)	CA Economic Development Department Current (2011)	CA Economic Development Department Forecast (2009)	Caltrans Economic Forecasts (2010)	Recommended Forecast	Shasta County Model (2005)
2000		60,200				
2005		64,600		64,600	69,629	69,629
2010		58,500	64,060	60,300	63,054	76,017
2015				65,400	68,387	82,185
2020			69,860	69,200	72,361	88,869
2025				73,400	76,752	96,077
2030				77,000	80,517	103,834
2035				80,300	83,968	
2040					87,418	

Employees per Year

Year	US Census (2000 & 2010)	CA Economic Development Department Current (2011)	CA Economic Development Department Forecast (2009)	Caltrans Economic Forecasts (2010)	Recommended Forecast	Shasta County Model (2005)
2000						
2005		880				
2010				(860)	(1,315)	1,278
2015				1,020	1,067	1,234
2020				760	795	1,337
2025				840	878	1,442
2030				720	753	1,551
2035				660	690	
2040					690	

Annual Rate Compared to 2010 Base

Year	US Census (2000 & 2010)	CA Economic Development Department Current (2011)	CA Economic Development Department Forecast (2009)	Caltrans Economic Forecasts (2010)	Recommended Forecast	Shasta County Model (2005)
2000						
2005						
2010				-1.43%	-2.09%	1.68%
2015				1.69%	1.69%	1.62%
2020				1.26%	1.26%	1.76%
2025				1.39%	1.39%	1.90%
2030				1.19%	1.19%	2.04%
2035				1.09%	1.09%	
2040					1.09%	

A second assumption is that employment space will return to its normal occupancy levels (which are less than 100 percent) at some point. For this model update, the recovery was assumed to require 20 years to the year 2030. The 20 year recovery timeframe was selected as a reasonable assumption that maintains consistency with prior 2030 occupancy assumptions, and was not based on any specific economic forecast.

Table 4 lists the occupancy factors applied to each type of employment space and the corresponding EDD labor category used to estimate the occupancy factor.

Table 4 : Employment Occupancy Adjustment Factors

Model Land Use	Occupancy Factor 2010	2020	2030	Representative EDD Categories
08 Industrial	0.63	0.82	1.00	Goods Producing
09 Wholesale	1.00	1.00	1.00	Wholesale
10 Service Commercial	0.51	0.76	1.00	Construction
11 Retail	0.91	0.96	1.00	Retail Trade
12 Retail High	0.91	0.96	1.00	Retail Trade
13 Retail Warehouse	0.91	0.96	1.00	Retail Trade
14 Office	0.77	0.88	1.00	Information + Financial + Professional
15 School	1.00	1.00	1.00	Local Government Education
16 College	1.00	1.00	1.00	Local Government Education
17 Medical Office	1.00	1.00	1.00	Educational & Health
18 Hospital	1.00	1.00	1.00	Educational & Health
19 Residential Care	1.00	1.00	1.00	Educational & Health
20 Child Care	1.00	1.00	1.00	Educational & Health
21 Developed Recreation	1.00	1.00	1.00	Arts, Entertainment, Recreation
23 Casino	1.00	1.00	1.00	Arts, Entertainment, Recreation
24 Hotel	1.00	1.00	1.00	Accommodation
25 Restaurant	0.90	0.95	1.00	Food Services
26 Restaurant High	0.90	0.95	1.00	Food Services
27 Institutional	0.92	0.96	1.00	Other Services
28 Government	1.00	1.00	1.00	Government
29 Government High	1.00	1.00	1.00	Government

Forecasts by Jurisdiction

Recommended forecasts of population, housing and employment were also prepared for individual jurisdictions within Shasta County (Tables 5, 6 and 7).

The City of Redding provided specific population forecasts prepared by Economic Sciences Corporation for their jurisdiction for the years 2010 to 2025. These forecasts were incorporated in the population and housing forecasts for the travel model update. The allocations to the remaining jurisdictions are based on the allocations prepared in 2005 for the prior version of the travel model, which were in turn based on detailed assessments by Strategic Economics. The 2005 allocations were adjusted to the updated countywide totals.

Table 5 : Shasta County Population Forecasts by Jurisdiction

Year	Recommended Countywide Forecast	Anderson	Redding	Shasta Lake	Shasta County (uninc.)
2000	163,256	9,027	80,865	9,093	
2005	173,029	9,731	87,146	10,069	66,082
2010	177,223	9,932	89,861	10,164	67,266
2015	183,173	10,280	94,237	10,650	68,005
2020	190,192	10,353	99,071	11,210	69,558
2025	197,747	10,426	103,539	11,845	71,938
2030	205,990	10,498	106,666	12,478	76,348
2035	214,364	10,925	111,002	12,985	79,451
2040	222,738	11,352	115,339	13,493	82,555

Persons per Year

Year	Recommended Countywide Forecast	Anderson	Redding	Shasta Lake	Shasta County (uninc.)
2000					
2005	1,955	141	1,256	195	
2010	839	40	543	19	237
2015	1,190	70	875	97	148
2020	1,404	15	967	112	311
2025	1,511	15	894	127	476
2030	1,649	15	625	127	882
2035	1,675	85	867	101	621
2040	1,675	85	867	101	621

Annual Rate Compared to 2010 Base

Year	Recommended Countywide Forecast	Anderson	Redding	Shasta Lake	Shasta County (uninc.)
2000					
2005	1.10%	1.42%	1.40%	1.92%	
2010	0.47%	0.40%	0.60%	0.19%	0.35%
2015	0.67%	0.70%	0.97%	0.96%	0.22%
2020	0.79%	0.15%	1.08%	1.10%	0.46%
2025	0.85%	0.15%	0.99%	1.25%	0.71%
2030	0.93%	0.15%	0.70%	1.25%	1.31%
2035	0.94%	0.86%	0.97%	1.00%	0.92%
2040	0.94%	0.86%	0.97%	1.00%	0.92%

Table 6 : Shasta County Household Forecasts by Jurisdiction

Year	Recommended Countywide Forecast	Anderson	Redding	Shasta Lake	Shasta County (uninc.)
2000	63,426	3,374	32,103	3,426	
2005	67,392	3,772	34,424	3,828	25,368
2010	70,346	3,944	36,130	3,943	26,329
2015	73,956	4,474	38,669	4,339	26,473
2020	78,054	4,513	40,704	4,545	28,292
2025	82,054	4,544	42,903	4,779	29,827
2030	85,859	4,576	44,197	5,046	32,041
2035	89,274	4,762	45,993	5,251	33,268
2040	92,689	4,948	47,790	5,456	34,495

Households per Year

Year	Recommended Countywide Forecast	Anderson	Redding	Shasta Lake	Shasta County (uninc.)
2000					
2005	793	80	464	80	
2010	591	34	341	23	192
2015	722	106	508	79	29
2020	820	8	407	41	364
2025	800	6	440	47	307
2030	761	6	259	53	443
2035	683	37	359	41	245
2040	683	37	359	41	245

Annual Rate Compared to 2010 Base

Year	Recommended Countywide Forecast	Anderson	Redding	Shasta Lake	Shasta County (uninc.)
2000					
2005	1.13%	2.02%	1.28%	2.04%	
2010	0.84%	0.87%	0.94%	0.58%	
2015	1.03%	2.69%	1.41%	2.01%	0.11%
2020	1.17%	0.19%	1.13%	1.05%	1.38%
2025	1.14%	0.16%	1.22%	1.19%	1.17%
2030	1.08%	0.16%	0.72%	1.35%	1.68%
2035	0.97%	0.94%	0.99%	1.04%	0.93%
2040	0.97%	0.94%	0.99%	1.04%	0.93%

Table 7 : Shasta County Employment Forecasts by Jurisdiction

Year	Recommended Countywide Forecast	Anderson	Redding	Shasta Lake	Shasta County (uninc.)
2000					
2005	69,629	3,373	48,449	2,324	15,483
2010	63,054	2,699	43,635	2,067	14,653
2015	68,387	2,982	46,950	2,234	16,220
2020	72,361	3,263	48,250	2,427	18,420
2025	76,752	3,407	51,366	2,558	19,421
2030	80,517	3,780	53,288	2,623	20,826
2035	83,968	3,942	55,572	2,735	21,718
2040	87,418	4,104	57,856	2,847	22,611

Employees per Year

Year	Recommended Countywide Forecast	Anderson	Redding	Shasta Lake	Shasta County (uninc.)
2000					
2005					
2010	(1,315)	(135)	(963)	(51)	(166)
2015	1,067	57	663	34	313
2020	795	56	260	39	440
2025	878	29	623	26	200
2030	753	75	384	13	281
2035	690	32	457	22	179
2040	690	32	457	22	179

Annual Rate Compared to 2010 Base

Year	Recommended Countywide Forecast	Anderson	Redding	Shasta Lake	Shasta County (uninc.)
2000					
2005					
2010	-2.09%	-5.00%	-2.21%	-2.49%	-1.13%
2015	1.69%	2.10%	1.52%	1.62%	2.14%
2020	1.26%	2.08%	0.60%	1.86%	3.00%
2025	1.39%	1.07%	1.43%	1.27%	1.37%
2030	1.19%	2.77%	0.88%	0.62%	1.92%
2035	1.09%	1.20%	1.05%	1.09%	1.22%
2040	1.09%	1.20%	1.05%	1.09%	1.22%

Development Phasing Assumptions

Table 8 lists the phasing assumptions for specific development areas in Shasta County with development occurring after 2010. Input was received from Shasta County and the cities of Anderson, Redding and Shasta Lake. In some cases, phasing was shifted to later years than those provided by the jurisdictions in order for the county totals to match the control totals shown in Tables 2 and 3.

The development listing also includes assumptions for some properties which were not based on input received from the jurisdictions in 2011. These assumptions are based on the original input received from jurisdictions in 2005, adjusted to match county totals when combined with the specific development information provided in 2011.

In addition to the specific development shown in Table 8, there are also incremental assumptions for ongoing growth in certain land uses. These include small amounts of infill housing in unincorporated communities, and general employment growth at existing institutional sites including large schools and school administration centers, medical centers and government offices.

Table 8: Shasta County Travel Model Phased Development Assumptions

Development	Address	Land Use	Units	2010	2015	2020	2025	2030	2035	2040	After 2040	TOTAL	Percent by 2040
ANDERSON													
Anderson Commercial	Anderson	Retail	SF	0	0	0	0	0	0	58,500	58,500	117,000	50%
Anderson Condos	Anderson	MF Attached	DU	0	70	0	0	0	0	0	0	70	100%
Anderson Conference Facility	Anderson	Restaurant	SF	0	2,500	0	0	0	0	0	0	2,500	100%
Anderson Potential Target Site	Anderson	Retail	SF	0	0	0	0	0	130,000	66,000	130,000	326,000	60%
		Fast Food	SF	0	0	0	0	2,500	2,500	0	0	5,000	100%
Campbell Estates	Anderson	SF Detached	DU	0	0	28	0	0	0	0	0	28	100%
Church Property	Anderson	SF Detached	DU	0	0	0	0	0	69	0	0	69	100%
Continental Peak	Anderson	MF Attached	DU	16	16	0	0	0	0	0	0	32	100%
River Pointe	Anderson	SF Detached	DU	0	0	0	111	74	0	0	0	185	100%
Tormey Estates	Anderson	SF Detached	DU	43	43	0	0	0	0	0	0	86	100%
Vineyards	Anderson	SF Detached	DU	15	85	157	722	848	981	839	648	4,295	85%
		MF Attached	DU	0	640	0	287	287	0	0	0	1,214	100%
		Retail	SF	0	0	0	0	0	70,000	20,000	50,000	140,000	64%
		Office	SF	0	0	0	0	0	50,000	0	50,000	100,000	50%
		School	Emps	0	0	0	0	0	50	50	0	100	100%
Willow Glen	Anderson	SF Detached	DU	28	28	0	0	0	0	0	0	56	100%
REDDING													
Airpark Manor	Redding (Placer St.)	SF Detached	DU	10	10	0	0	0	0	0	0	20	100%
Airport Rd. Auto Dealer Site	Redding (3900 Airport Rd.)	Service Commercial	SF	0	0	0	0	0	44,000	135,000	0	179,000	100%
Alize Subdivision	Redding (160 Quartz Hill Rd.)	SF Detached	DU	0	93	87	0	0	0	0	0	180	100%
Avalon Park	Redding (11701 Twin Tower Dr.)	SF Detached	DU	0	55	0	0	0	0	0	0	55	100%
Bel Air	Redding (Quartz Hill Rd.)	SF Detached	DU	13	12	0	0	0	0	0	0	25	100%
Bel Air Estates	Redding (2430 Snow Ln.)	SF Detached	DU	149	0	0	0	0	0	0	0	149	100%
Buenaventura Senior Housing	Redding (1350 Buenaventura)	Senior Housing	DU	0	0	120	0	0	0	0	0	120	100%
Chapel of the Ferns	Redding (1400 Industrial St.)	SF Detached	DU	0	0	80	0	0	0	0	0	80	100%
City of Redding	Redding (7251 Eastside Rd.)	Industrial	SF	0	0	0	0	0	198,000	298,000	496,000	992,000	50%
Clover Creek	Redding (3901 Airport Rd.)	Office	SF	0	0	0	36,400	0	36,400	0	0	72,800	100%
Cottages at Bel Air	Redding (Quartz Hill Rd.)	SF Detached	DU	14	41	0	0	0	0	0	0	55	100%
Del Monte PSL	Redding (Del Monte St.)	Retail	SF	0	0	0	0	0	0	61,500	67,000	128,500	48%
East Oaks Estates	Redding (1283 Douglas Ln.)	SF Detached	DU	37	37	0	0	0	0	0	0	74	100%
Emily Estates	Redding (Oasis Rd.)	SF Detached	DU	58	0	0	0	0	0	0	0	58	100%
Fleur de Lac	Redding (1870 Shasta View Dr.)	SF Detached	DU	39	39	0	0	0	0	0	0	78	100%
Forootan	Redding (187 Sulphur Creek Rd.)	SF Detached	DU	0	0	23	41	41	41	41	0	187	100%
Gironda	Redding (Shasta View Dr.)	SF Detached	DU	0	0	102	102	103	0	0	0	307	100%
Gold Hills Park	Redding (2141 Gold Hills Dr.)	SF Detached	DU	0	175	0	0	0	0	0	0	175	100%
Green	Redding (Hillmonte Dr.)	Retail	SF	0	0	0	0	0	4,000	0	0	4,000	100%
Highland Park	Redding (Davis Ridge Rd.)	SF Detached	DU	0	100	200	120	0	0	0	0	420	100%
Hilltop Center	Redding (1085 Hilltop Dr.)	Retail	SF	0	46,500	46,500	0	0	0	0	0	93,000	100%
Hilltop Estates	Redding (240 Hilltop Dr.)	SF Detached	DU	27	0	0	0	0	0	0	0	27	100%
Hinds Feet LLC	Redding (Laurel Ave.)	SF Detached	DU	0	0	11	37	0	0	0	0	48	100%
Hope Lane	Redding (1175 Hope Ln.)	SF Detached	DU	44	0	0	0	0	0	0	0	44	100%
Kohn	Redding (4730 Aloe Vera Dr.)	SF Detached	DU	0	202	0	0	0	0	0	0	202	100%
Lakeside Avenues	Redding (1397 Buenaventura)	SF Detached	DU	40	0	0	0	0	0	0	0	40	100%
Lanzing	Redding (1335 Hope Ln.)	SF Detached	DU	0	0	30	0	0	0	0	0	30	100%
Lemm	Redding (2300 Lakeside Dr.)	SF Detached	DU	0	0	0	0	0	0	38	0	38	100%
McConnell Land	Redding (Old Oregon Trail)	SF Detached	DU	0	0	0	0	0	605	447	337	1,389	76%
MD Development	Redding (Oasis Rd.)	SF Detached	DU	0	50	50	0	0	0	0	0	100	100%
Mercy Hospital	Redding (2655 Airpark Dr.)	Retail	SF	0	0	0	0	0	0	11,000	0	11,000	100%
		Office	SF	0	0	0	0	0	0	11,000	0	11,000	100%
Metz Road Development	Redding (2230 Metz Rd.)	Industrial	SF	0	0	0	0	200,000	200,000	200,000	392,000	992,000	60%
Michiels	Redding (5900 Riverside Dr.)	SF Detached	DU	0	0	0	0	0	0	260	0	260	100%
Mid State Apartments	Redding (Cedars Rd.)	MF Attached	DU	12	36	0	0	0	0	0	0	48	100%

Table 8: Shasta County Travel Model Phased Development Assumptions

Development	Address	Land Use	Units	2010	2015	2020	2025	2030	2035	2040	After 2040	TOTAL	Percent by 2040
Money Vest	Redding (Tarmac Rd.)	SF Detached	DU	7	22	0	0	0	0	0	0	29	100%
		Retail	SF	0	41,000	0	0	0	0	0	0	41,000	100%
Morgan	Redding (2425 Rancho Rd.)	SF Detached	DU	0	20	0	0	0	0	0	0	20	100%
Niemann	Redding (Westside Rd.)	MF Attached	DU	12	34	0	0	0	0	0	0	46	100%
Oasis Point Village	Redding (6021 Oasis Road)	SF Detached	DU	40	121	0	0	0	0	0	0	161	100%
Oasis Road Specific Plan	Redding	SF 1-5 DU/Acre	DU	0	0	5	4	3	0	0	0	12	100%
		SF 2-3.5 DU/Acre	DU	0	0	30	30	30	0	0	0	90	100%
		SF 6-10 DU/Acre	DU	0	0	30	30	0	0	0	0	60	100%
		MF 15 DU/Acre	DU	0	0	100	100	100	100	100	435	935	53%
		Regional Commercial	SF	0	160,000	180,000	45,000	50,000	185,000	50,000	1,614,722	2,284,722	29%
		General Commercial	SF	0	0	40,000	0	0	40,000	40,000	454,000	574,000	21%
		Shopping Center	SF	0	0	0	37,500	0	37,500	75,000	77,000	227,000	66%
		General Office	SF	0	0	0	0	10,000	9,800	0	0	19,800	100%
		Limited Office	SF	0	0	0	0	7,000	6,100	0	0	13,100	100%
Park Marina Drive Specific Plan	Redding	Retail	SF	0	8,000	0	12,500	0	27,500	50,000	89,200	187,200	52%
(Turtle Bay listed separately)		Office	SF	0	0	22,000	20,500	0	0	0	0	42,500	100%
		Hotel	SF	0	0	0	0	0	50,500	0	0	50,500	100%
Parkview/Orange	Redding (Mark St.)	SF Detached	DU	54	0	0	0	0	0	0	0	54	100%
Quartz Hill PSL	Redding (850 Quartz Hill Rd.)	SF Detached	DU	0	0	120	0	0	0	0	0	120	100%
Redding PD-03-02	Redding (Collyer Dr.)	MF Attached	DU	0	232	0	0	0	0	0	0	232	100%
Redding S.51.90	Redding (Santa Rosa Way)	SF Detached	DU	0	0	160	0	149	0	0	0	309	100%
Redding SDP.18.04	Redding (Linden/West)	MF Attached	DU	0	15	15	0	0	0	0	0	30	100%
Redding SDP.24.04	Redding (2649 Twin View Blvd.)	MF Attached	DU	0	140	140	0	0	0	0	0	280	100%
Roesner	Redding (4655 Goodwater Ave.)	SF Detached	DU	0	0	0	0	0	23	0	0	23	100%
Roman Catholic Bishop	Redding (1300 Ridge Dr.)	SF Detached	DU	0	0	0	0	0	0	79	0	79	100%
Salt Creek	Redding (4402 Eureka Way)	SF Detached	DU	0	0	120	250	70	0	0	0	440	100%
Scarborough	Redding (3600 Argyle Rd.)	MF Attached	DU	0	67	0	0	0	0	0	0	67	100%
Shascade	Redding (950 Lake Blvd.)	SF Detached	DU	0	0	0	0	0	38	0	0	38	100%
Shasta Bible College	Redding (3005 Hartnell Ave.)	MF Attached	DU	0	100	0	0	0	0	0	0	100	100%
Shastina Ranch	Redding	SF Detached	DU	0	0	150	200	125	0	0	0	475	100%
		School	Emps	0	0	0	0	50	0	0	0	50	100%
Sierra Pacific	Redding (Branstetter Ln.)	SF Detached	DU	5	64	113	0	0	0	0	0	182	100%
Signature Northwest	Redding (4200 Sunglow Dr.)	SF Detached	DU	0	78	0	0	0	0	0	0	78	100%
Stillwater Business Park	Redding	Industrial	SF	0	224,000	0	0	0	0	224,000	3,753,000	4,201,000	11%
		Office	SF	0	105,500	0	0	0	132,700	132,700	1,726,600	2,097,500	18%
Stone Creek Subdivision	Redding (Rancho Rd.)	SF Detached	DU	0	0	155	0	0	0	0	0	155	100%
Stonesfair Subdivision	Redding (Rancho Rd.)	SF Detached	DU	0	0	215	0	0	0	0	0	215	100%
Summer Field Meadows	Redding (3555 Sacramento Dr.)	SF Detached	DU	18	18	0	0	0	0	0	0	36	100%
Tarmac Ridge Villas	Redding (2260 Tarmac Rd.)	SF Detached	DU	43	43	0	0	0	0	0	0	86	100%
Thomason	Redding (3901 Airport Rd.)	Retail	SF	0	0	0	0	0	72,500	0	0	72,500	100%
Tip Top Partners	Redding (2425 Sonoma St.)	Retail	SF	0	0	0	0	0	0	0	6,500	6,500	0%
		Office	SF	0	6,500	0	0	0	0	0	0	6,500	100%
Turtle Bay Hotel	Redding	Hotel	SF	0	70,000	0	0	0	0	0	0	70,000	100%
		Restaurant	SF	0	8,000	0	0	0	0	0	0	8,000	100%
Tuscany Villas	Redding (6111 Oasis Rd.)	SF Detached	DU	0	79	0	0	0	0	0	0	79	100%
Van Eperen	Redding (5304 Bo Peep Ln.)	SF Detached	DU	43	43	0	0	0	0	0	0	86	100%
Veterans Home	Redding (3400 Knighton Rd.)	Residential Care	SF	0	145,000	0	0	0	0	0	0	145,000	100%
Villages at Shasta View Gardens	Redding (2275 Tarmac Rd.)	SF Detached	DU	31	93	0	0	0	0	0	0	124	100%
Viale	Redding (1817 Kenton Dr.)	SF Detached	DU	0	0	0	0	112	0	0	0	112	100%
Vistas	Redding (355 Quartz Hill Rd.)	SF Detached	DU	0	210	0	0	0	0	0	0	210	100%
Western Acres	Redding (890 Hilltop Dr.)	SF Detached	DU	0	0	0	0	0	80	0	0	80	100%
Westridge Subdivision	Redding (950 Canyon Creek Rd.)	SF Detached	DU	0	0	132	0	0	0	0	0	132	100%
Westward Estates	Redding (16989 Campo Calle St.)	SF Detached	DU	0	0	150	0	0	0	0	0	150	100%
Williams	Redding (670 Churn Creek Rd.)	SF Detached	DU	0	0	18	0	0	0	0	0	18	100%

Table 8: Shasta County Travel Model Phased Development Assumptions

Development	Address	Land Use	Units	2010	2015	2020	2025	2030	2035	2040	After 2040	TOTAL	Percent by 2040
SHASTA LAKE													
Deer Creek Manor	Shasta Lake	SF Detached	DU	0	10	30	30	15	0	0	0	85	100%
Heritage Grove	Shasta Lake	SF Detached	DU	0	30	75	100	86	0	0	0	291	100%
		Service Commercial	SF	0	0	0	158,123	0	0	0	0	158,123	100%
Mountain Gate at Shasta	Shasta Lake	SF Detached	DU	0	0	100	300	300	300	150	0	1,150	100%
		MF Attached	DU	0	0	100	150	100	50	0	0	400	100%
		Service Commercial	SF	0	0	0	50,000	50,000	50,000	50,000	0	200,000	100%
Mountain Properties	Shasta Lake	SF Detached	DU	0	30	50	50	34	0	0	0	164	100%
Oak Ridge	Shasta Lake	SF Detached	DU	0	10	18	0	0	0	0	0	28	100%
Shasta Gateway Industrial Park	Shasta Lake (Phase 1)	Light Industrial	SF	0	0	10,000	50,000	38,000	0	0	0	98,000	100%
	Shasta Lake (Phase 2)	Industrial	SF	0	0	50,000	150,000	150,000	200,000	250,000	1,170,000	1,970,000	41%
Shasta Lake Commercial Center	Shasta Lake	Service Commercial	SF	0	25,000	30,000	30,000	25,000	25,000	0	0	135,000	100%
SHASTA COUNTY													
Anderson	Shasta Co.	SF Detached	DU	0	0	3	3	3	2	0	0	11	100%
Aventino	Shasta Co.	SF Detached	DU	0	0	11	13	13	8	0	0	45	100%
Cabb LLC	Shasta Co.	SF Detached	DU	5	9	4	0	0	0	0	0	18	100%
Cassel Ridge	Shasta Co.	SF Detached	DU	0	0	11	13	13	8	0	0	45	100%
Chuck	Shasta Co.	SF Detached	DU	0	0	5	5	5	5	0	0	20	100%
Churn Creek Commons	Shasta Co.	Retail	SF	0	200,000	100,000	150,000	0	50,000	100,000	140,000	740,000	81%
D&M Partnerships	Shasta Co.	Industrial	SF	0	40,000	40,000	40,000	13,000	0	0	0	133,000	100%
Diamond Ridge Unit 2 (Jewell)	Shasta Co.	SF Detached	DU	0	0	2	2	2	4	0	0	10	100%
Hill Country Clinic	Shasta Co.	Medical Office	SF	0	12,500	0	0	0	0	0	0	12,500	100%
K2 Development	Shasta Co.	SF Detached	DU	0	0	3	3	3	2	0	0	11	100%
Knighten	Shasta Co.	SF Detached	DU	0	0	6	6	6	5	0	0	23	100%
Manley	Shasta Co.	SF Detached	DU	0	0	3	3	3	6	0	0	15	100%
Montgomery Development	Shasta Co.	SF Detached	DU	0	0	8	8	8	9	0	0	33	100%
Nelson	Shasta Co.	SF Detached	DU	0	0	5	5	5	7	0	0	22	100%
Nichols	Shasta Co.	SF Detached	DU	0	5	5	5	5	5	5	0	30	100%
North Fork		SF Detached	DU	0	0	0	0	0	0	0	1,400	1,400	0%
		Retail	SF	0	0	0	0	0	0	0	942,000	942,000	0%
		Office	SF	0	0	0	0	0	0	0	145,000	145,000	0%
		Equestrian Center	Emps	0	0	0	0	0	0	0	10	10	0%
Nunes	Shasta Co.	SF Detached	DU	0	0	2	2	2	4	0	0	10	100%
Oak Ranch Estates	Shasta Co.	SF Detached	DU	0	0	36	39	39	26	0	0	140	100%
Panorama PD	Shasta Co.	SF Detached	DU	0	20	111	114	114	71	0	0	430	100%
Poulos	Shasta Co.	SF Detached	DU	0	0	8	8	8	10	0	0	34	100%
Ritchie	Shasta Co.	SF Detached	DU	0	0	3	3	3	2	0	0	11	100%
Rossi	Shasta Co.	SF Detached	DU	0	0	3	3	3	6	0	0	15	100%
Scott	Shasta Co.	SF Detached	DU	0	0	3	3	3	2	0	0	11	100%
Shingle Glen	Shasta Co.	SF Detached	DU	0	0	5	5	5	8	0	0	23	100%
Shingletown Sierra Pacific	Shasta Co.	SF Detached	DU	0	42	23	25	25	17	0	0	132	100%
Spoon	Shasta Co.	SF Detached	DU	0	0	13	13	13	11	0	0	50	100%
Stahl	Shasta Co.	SF Detached	DU	0	0	3	0	0	0	0	0	3	100%
Stilwater Ranch	Shasta Co.	SF Detached	DU	3	6	2	0	0	0	0	0	11	100%
Stilwater Ranches Unit 2	Shasta Co.	SF Detached	DU	0	0	7	7	7	8	0	0	29	100%
Stone Creek	Shasta Co.	SF Detached	DU	0	0	3	3	3	5	0	0	14	100%
Summer	Shasta Co.	SF Detached	DU	2	8	6	0	0	0	0	0	16	100%
Wiebelhaus	Shasta Co.	SF Detached	DU	0	0	3	3	3	2	0	0	11	100%