
2015 Shasta Regional Transportation Plan and Sustainable Community Strategy: Redding Strategic Growth Areas Technical Memo

Summary

Senate Bill 375 (SB 375) created a new requirement that Metropolitan Planning Organizations (MPO) develop a Sustainable Communities Strategy (SCS) that considers the impacts of land use and transportation as part of their Regional Transportation Plans (RTP). ‘Strategic Growth Areas’ (SGAs) is the region’s approach to identify geographically small areas in each local jurisdiction where layered land use and transportation strategies combine to increase transportation efficiencies and meet local planning and economic development objectives.

This report outlines the approach taken by SRTA and City of Redding planning staff to identify preliminary SGAs within Redding and evaluate the potential benefits of targeting future residential and employment growth within these areas (i.e. increasing density). Various analysis metrics are used to evaluate and compare each SGA and descriptions about each metric are provided. Final results will identify which SGAs provide the most benefit to Redding and the region. Redding staff will compare this study with other concerns, such as market analysis and infrastructure capacity/cost, to work towards a final decision regarding Redding’s Strategic Growth Areas.

Background/Purpose of Strategic Growth Areas

In 2008, California passed landmark legislation known as the Sustainable Communities and Climate Protection Act of 2008 or Senate Bill 375 (SB 375) that required California to set transportation related Greenhouse Gas (GHG) emissions reductions targets for years 2020 and 2035 in California’s 18 Metropolitan Planning Organizations (MPO) regions. Furthermore, this legislation requires each MPO, within their Regional Transportation Plan (RTP), to develop a Sustainable Community Strategy (SCS) that shows how the MPO will meet its GHG reduction target through integrated housing, land use and transportation planning.

SRTA is the designated MPO for Shasta County. Due to the region’s rural character, location of the urbanized area within the region, and limited resources for transportation projects SRTA discussed ideas with local jurisdictions and developed the concept of “Strategic Growth Areas.” These Strategic Growth Areas (SGAs) would provide for targeted areas where local jurisdictions are encouraging growth and development through a variety of local policies, and where SRTA could direct additional transportation funding (when available) to improve the transportation system and local economies. The methodology on how SGAs were developed and how they were evaluated based on the elasticity of VMT/GHG as a function of density also

for the City of Redding is described below.

SGA Methodology

SRTA provided an initial methodology to Redding’s planning staff to help define the information needed to model their identified preliminary SGAs. Redding provided four SGAs for SRTA to model and provided the general location of the SGA, growth estimates of households and jobs for three different scenarios for years 2020 and 2035, and any land use changes anticipated, consistent with their General Plan and zoning. The four SGAs were identified as “Downtown,” “Oasis Road,” “Rancho/Shastaview,” and “South Bonneyview.” Three different growth scenarios were developed for each SGA in order to test the sensitivity of SRTA’s travel model to changes in land use density and to evaluate potential benefits.

Travel Model Methodology of SGAs

DKS Associates was retained by SRTA to convert the previous Shasta County four-step travel demand model into a modern Activity Based (AB) model. The new Shasta AB travel simulation model is an advanced forecasting tool that simulates individuals’ travel patterns as a series of “trip-legs” connecting activities during the course of a 24-hour day. Travel behavior is no longer analyzed at a traffic analysis zone (TAZ) level; but simulated at the parcel level. The parcel-level land use data, combined with the population synthesis approach, provides an unprecedented level of model sensitivity and detail regarding representation of land use and its effects on travel behavior.

DKS has since updated the AB model to operate within the Citilabs CUBE Application Manager environment. Whereas the first version of the AB model was run using a single script, the updated model is run in the Application Manager environment, which incorporates a graphical user interface (GUI) as well as a detailed Cube Scenario Manager.

For the SGA analysis, SRTA provided DKS with specific lists and maps of parcels for each SGA area (provided to SRTA by Redding) that would be the location for redirected growth. SGA areas consisted of many parcels while some consisted of few, or only one large parcel. SRTA provided DKS with desired yields in dwelling units (single family and multi-family) and commercial employment (where applicable) for each parcel in each SGA area. These yields represent three SGA alternatives:

1. Moderately reasonable: assumes that **25%** of the growth in total housing units within the City of Redding would be constructed within a single SGA for a given time frame.
2. Midpoint: assumes that **50%** of the growth in total housing units within the City of Redding would be constructed within a single SGA for a given time frame.
3. Maximum potential: assumes that **100%** of the growth in total housing units within the City of Redding would be constructed within a single SGA for a given time frame.

Parcel inputs for each alternative for two horizon years (2020 and 2035) were developed, using the methodology described below, for each SGA. (A few select parcels within each SGA were targeted for growth for the purpose of modeling changes within the SGA (based on local agency inputs) and to assist the travel model in recognizing and modeling those changes. They are not meant to represent that specific land use changes that can or should happen specifically on those parcels. Any future development projects within the SGA areas would have to comply with all local General Plan, Zoning and

other requirements.) With all the combinations of SGAs, years, and alternatives, a total of 24 complete model runs were required.

How inputs were developed and added into the travel model

Because SGA analysis required utilizing a parcel file with over 93,000 records, DKS modified pre-existing macro-enabled spreadsheets in order to simplify the workflow and allow for easier development of all required parcel files. The macro-enabled spreadsheet (*Create_SGA_Parcel.xlsx*) has been modified to include “toggles” for SGA, year, and alternative. Any combination of the three variables can be selected using toggle cells and a resultant parcel file is created in the appropriate directory. The process takes the pre-established growth for the selected year, isolates the City of Redding growth, and places the appropriate growth in SGA parcels and removes the appropriate growth from other City of Redding parcels. The process also allocates residents to households according to census block-group occupancy and vacancy rates. Depending on the computer hardware used, the process generally takes 15 to 40 minutes per scenario. Once complete, a new file called *parcel_update_allocHH.csv* is placed in the appropriate run directory. The figure below shows the user interface for the *Create_SGA_Parcel.xlsx* macro enabled spreadsheet. The yellow cells represent variables that are user selectable using a drop down menu. The root directory can be modified to fit with the user’s computer directory structure.

Macro Enabled Spreadsheet User Interface

Shasta County Activity Model Create Parcel Database & Allocate Residents to Households Application	
<p><i>This Shasta AB Model (Excel/VBA) application:</i></p> <p>(1) Creates (or clears and recreates) the worksheet "UpdatedParcels" and populates it with updated parcel full-HH data, (2) Allocates residents to the households according to block-group occupancy rates in the "BlockGroupOccupancyRates" worksheet, and (3) Outputs/copies the updated Parcel Land-use table to an output CSV file.</p> <p><i>Note: The App assumes that:</i></p> <p>(1) The worksheet "Parameters" exists (this sheet) and holds study year (in cell C3) and CSV output file names (in cells C4:C6). (2) The worksheet "LU_Growth" exists and ... (3) The worksheet "Parcel2010_fullHH" exists and ...</p>	
Study Year:	2020
Output Parcel Land-use CSV File (DaySim Input):	C:_Projects\Shasta\SGA\Base\SH20\BONNEYVIEW\SH20BV25\parcel_update_allocHH.csv

Start – Run Parcel Land-Use Database Creation App

Root Directory: C:_Projects\Shasta\SGA\Base\SH
 20\BONNEYVIEW\

SGA Area (BV, DT, OA, or RSV):	BV
% of Redding Growth in SGA Area (25%, 50%, or 100%):	25%
Year (2020 or 2035):	2020

How SGA analysis areas were defined and created

Facilitated by SRTA, City of Redding planning staff identified the number and location of potential SGAs that they wanted evaluated in the travel model. City staff utilized growth estimates for the City of Redding contained in the November 2011 memo to SRTA from Mike Aronson (Kittelsohn Associates) pertaining to the Shasta County Model assumptions. Population estimates were converted into housing units using a factor of 2.45 persons per household. Commercial growth assumptions were developed individually for each potential SGA developed by City staff. Additionally, it was noted that except for the

“Downtown” scenario, residential densities generally exceeded that allowed by Redding’s General Plan for the most growth intensives scenarios (Midpoint and Maximum Potential). Again, the purpose of these scenarios is to test the elasticity of VMT/GHG as a function of density, within SGAs. More details on the development of Redding’s SGA are available in Appendix 1 – Sustainable Communities Strategy City of Redding Preliminary Strategic Growth Areas Methodology memo.

Travel Model Scripting

Prior to the Redding SGA analysis, DKS Associates created a series of CUBE applications to be used for comparing the inputs and outputs of various Shasta AB model scenarios. These applications were described in detail in a DKS memo dated June 20, 2013, and include the following applications:

AB_COMPARE_INPUTS.CAT
AB_COMPARE_OUTPUTS.CAT
AB_COMPARE_TRANSIT.CAT

The inputs application includes converting parcel .csv files to .dbf, as well as aggregating parcels to TAZ. The application also compares land use between scenarios at the parcel and TAZ level and compares input roadway networks between scenarios. The outputs application includes comparisons of loaded network volumes and output segment level of service (LOS). The transit application includes summarizing boardings by line, as well as the number of households and employees within ½ mile and ¼ mile of transit stops.

For the Redding SGA analysis, the three CUBE applications were modified to represent all 24 SGA scenarios with a hierarchy based on forecast year (2005, 2020, 2035), SGA area (Downtown, South Bonneyview, Oasis Road, Rancho Shasta View), and SGA alternative (25%, 50%, 100% redirection of growth). Scripts for the inputs application remain consistent with those previously developed. Scripts for the outputs application were modified to better calculate and compare measures of effectiveness (MOE’s) desired by SRTA, including details of daily “tours” produced by each household in the County.

Pre-existing scripts are utilized to summarize roadway volume and VMT data, as well as transit boarding data and proximity-to-transit data. New scripts determine daily VMT, VHT, and vehicle trips attributed to each household, which are then aggregated to specific jurisdictions or areas.

Performance metrics used to analyze SGAs

Households

The first step of the SGA analysis process is to determine the scenario (25%, 50%, or 100% redirected growth) to be analyzed. Once the scenario is selected, dwelling units are shifted to the SGA area from other portions of Redding. Once the dwelling units are placed, census based vacancy rates are applied and occupied households are placed at individual parcels.

Population

Using parcel based household data mentioned above; population (one or more persons) is generated by the model for each occupied household. Population variables include age, gender, working status, income, car ownership, school grade, etc. A population file is generated that has a record for each individual person in each household.

Average Population per Household

Because the population dataset includes every person in each household, it is possible to determine average population per household by simply dividing the population of a desired geographic area by the number of households in the same geographic area.

VMT Attributed to Household

With the advent of the activity based (AB) model, it is now possible to determine the daily VMT attributed to each household within the County. This is based on the fact that the AB model produces what is called a daily “tour” for each person. For example, a person’s daily tour could consist of the following starting at home:

- Drop off kids at school
- Drive to Work
- Drive to Lunch appointment
- Drive back to Work
- Drive to Gym
- Drive Home

The output trips file includes each trip segment (and its trip length) generated by each person in each household and these are aggregated by household. Therefore the total miles driven by all driving members of a household can be summed up to determine VMT per household. This ability to attribute VMT to each household in turn allows the analyst to more accurately document total VMT attributed to households within a jurisdiction or area of interest.

VMT per Capita

VMT per capita for a given area of interest is calculated by simply dividing the VMT attributed to households by the total population.

VMT per HH

VMT per household for a given area of interest is calculated by simply dividing the VMT attributed to households by the total households.

Vehicle Trips

The detailed vehicle trips file includes every trip conducted by every person in Shasta County. By linking these trips to the household that generates them, it is possible to allocate trips to the area of interest. This includes trips originating at home or elsewhere, so long as the trip was completed by a resident of the particular home.

Average Trip Length

The detailed vehicle trips file includes the length of every trip conducted by every person in the Shasta County region. By linking these trip lengths to the household that generates them, it is possible to allocate trip lengths to the area of interest and divide this by the number of vehicle trips.

Average Daily Trips per HH

Average daily trips per household for a given area of interest is calculated by simply dividing the total vehicle trips attributed to households by the total households.

Overall Roadway Statistics

Overall roadway statistics are similar to those developed in the past for SRTA. These statistics are derived for roadways region wide and can also be derived for desired areas of interest. Statistics include the following:

- Daily VMT by facility type
- Daily Vehicle Hours of Delay by facility type
- Miles of Roadway at LOS E or F

Countywide Transit Statistics

Total System Daily Transit Boardings

As in previous analyses, model transit outputs include peak, off peak, and daily transit boardings by transit stop and transit line. These outputs are summarized for each scenario.

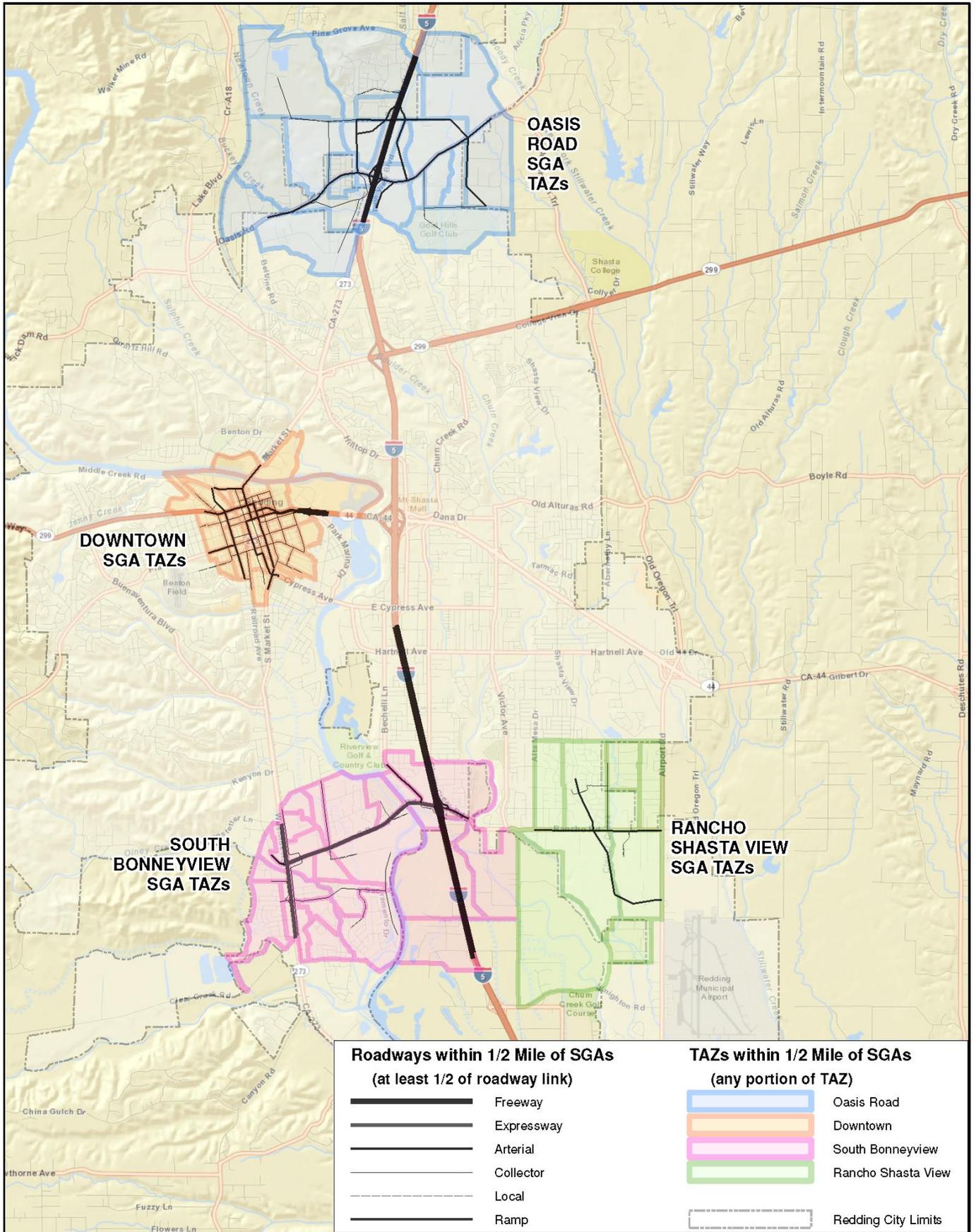
Total Households and Employment within ¼ and ½ mile of transit stops

At the request of SRTA, DKS has prepared scripts to compute and compare the total number of households and employees within ¼ and ½ mile of transit stops for each route and for the system as a whole. These scripts create a buffer around each stop and tabulate the number of households and employees within the buffer. The scripts have been written to avoid double counting households or employees that fall within the buffer or more than one stop or route. This is done by buffering all stop nodes instead of one at a time. When the buffering is done on all nodes, it does not double count unlike if buffering was done on individual nodes and added afterwards.

How data was broken down by jurisdictional boundaries within the travel model

DKS was able to break down various sources by jurisdiction or other area of interest. The parcel and household data include a variable that identifies which jurisdiction it is located in, therefore allowing parcel and household data to be broken down by jurisdiction. Traffic Analysis Zones (TAZs) also generally follow jurisdictional boundaries, which allow TAZ based data to easily be reported for jurisdictions. For the individual SGA areas, TAZs with a portion of the TAZ within a specified radius of any of the SGA parcels are included for analysis. For roadway network based measures, roadway links (including freeways, arterials, and collectors, but excluding “centroid connectors”) with a majority of their length within the jurisdiction or within a specified radius of the SGA parcels are included for analysis. The graphic below shows the four SGA areas, as well as the AB model TAZs and roadway links within ½ mile of each SGA area.

SGA Study Area TAZs and Roadways



SGA Analysis Results

This section summarizes the results obtained from SRTA’s activity-based travel model for the four preliminary City of Redding Strategic Growth Areas. Each performance metric described previously is explained for years 2020 and 2035, and compared to year 2005. Because year 2005 was used as the California Air Resources Board’s SB 375 greenhouse gas (GHG) target reduction year for SRTA, the agency wanted to evaluate the impacts land use changes may have on transportation behavior. References to “Shasta County” through the remainder of the document refer to the entire region, not just the unincorporated area of the county.

DOWNTOWN SGA

Population and Households

The Downtown SGA would result in an increased concentration of multi-family residential units in downtown Redding, with a commensurate reduction in residential growth (mostly single family) throughout the remainder of the City of Redding. The SGA consists of a number of vacant or under-utilized parcels in downtown Redding. The SGA Analysis Area consists of a half-mile radius around the SGA parcels and had an estimated population of 5,900 in 2005. This population is estimated to change little by 2020 or 2035, while the population of Redding is projected to increase from 90,800 to 102,100 and 112,200 by 2020 and 2035, respectively and the population of Shasta County is projected to increase from 183,200 to 201,500 and 228,500, respectively.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change the **population** in the SGA Analysis Area and Redding as follows:

Change in Total Population	Downtown SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
2020 Scenario						
• Moderately Reasonable:	+1,600	(+27.1%)	-200	(-0.2%)	-700	(-0.3%)
• Midpoint:	+3,300	(+55.9%)	-1,000	(-1.0%)	-1,300	(-0.6%)
• Maximum Potential:	+6,700	(+113.6%)	-1,900	(-1.9%)	-2,400	(-1.2%)
2035 Scenario						
• Moderately Reasonable:	+3,800	(+64.4%)	-1,100	(-1.0%)	-1,200	(-0.5%)
• Midpoint:	+7,500	(+127.1%)	-2,700	(-2.4%)	-2,600	(-1.1%)
• Maximum Potential:	+15,100	(+255.9%)	-5,500	(-4.9%)	-5,300	(-2.3%)

The primary reason for decreases in population in Redding is that shifting growth from outlying areas to the downtown area would result in a reduction of single family households (which typically have more people per larger dwelling unit) and an increase in multi-family households downtown (which typically have less people per smaller dwelling unit).

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change the **average population per household** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Average Population Per Household	Downtown SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	2.46 to 2.34	2.51 to 2.50	2.60 to 2.59
• Midpoint:	2.46 to 2.24	2.51 to 2.49	2.60 to 2.59
• Maximum Potential:	2.46 to 2.21	2.51 to 2.47	2.60 to 2.58
2035 Scenario			
• Moderately Reasonable:	2.46 to 2.26	2.52 to 2.50	2.60 to 2.59
• Midpoint:	2.46 to 2.16	2.52 to 2.47	2.60 to 2.58
• Maximum Potential:	2.46 to 2.08	2.52 to 2.42	2.60 to 2.55

The number of households in the SGA Analysis Area is projected to change little by 2020 or 2035, while the number of households in Redding is projected to increase from 36,200 in 2005 to 40,700 and 44,500 in 2020 and 2035, respectively, and the number of households in Shasta County is projected to increase from 70,300 to 77,400 and 87,800, respectively. Shifting units to the Downtown SGA would result in minimal change in Redding and Shasta County households overall.

Daily Vehicle Miles Traveled (VMT)

Daily VMT represents daily vehicle miles traveled by residents of the given geographic area. This includes both trips from home and back to home, as well as trips that do not originate or terminate at home; typically work-related or other activities. It includes trips that remain within the County, as well as trips with a destination outside the County; however trips with destinations outside the County are modeled only to the County boundary. It represents all daily trips generated by all residents of a given geographic area.

Daily VMT generated by households within the SGA Analysis Area is projected to increase from approximately 73,000 in 2005 to approximately 79,300 in 2020 and 88,100 in 2035. This represents an increase of 7.6% between 2005 and 2020 and 19.5% between 2005 and 2035. Daily VMT generated by households within the City of Redding is projected to increase from approximately 1,294,600 in 2005 to approximately 1,554,500 in 2020 and 1,825,900 in 2035. This represents an increase of 20.1% between 2005 and 2020 and 41% between 2005 and 2035. Daily VMT generated by households within Shasta County is projected to increase from approximately 3,621,700 in 2005 to approximately 4,094,400 in 2020 and 4,771,700 in 2035. This represents an increase of 13.1% between 2005 and 2020 and 31.8% between 2005 and 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change the overall **daily VMT** generated by households within the SGA Analysis Area, Redding, and Shasta County as follows:

Change in VMT Attributed to Households	Downtown SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
2020 Scenario						
• Moderately Reasonable:	+14,400	(+18.2%)	-10,000	(-0.6%)	-31,300	(-0.8%)
• Midpoint:	+30,700	(+38.7%)	-33,700	(-2.2%)	-34,400	(-0.8%)
• Maximum Potential:	+66,800	(+84.2%)	-66,000	(-4.2%)	-61,000	(-1.5%)
2035 Scenario						
• Moderately Reasonable:	+39,900	(+45.3%)	-44,600	(-2.4%)	-45,400	(-1.0%)
• Midpoint:	+76,900	(+87.3%)	-105,000	(-5.8%)	-103,300	(-2.2%)
• Maximum Potential:	+154,400	(+175.3%)	-203,800	(-11.2%)	-203,300	(-4.3%)

These results show that while daily VMT produced by households within the SGA Analysis Area would increase based on additional households in the area, daily VMT produced by households in Redding and Shasta County as a whole would decrease under all scenarios.

Vehicle Miles Traveled (VMT) Per Capita

Daily VMT per capita generated by residents of Redding is projected to increase from 14.26 in 2005 to 15.23 in 2020 and 16.27 in 2035. Daily VMT per capita generated by residents of Shasta County is projected to increase from 19.77 in 2005 to 20.32 in 2020 and 20.88 in 2035. These increases are due in part to the predominance of Redding and Shasta County growth being anticipated in suburban and rural areas and being predominantly single family.

Shifting Redding's 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change the **daily VMT per capita** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in VMT Per Capita	Downtown SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	13.44 to 12.49	15.23 to 15.16	20.32 to 20.23
• Midpoint:	13.44 to 11.96	15.23 to 15.04	20.32 to 20.28
• Maximum Potential:	13.44 to 11.60	15.23 to 14.86	20.32 to 20.26
2035 Scenario			
• Moderately Reasonable:	14.93 to 13.20	16.27 to 16.03	20.88 to 20.79
• Midpoint:	14.93 to 12.31	16.27 to 15.72	20.88 to 20.67
• Maximum Potential:	14.93 to 11.55	16.27 to 15.20	20.88 to 20.47

These results show that daily VMT per capita would decrease in the SGA Analysis Area, the City of Redding, and Shasta County as a whole under all three scenarios. Increasing residential density in urban infill areas has the effect of reducing VMT per capita and household. Additionally, decreases in vehicle

trips and length of trips traveled by vehicle would be experienced, as shown below. Such reductions, when realized, would result in less vehicular related air pollution.

Vehicle Trips and Trip Length

Daily vehicle trips generated by residents of Redding are projected to increase from 238,900 in 2005 to 273,000 in 2020 and 303,500 in 2035. Similarly, daily trips per household are projected to increase from 6.60 in 2005 to 6.71 in 2020 and 6.82 in 2035. Daily vehicle trips generated by residents of Shasta County are projected to increase from 476,700 in 2005 to 531,400 in 2020 and 611,600 in 2035. Similarly, daily trips per household are projected to increase from 6.78 in 2005 to 6.87 in 2020 and 6.97 in 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change the **daily vehicle trips** generated by households within the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Vehicle Trips	Downtown SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
2020 Scenario						
• Moderately Reasonable:	+2,600	(+19.4%)	-1,600	(-0.6%)	-2,500	(-0.5%)
• Midpoint:	+5,500	(+41.0%)	-6,400	(-2.3%)	-7,200	(-1.4%)
• Maximum Potential:	+11,100	(+82.8%)	-13,300	(-4.9%)	-13,500	(-2.5%)
2035 Scenario						
• Moderately Reasonable:	+6,500	(+47.4%)	-7,500	(-2.5%)	-8,200	(-1.3%)
• Midpoint:	+12,200	(+76.3%)	-17,600	(-6.5%)	-17,600	(-3.3%)
• Maximum Potential:	+24,400	(+129.1%)	-34,100	(-12.8%)	-33,700	(-6.4%)

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change the **daily vehicle trips per capita** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Average Daily Trips Per Capita	Downtown SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	2.27 to 2.13	2.67 to 2.66	2.64 to 2.63
• Midpoint:	2.27 to 2.05	2.67 to 2.64	2.64 to 2.62
• Maximum Potential:	2.27 to 1.94	2.67 to 2.59	2.64 to 2.60
2035 Scenario			
• Moderately Reasonable:	2.32 to 2.08	2.70 to 2.66	2.68 to 2.65
• Midpoint:	2.32 to 1.93	2.70 to 2.61	2.68 to 2.63
• Maximum Potential:	2.32 to 1.81	2.70 to 2.52	2.68 to 2.59

These results show that daily vehicle trips per capita would decrease in both the SGA Analysis Area and the City of Redding as a whole under all three scenarios. Increasing residential density in urban infill areas has the effect of reducing vehicle trips per capita.

The average trip length for vehicle trips taken by residents of Redding is projected to increase from 5.42 in 2005 to 5.69 in 2020 and 6.02 in 2035. The average trip length for vehicle trips taken by residents of Shasta County is projected to increase from 7.60 in 2005 to 7.70 in 2020 and 7.80 in 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change the **average vehicle trip length** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Average Trip Length	Downtown SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	5.92 to 5.86	5.69 to 5.69	7.70 to 7.68
• Midpoint:	5.92 to 5.82	5.69 to 5.70	7.70 to 7.75
• Maximum Potential:	5.92 to 5.96	5.69 to 5.73	7.70 to 7.79
2035 Scenario			
• Moderately Reasonable:	6.43 to 6.34	6.02 to 6.02	7.80 to 7.83
• Midpoint:	6.43 to 6.37	6.02 to 6.02	7.80 to 7.86
• Maximum Potential:	6.43 to 6.36	6.02 to 6.02	7.80 to 7.91

Roadway Statistics

Daily VMT on roadway segments in the Downtown SGA Analysis Area (roadway segments with at least half of their length within ½ mile of the SGA parcels) is projected to increase from 126,500 to 138,500 in 2020 and 161,700 in 2035. This represents an increase of 9.5% by 2020 and 27.8% by 2035. Daily VMT on roadway segments in the Redding (roadway segments with at least half of their length within the City of Redding) is projected to increase from 1.9 million in 2005 to 2.2 million in 2020 and 2.5 million in 2035. This represents an increase of 18.1% by 2020 and 33.7% by 2035. Daily VMT on roadway segments in Shasta County is projected to increase from 5.32 million in 2005 to 6.35 million in 2020 and 7.74 million in 2035. This represents an increase of 19.5% by 2020 and 45.5% by 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change **daily VMT** per capita on roadways in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Daily Roadway VMT per Capita	Downtown SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	23.47 to 18.44	21.95 to 21.83	31.55 to 31.52
• Midpoint:	23.47 to 15.11	21.95 to 21.85	31.55 to 31.61
• Maximum Potential:	23.47 to 11.10	21.95 to 21.62	31.55 to 31.75
2035 Scenario			
• Moderately Reasonable:	27.41 to 16.57	22.62 to 22.54	33.87 to 33.83
• Midpoint:	27.41 to 11.92	22.62 to 22.49	33.87 to 33.81
• Maximum Potential:	27.41 to 7.50	22.62 to 22.36	33.87 to 33.75

Daily vehicle hours of delay on roadway segments in the Downtown SGA Analysis Area (roadway segments with at least half of their length within ½ mile of the SGA parcels) is projected to increase from 440 to 470 in 2020 and then decrease to 416 in 2035, based on roadway improvements in the area. Daily vehicle hours of delay on roadway segments in Redding (roadway segments with at least half of their length within the City of Redding) is projected to increase from 1,837 in 2005 to 1,859 in 2020 and 2,562 in 2035. Daily vehicle hours of delay on roadway segments in Shasta County is projected to increase from 2,054 in 2005 to 2,136 in 2020 and 3,426 in 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change the **daily vehicle hours of delay** on SGA Analysis Area, Redding, and Shasta County roadways as follows:

Change in Daily Vehicle Hours of Delay	Downtown SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	470 to 470	1,859 to 1,838 (-1.1%)	2,136 to 2,097 (-1.8%)
• Midpoint:	470 to 466	1,859 to 1763 (-5.2%)	2,136 to 2,024 (-5.2%)
• Maximum Potential:	470 to 461	1,859 to 1650 (-11.2%)	2,136 to 1,934 (-9.5%)
2035 Scenario			
• Moderately Reasonable:	416 to 413	2,562 to 2,469 (-3.6%)	3,426 to 3,311 (-3.4%)
• Midpoint:	416 to 405	2,562 to 2,302 (-10.1%)	3,426 to 3,096 (-9.6%)
• Maximum Potential:	416 to 406	2,562 to 2,128 (-16.9%)	3,426 to 2,888 (-15.7%)

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change the **daily miles of roadway at LOS E or F** on SGA Analysis Area, Redding, and Shasta County roadways as follows:

Change in Daily Miles of Roadway at LOS E or F	Downtown SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	0.6 to 0.5	4.8 to 4.8	10.0 to 9.2
• Midpoint:	0.6 to 0.6	4.8 to 4.0	10.0 to 8.4
• Maximum Potential:	0.6 to 0.3	4.8 to 4.2	10.0 to 8.6
2035 Scenario			
• Moderately Reasonable:	0.5 to 0.8	6.9 to 8.4	14.4 to 16.1
• Midpoint:	0.5 to 0.5	6.9 to 7.2	14.4 to 14.8
• Maximum Potential:	0.5 to 0.6	6.9 to 5.9	14.4 to 10.5

Transit Statistics

Daily total transit system boardings are estimated to increase from approximately 2,680 in 2005 to 2,720 in 2020 and 2,840 in 2035. This represents an increase of 1.5% between 2005 and 2020 and an increase of approximately 6.0% between 2005 and 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change the **daily system wide transit boardings** as follows:

Change in Daily Transit Boardings Downtown SGA	RABA Systemwide	
2020 Scenario		
• Moderately Reasonable:	2,720 to 3,190	(+17.3%)
• Midpoint:	2,720 to 3,520	(+29.4%)
• Maximum Potential:	2,720 to 4,030	(+48.2%)
2035 Scenario		
• Moderately Reasonable:	2,840 to 3,600	(+26.8%)
• Midpoint:	2,840 to 4,400	(+54.9%)
• Maximum Potential:	2,840 to 6,070	(+113.7%)

Total households within ¼ mile of any transit stop are projected to increase from 31,400 in 2005 to 33,100 (5.4% increase) in 2020 and 34,100 (8.6% increase) in 2035, while total households within ½ mile of any transit stop are projected to increase from approximately 39,200 in 2005 to 46,700 (19.1% increase) in 2020 and 50,200 (28.1% increase) in 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change the **total households within ¼ mile and ½ mile** of any transit stop as follows:

Households Within Distance of Transit Stop Downtown SGA	Within 1/4 Mile of Transit Stop		Within 1/2 Mile of Transit Stop	
2020 Scenario				
• Moderately Reasonable:	+700	(+2.1%)	+500	(+1.1%)
• Midpoint:	+1,500	(+4.5%)	+1,000	(+2.1%)
• Maximum Potential:	+3,000	(+9.1%)	+1,900	(+4.1%)
2035 Scenario				
• Moderately Reasonable:	+1,700	(+5.0%)	+900	(+1.8%)
• Midpoint:	+3,400	(+10.0%)	+1,800	(+3.6%)
• Maximum Potential:	+6,800	(+19.9%)	+3,500	(+7.0%)

Total employment within ¼ mile of any transit stop is projected to increase from 44,200 in 2005 to 52,500 (18.8% increase) in 2020 and 56,800 (28.5% increase) in 2035, while total employment within ½ mile of any transit stop is projected to increase from approximately 46,200 in 2005 to 60,900 (31.8% increase) in 2020 and 67,600 (46.3% increase) in 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Downtown SGA would theoretically change the **total employment within ¼ mile and ½ mile** of any transit stop as follows:

Employment Within Distance of Transit Stop Downtown SGA	Within 1/4 Mile of Transit Stop		Within 1/2 Mile of Transit Stop	
2020 Scenario				
• Moderately Reasonable:	+100	(+0.2%)	+100	(+0.2%)
• Midpoint:	+100	(+0.2%)	+100	(+0.2%)
• Maximum Potential:	+100	(+0.2%)	+100	(+0.2%)
2035 Scenario				
• Moderately Reasonable:	+100	(+0.2%)	+100	(+0.1%)
• Midpoint:	+200	(+0.4%)	+200	(+0.3%)
• Maximum Potential:	+400	(+0.7%)	+400	(+0.6%)

The results above show that implementation of the Downtown SGA would result in beneficial transportation changes in the City of Redding. While daily VMT would increase within ½ mile of the SGA area, VMT would improve citywide, as would other key measures of effectiveness, including VMT per household, VMT per capita, average vehicle trip length, daily trips per household, vehicle hours of delay, miles of roadway at LOS E or F, transit system boardings, and households and employment within proximity to transit stops. As expected these transportation benefits to the City of Redding would be greater under 2035 conditions and under the scenarios with higher percentages of residential growth redirected to the SGA in the urban core.

SOUTH BONNEYVIEW SGA

Population and Households

The South Bonneyview SGA would result in an increased concentration of multi-family residential units in an area south of downtown Redding and west of Interstate 5, with a commensurate reduction in residential growth (mostly single family) throughout the remainder of the City of Redding. The SGA Analysis Area consists of a half-mile radius around the SGA parcels and had an estimated population of 7,200 in 2005. This population is estimated to increase to 8,400 by 2020 and 8,700 by 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change the **population** in the SGA Analysis Area and Redding as follows:

Change in Total Population	South Bonneyview SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
2020 Scenario						
• Moderately Reasonable:	+1,900	(+22.6%)	+0	(+0.0%)	-500	(-0.2%)
• Midpoint:	+3,500	(+41.7%)	-600	(-0.6%)	-900	(-0.4%)
• Maximum Potential:	+6,400	(+76.2%)	-1,000	(-1.0%)	-1,800	(-0.9%)
2035 Scenario						
• Moderately Reasonable:	+3,900	(+44.8%)	-1,200	(-1.1%)	-800	(-0.4%)
• Midpoint:	+7,600	(+87.4%)	-2,500	(-2.2%)	-2,100	(-0.9%)
• Maximum Potential:	+14,700	(+169.0%)	-4,600	(-4.1%)	-4,500	(-2.0%)

The primary reason for decreases in population in Redding is that shifting growth from outlying areas to the SGA area would result in a reduction of single family households (which typically have more people per larger dwelling unit) and an increase in multi-family households in the SGA area (which typically have less people per smaller dwelling unit).

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change the **average population per household** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Average Population Per Household	South Bonneyview SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	2.55 to 2.51	2.51 to 2.51	2.60 to 2.60
• Midpoint:	2.55 to 2.48	2.51 to 2.49	2.60 to 2.59
• Maximum Potential:	2.55 to 2.31	2.51 to 2.49	2.60 to 2.58
2035 Scenario			
• Moderately Reasonable:	2.56 to 2.42	2.52 to 2.49	2.60 to 2.59
• Midpoint:	2.56 to 2.30	2.52 to 2.47	2.60 to 2.58
• Maximum Potential:	2.56 to 2.19	2.52 to 2.43	2.60 to 2.56

The number of households in the SGA Analysis Area is projected to increase from 2,800 in 2005 to 3,300 by 2020 and 3,400 by 2035. Shifting units to the South Bonneyview SGA would result in minimal change in Redding and Shasta County households overall.

Daily Vehicle Miles Traveled (VMT)

Daily VMT generated by households within the South Bonneyview SGA Analysis Area is projected to increase from approximately 115,000 in 2005 to approximately 139,200 in 2020 and 148,800 in 2035. This represents an increase of 21% between 2005 and 2020 and 29.4% between 2005 and 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change the **daily VMT** generated by households within the SGA Analysis Area, Redding, and Shasta County as follows:

Change in VMT Attributed to Households	South Bonneyview SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
2020 Scenario						
• Moderately Reasonable:	+28,500	(+20.5%)	+4,300	(+0.3%)	-9,200	(-0.2%)
• Midpoint:	+52,400	(+37.6%)	-5,700	(-0.4%)	-20,000	(-0.5%)
• Maximum Potential:	+94,500	(+67.9%)	-9,900	(-0.6%)	-15,300	(-0.4%)
2035 Scenario						
• Moderately Reasonable:	+60,900	(+40.9%)	-20,700	(-1.1%)	-37,300	(-0.8%)
• Midpoint:	+118,500	(+79.6%)	-49,100	(-2.7%)	-41,100	(-0.9%)
• Maximum Potential:	+211,400	(+142.1%)	-113,900	(-6.2%)	-99,700	(-2.1%)

These results show that while daily VMT produced by households within the SGA Analysis Area would increase based on additional households in the area, daily VMT produced by households in Redding and Shasta County as a whole would decrease under all scenarios.

Vehicle Miles Traveled (VMT) Per Capita

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change the **daily VMT per capita** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in VMT Per Capita	South Bonneyview SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	16.57 to 16.28	15.23 to 15.27	20.32 to 20.32
• Midpoint:	16.57 to 16.10	15.23 to 15.26	20.32 to 20.31
• Maximum Potential:	16.57 to 15.79	15.23 to 15.28	20.32 to 20.43
2035 Scenario			
• Moderately Reasonable:	17.1 to 16.64	16.27 to 16.26	20.88 to 20.79
• Midpoint:	17.1 to 16.40	16.27 to 16.20	20.88 to 20.89
• Maximum Potential:	17.1 to 15.39	16.27 to 15.91	20.88 to 20.86

These results show that daily VMT per capita would decrease in the SGA Analysis Area, the City of Redding, and Shasta County as a whole under all three scenarios. Increasing residential density in urban infill areas has the effect of reducing VMT per capita and household.

Vehicle Trips and Trip Length

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change the **daily vehicle trips** generated by households within the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Vehicle Trips	South Bonneyview SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
2020 Scenario						
• Moderately Reasonable:	+4,300	(+18.5%)	+200	(+0.1%)	-1,800	(-0.3%)
• Midpoint:	+7,900	(+33.9%)	-2,800	(-1.0%)	-3,200	(-0.6%)
• Maximum Potential:	+15,000	(+64.4%)	-5,000	(-1.8%)	-6,100	(-1.1%)
2035 Scenario						
• Moderately Reasonable:	+9,300	(+38.9%)	-4,600	(-1.5%)	-5,900	(-1.0%)
• Midpoint:	+18,500	(+67.0%)	-10,800	(-4.0%)	-10,400	(-2.0%)
• Maximum Potential:	+33,700	(+108.0%)	-20,400	(-7.5%)	-19,700	(-3.7%)

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change the **daily vehicle trips per capita** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Average Daily Trips Per Capita	South Bonneyview SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	2.77 to 2.68	2.67 to 2.68	2.64 to 2.63
• Midpoint:	2.77 to 2.62	2.67 to 2.66	2.64 to 2.63
• Maximum Potential:	2.77 to 2.59	2.67 to 2.65	2.64 to 2.63
2035 Scenario			
• Moderately Reasonable:	2.75 to 2.63	2.70 to 2.69	2.68 to 2.66
• Midpoint:	2.75 to 2.60	2.70 to 2.67	2.68 to 2.66
• Maximum Potential:	2.75 to 2.46	2.70 to 2.63	2.68 to 2.64

These results show that daily vehicle trips per capita would decrease in both the SGA Analysis Area and the City of Redding as a whole under all three scenarios. Increasing residential density in urban infill areas has the effect of reducing vehicle trips per capita.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change the **average vehicle trip length** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Average Trip Length	South Bonneyview SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	5.97 to 6.08	5.69 to 5.71	7.70 to 7.71
• Midpoint:	5.97 to 6.14	5.69 to 5.73	7.70 to 7.71
• Maximum Potential:	5.97 to 6.10	5.69 to 5.76	7.70 to 7.77
2035 Scenario			
• Moderately Reasonable:	6.23 to 6.32	6.02 to 6.04	7.80 to 7.82
• Midpoint:	6.23 to 6.30	6.02 to 6.07	7.80 to 7.87
• Maximum Potential:	6.23 to 6.25	6.02 to 6.05	7.80 to 7.89

Roadway Statistics

Daily VMT on roadway segments in the South Bonneyview SGA Analysis Area (roadway segments with at least half of their length within ½ mile of the SGA parcels) is projected to increase from 112,800 to 142,800 in 2020 and 261,400 in 2035. This represents an increase of 26.6% by 2020 and 131.7% by 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change **daily VMT** per capita on roadways in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Daily Roadway VMT per Capita	South Bonneyview SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	17.00 to 13.77	21.95 to 21.91	31.55 to 31.60
• Midpoint:	17.00 to 11.77	21.95 to 21.97	31.55 to 31.64
• Maximum Potential:	17.00 to 9.22	21.95 to 21.96	31.55 to 31.89
2035 Scenario			
• Moderately Reasonable:	30.05 to 20.50	22.62 to 22.72	33.87 to 33.84
• Midpoint:	30.05 to 15.62	22.62 to 22.88	33.87 to 34.01
• Maximum Potential:	30.05 to 10.56	22.62 to 23.00	33.87 to 34.12

Daily vehicle hours of delay on roadway segments in the South Bonneyview SGA Analysis Area (roadway segments with at least half of their length within ½ mile of the SGA parcels) is projected to decrease from 361 in 2005 to 206 in 2020 and then increase to 358 in 2035, based on roadway improvements and land use growth in the area.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change the **daily vehicle hours of delay** on SGA Analysis Area, Redding, and Shasta County roadways as follows:

Change in Daily Vehicle Hours of Delay	South Bonneyview SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	206 to 206	1,859 to 1,908 (+2.6%)	2,136 to 2,163 (+1.3%)
• Midpoint:	206 to 186	1,859 to 1,947 (+4.7%)	2,136 to 2,203 (+3.1%)
• Maximum Potential:	206 to 158	1,859 to 2,468 (+32.8%)	2,136 to 2,787 (+30.5%)
2035 Scenario			
• Moderately Reasonable:	358 to 331	2,562 to 2,704 (+5.5%)	3,426 to 3,564 (+4.0%)
• Midpoint:	358 to 300	2,562 to 3,494 (+36.4%)	3,426 to 4,352 (+27.0%)
• Maximum Potential:	358 to 255	2,562 to 7,437 (+190.3%)	3,426 to 8,328 (+143.1%)

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change the **daily miles of roadway at LOS E or F** on SGA Analysis Area, Redding, and Shasta County roadways as follows:

Change in Daily Miles of Roadway at LOS E or F	Downtown SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	0.6 to 0.5	4.8 to 4.8	10.0 to 9.2
• Midpoint:	0.6 to 0.6	4.8 to 4.0	10.0 to 8.4
• Maximum Potential:	0.6 to 0.3	4.8 to 4.2	10.0 to 8.6
2035 Scenario			
• Moderately Reasonable:	0.5 to 0.8	6.9 to 8.4	14.4 to 16.1
• Midpoint:	0.5 to 0.5	6.9 to 7.2	14.4 to 14.8
• Maximum Potential:	0.5 to 0.6	6.9 to 5.9	14.4 to 10.5

Transit Statistics

Shifting Redding's 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change the **daily system wide transit boardings** as follows:

Change in Daily Transit Boardings South Bonneyview SGA	RABA Systemwide	
2020 Scenario		
• Moderately Reasonable:	2,720 to 2,760	(+1.5%)
• Midpoint:	2,720 to 2,950	(+8.5%)
• Maximum Potential:	2,720 to 2,720	(+0.0%)
2035 Scenario		
• Moderately Reasonable:	2,840 to 2,760	(-2.8%)
• Midpoint:	2,840 to 2,850	(+0.4%)
• Maximum Potential:	2,840 to 3,210	(+13.0%)

Shifting Redding's 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change the **total households within ¼ mile and ½ mile** of any transit stop as follows:

Households Within Distance of Transit Stop South Bonneyview SGA	Within 1/4 Mile of Transit Stop		Within 1/2 Mile of Transit Stop	
2020 Scenario				
• Moderately Reasonable:	-200	(-0.6%)	+500	(+1.1%)
• Midpoint:	-400	(-1.2%)	+1,000	(+2.1%)
• Maximum Potential:	-800	(-2.4%)	+1,900	(+4.1%)
2035 Scenario				
• Moderately Reasonable:	-500	(-1.5%)	+900	(+1.8%)
• Midpoint:	-900	(-2.6%)	+1,800	(+3.6%)
• Maximum Potential:	-1,800	(-5.3%)	+3,500	(+7.0%)

Shifting Redding's 2005-2020 and 2005-2035 growth in residential units to the South Bonneyview SGA would theoretically change the **total employment within ¼ mile and ½ mile** of any transit stop as follows:

Employment Within Distance of Transit Stop South Bonneyview SGA	Within 1/4 Mile of Transit Stop		Within 1/2 Mile of Transit Stop	
2020 Scenario				
• Moderately Reasonable:	+0	(+0.0%)	+100	(+0.2%)
• Midpoint:	+0	(+0.0%)	+100	(+0.2%)
• Maximum Potential:	+0	(+0.0%)	+100	(+0.2%)
2035 Scenario				
• Moderately Reasonable:	+0	(+0.0%)	+100	(+0.1%)
• Midpoint:	+0	(+0.0%)	+200	(+0.3%)
• Maximum Potential:	+0	(+0.0%)	+400	(+0.6%)

The results above show that implementation of the South Bonneyview SGA would result in beneficial transportation changes in the City of Redding. While daily VMT would increase within ½ mile of the SGA area, VMT would improve citywide and regionally by year 2035. Other key measures of effectiveness that would experience positive benefits include VMT per household, VMT per capita, daily trips per household, miles of roadway at LOS E or F, transit system boardings, and households and employment within ½ mile to transit stops. Negative impacts, however, would be seen across the city and region for average vehicle trip length and vehicle hours of delay in the higher density scenarios. Similar to other SGAs transportation benefits to the City of Redding would be greater under 2035 conditions and under the scenarios with higher percentages of residential growth redirected to the SGA.

OASIS ROAD SGA

Population and Households

The Oasis Road SGA would result in an increased concentration of multi-family residential units in an area north of downtown Redding and straddling Interstate 5, with a commensurate reduction in residential growth (mostly single family) throughout the remainder of the City of Redding. The SGA Analysis Area consists of a half-mile radius around the SGA parcels and had an estimated population of 3,200 in 2005. This population is estimated to increase to 6,300 by 2020 and 8,100 by 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change the **population** in the SGA Analysis Area and Redding as follows:

Change in Population	Oasis Road SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
2020 Scenario						
• Moderately Reasonable:	+1,200	(+19.0%)	-200	(-0.2%)	-600	(-0.3%)
• Midpoint:	+2,200	(+34.9%)	-700	(-0.7%)	-1,200	(-0.6%)
• Maximum Potential:	+4,700	(+74.6%)	-1,800	(-1.8%)	-2,300	(-1.1%)
2035 Scenario						
• Moderately Reasonable:	+2,800	(+34.6%)	-1,200	(-1.1%)	-1,200	(-0.5%)
• Midpoint:	+4,600	(+56.8%)	-3,700	(-3.3%)	-3,600	(-1.6%)
• Maximum Potential:	+9,300	(+114.8%)	-7,400	(-6.6%)	-7,300	(-3.2%)

The primary reason for decreases in population in Redding is that shifting growth from outlying areas to the SGA area would result in a reduction of single family households (which typically have more people per larger dwelling unit) and an increase in multi-family households in the SGA area (which typically have less people per smaller dwelling unit).

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change the **average population per household** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Average Population Per Household	Oasis Road SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	2.52 to 2.34	2.51 to 2.50	2.60 to 2.60
• Midpoint:	2.52 to 2.18	2.51 to 2.49	2.60 to 2.59
• Maximum Potential:	2.52 to 2.12	2.51 to 2.46	2.60 to 2.57
2035 Scenario			
• Moderately Reasonable:	2.45 to 2.22	2.52 to 2.49	2.60 to 2.59
• Midpoint:	2.45 to 2.15	2.52 to 2.47	2.60 to 2.58
• Maximum Potential:	2.45 to 2.05	2.52 to 2.42	2.60 to 2.56

The number of households in the SGA Analysis Area is projected to increase from 1,200 in 2005 to 2,500 by 2020 and 3,300 by 2035. Shifting units to the Oasis Road SGA would result in minimal change in Redding and Shasta County households overall.

Daily Vehicle Miles Traveled (VMT)

Daily VMT generated by households within the Oasis Road SGA Analysis Area is projected to increase from approximately 62,300 in 2005 to approximately 130,700 in 2020 and 173,900 in 2035. This represents an increase of 109.8% between 2005 and 2020 and 179.1% between 2005 and 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change the overall **daily VMT** generated by households within the SGA Analysis Area, Redding, and Shasta County as follows:

Change in VMT Attributed to Households	Oasis Road SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
	Value	% Change	Value	% Change	Value	% Change
2020 Scenario						
• Moderately Reasonable:	+18,900	(+14.5%)	-4,800	(-0.3%)	-1,800	(-0.0%)
• Midpoint:	+38,400	(+29.4%)	-100	(-0.0%)	-7,700	(-0.2%)
• Maximum Potential:	+77,700	(+59.4%)	-22,600	(-1.5%)	-18,800	(-0.5%)
2035 Scenario						
• Moderately Reasonable:	+48,400	(+27.8%)	-17,400	(-1.0%)	-31,100	(-0.7%)
• Midpoint:	+75,600	(+43.5%)	-65,100	(-3.6%)	-71,700	(-1.5%)
• Maximum Potential:	+160,400	(+92.2%)	-127,100	(-7.0%)	-121,700	(-2.6%)

These results show that while daily VMT produced by households within the SGA Analysis Area would increase based on additional households in the area, daily VMT produced by households in Redding and Shasta County as a whole would decrease under all scenarios.

Vehicle Miles Traveled (VMT) Per Capita

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change the **daily VMT per capita** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in VMT Per Capita	Oasis Road SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
	Value	% Change	Value	% Change	Value	% Change
2020 Scenario						
• Moderately Reasonable:	20.75 to 19.95		15.23 to 15.21		20.32 to 20.37	
• Midpoint:	20.75 to 19.89		15.23 to 15.33		20.32 to 20.40	
• Maximum Potential:	20.75 to 18.95		15.23 to 15.27		20.32 to 20.46	
2035 Scenario						
• Moderately Reasonable:	21.47 to 20.39		16.27 to 16.29		20.88 to 20.86	
• Midpoint:	21.47 to 19.65		16.27 to 16.23		20.88 to 20.90	
• Maximum Potential:	21.47 to 19.21		16.27 to 16.21		20.88 to 21.02	

These results show that daily VMT per capita would decrease in the SGA Analysis Area, the City of Redding, and Shasta County as a whole under all three scenarios. Increasing residential density in urban infill areas has the effect of reducing VMT per capita and household.

Vehicle Trips and Trip Length

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change the **daily vehicle trips** generated by households within the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Vehicle Trips	Oasis Road SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
2020 Scenario						
• Moderately Reasonable:	+2,600	(+14.7%)	-1,200	(-0.4%)	-1,600	(-0.3%)
• Midpoint:	+5,300	(+29.9%)	-2,600	(-1.0%)	-3,300	(-0.6%)
• Maximum Potential:	+10,400	(+58.8%)	-8,400	(-3.1%)	-8,700	(-1.6%)
2035 Scenario						
• Moderately Reasonable:	+6,600	(+28.8%)	-4,700	(-1.5%)	-5,500	(-0.9%)
• Midpoint:	+9,800	(+48.3%)	-13,900	(-5.1%)	-13,300	(-2.5%)
• Maximum Potential:	+21,000	(+91.3%)	-26,500	(-9.8%)	-26,700	(-5.1%)

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change the **daily vehicle trips per household** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Average Daily Trips Per Capita	Oasis Road SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
2020 Scenario						
• Moderately Reasonable:	2.81 to 2.71		2.67 to 2.67		2.64 to 2.64	
• Midpoint:	2.81 to 2.71		2.67 to 2.67		2.64 to 2.64	
• Maximum Potential:	2.81 to 2.55		2.67 to 2.64		2.64 to 2.62	
2035 Scenario						
• Moderately Reasonable:	2.83 to 2.71		2.70 to 2.69		2.68 to 2.67	
• Midpoint:	2.83 to 2.57		2.70 to 2.67		2.68 to 2.66	
• Maximum Potential:	2.83 to 2.52		2.70 to 2.64		2.68 to 2.64	

These results show that daily vehicle trips per capita would remain the same or decrease in both the SGA Analysis Area and the City of Redding as a whole under all three scenarios. Increasing residential density in the SGA area has the effect of reducing vehicle trips per capita.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change the **average vehicle trip length** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Average Trip Length	Oasis Road SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	7.38 to 7.37	5.69 to 5.70	7.70 to 7.72
• Midpoint:	7.38 to 7.35	5.69 to 5.75	7.70 to 7.74
• Maximum Potential:	7.38 to 7.42	5.69 to 5.79	7.70 to 7.80
2035 Scenario			
• Moderately Reasonable:	7.59 to 7.54	6.02 to 6.05	7.80 to 7.82
• Midpoint:	7.59 to 7.63	6.02 to 6.08	7.80 to 7.86
• Maximum Potential:	7.59 to 7.62	6.02 to 6.13	7.80 to 7.95

Roadway Statistics

Daily VMT on roadway segments in the Oasis Road SGA Analysis Area (roadway segments with at least half of their length within ½ mile of the SGA parcels) is projected to increase from 94,400 to 131,700 in 2020 and 148,100 in 2035. This represents an increase of 39.5% by 2020 and 56.9% by 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change **daily VMT** per capita on roadways in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Daily Roadway VMT per Capita	Oasis Road SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	2.90 to 17.97	21.95 to 21.94	31.55 to 31.64
• Midpoint:	2.90 to 16.29	21.95 to 21.97	31.55 to 31.74
• Maximum Potential:	2.90 to 13.31	21.95 to 22.04	31.55 to 31.95
2035 Scenario			
• Moderately Reasonable:	18.28 to 13.61	22.62 to 22.71	33.87 to 33.91
• Midpoint:	18.28 to 11.64	22.62 to 22.95	33.87 to 34.10
• Maximum Potential:	18.28 to 8.54	22.62 to 23.32	33.87 to 34.43

Daily vehicle hours of delay on roadway segments in the Oasis Road SGA Analysis Area (roadway segments with at least half of their length within ½ mile of the SGA parcels) is projected to increase from 11 in 2005 to 22 in 2020 and increase to 27 in 2035, based on roadway improvements and land use growth in the area.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change the **daily vehicle hours of delay** on SGA Analysis Area, Redding, and Shasta County roadways as follows:

Change in Daily Vehicle Hours of Delay	Oasis Road SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	22 to 26	1,859 to 1,832 (-1.5%)	2,136 to 2,098 (-1.8%)
• Midpoint:	22 to 31	1,859 to 1,808 (-2.7%)	2,136 to 2,080 (-2.6%)
• Maximum Potential:	22 to 54	1,859 to 1,728 (-7.0%)	2,136 to 2,003 (-6.2%)
2035 Scenario			
• Moderately Reasonable:	27 to 27	2,562 to 2,434 (-5.0%)	3,426 to 3,265 (-4.7%)
• Midpoint:	27 to 27	2,562 to 2,314 (-9.7%)	3,426 to 3,156 (-7.9%)
• Maximum Potential:	27 to 28	2,562 to 2,064 (-19.4%)	3,426 to 2,920 (-14.8%)

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change the **daily miles of roadway at LOS E or F** on SGA Analysis Area, Redding, and Shasta County roadways as follows:

Change in Daily Miles of Roadway at LOS E or F	Oasis Road SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	0 to 0.2	4.8 to 4.3	10.0 to 8.7
• Midpoint:	0 to 0	4.8 to 4.1	10.0 to 8.5
• Maximum Potential:	0 to 0.7	4.8 to 7.2	10.0 to 11.6
2035 Scenario			
• Moderately Reasonable:	0.2 to 0.2	6.9 to 7.3	14.4 to 12.2
• Midpoint:	0.2 to 0.2	6.9 to 7.5	14.4 to 15.7
• Maximum Potential:	0.2 to 0.2	6.9 to 6.3	14.4 to 11.5

Transit Statistics

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change the **daily system wide transit boardings** as follows:

Change in Daily Transit Boardings Oasis Road SGA	RABA Systemwide
2020 Scenario	
• Moderately Reasonable:	2,720 to 2,940 (+8.1%)
• Midpoint:	2,720 to 2,670 (-1.8%)
• Maximum Potential:	2,720 to 2,860 (+5.1%)
2035 Scenario	
• Moderately Reasonable:	2,840 to 2,800 (-1.4%)
• Midpoint:	2,840 to 2,860 (+0.7%)
• Maximum Potential:	2,840 to 2,730 (-3.9%)

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change the **total households within ¼ mile and ½ mile** of any transit stop as follows:

Households Within Distance of Transit Stop Oasis Road SGA	Within 1/4 Mile of Transit Stop		Within 1/2 Mile of Transit Stop	
2020 Scenario				
• Moderately Reasonable:	+0	(+0.0%)	+500	(+1.1%)
• Midpoint:	+0	(+0.0%)	+1,000	(+2.1%)
• Maximum Potential:	+0	(+0.0%)	+1,900	(+4.1%)
2035 Scenario				
• Moderately Reasonable:	-200	(-0.6%)	+800	(+1.6%)
• Midpoint:	-300	(-0.9%)	+1,100	(+2.2%)
• Maximum Potential:	-500	(-1.5%)	+2,300	(+4.6%)

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Oasis Road SGA would theoretically change the **total employment within ¼ mile and ½ mile** of any transit stop as follows:

Employment Within Distance of Transit Stop Oasis Road SGA	Within 1/4 Mile of Transit Stop		Within 1/2 Mile of Transit Stop	
2020 Scenario				
• Moderately Reasonable:	+0	(+0.0%)	+0	(+0.0%)
• Midpoint:	+0	(+0.0%)	+0	(+0.0%)
• Maximum Potential:	+0	(+0.0%)	+0	(+0.0%)
2035 Scenario				
• Moderately Reasonable:	+0	(+0.0%)	+0	(+0.0%)
• Midpoint:	+0	(+0.0%)	+0	(+0.0%)
• Maximum Potential:	+0	(+0.0%)	+0	(+0.0%)

The results above show that implementation of the Oasis Road SGA would result in beneficial transportation changes in the City of Redding. While daily VMT would increase within ½ mile of the SGA area, VMT would improve citywide, as would other key measures of effectiveness, including VMT per household, VMT per capita, daily trips per household, vehicle hours of delay, transit system boardings, and households within ½ mile of transit stops. Negative impacts would be seen in average vehicle trip length and in miles of roadway at LOS E or F. Because transit analysis assumes that no changes are made to current fixed route transit services no benefits are seen in the proximity of employment within a ½ mile of transit stops. Additionally, access by residents to transit is not seen within ¼ mile of transit stops, but is seen within ½ mile proximity to transit stops. Transportation benefits to the City of Redding would be greater under 2035 conditions and under the scenarios with higher percentages of residential growth redirected to the SGA. Additional benefits could be seen with modifications in fixed route transit service.

RANCHO SHASTA VIEW SGA

Population and Households

The Rancho Shasta View SGA would result in an increased concentration of multi-family residential units in an area south of downtown Redding and east of Interstate 5, with a commensurate reduction in residential growth (mostly single family) throughout the remainder of the City of Redding. The SGA Analysis Area consists of a half-mile radius around the SGA parcels and had an estimated population of 3,100 in 2005. This population is estimated to increase to 4,700 by 2020 and 6,100 by 2035.

Shifting Redding's 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change the **population** in the SGA Analysis Area and Redding as follows:

Change in Total Population	Rancho Shasta View SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
2020 Scenario						
• Moderately Reasonable:	+1,500	(+31.9%)	-200	(-0.2%)	-500	(-0.2%)
• Midpoint:	+3,100	(+66.0%)	-500	(-0.5%)	-900	(-0.4%)
• Maximum Potential:	+6,000	(+127.7%)	-1,400	(-1.4%)	-1,800	(-0.9%)
2035 Scenario						
• Moderately Reasonable:	+3,300	(+54.1%)	-400	(-0.4%)	-900	(-0.4%)
• Midpoint:	+6,600	(+108.2%)	-2,300	(-2.0%)	-2,100	(-0.9%)
• Maximum Potential:	+13,000	(+213.1%)	-4,500	(-4.0%)	-4,500	(-2.0%)

The primary reason for decreases in population in Redding is that shifting growth from outlying areas to the SGA area would result in a reduction of single family households (which typically have more people per larger dwelling unit) and an increase in multi-family households in the SGA area (which typically have less people per smaller dwelling unit).

Shifting Redding's 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change the **average population per household** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Average Population Per Household	Rancho Shasta View SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	2.61 to 2.48	2.51 to 2.50	2.60 to 2.60
• Midpoint:	2.61 to 2.36	2.51 to 2.50	2.60 to 2.59
• Maximum Potential:	2.61 to 2.23	2.51 to 2.47	2.60 to 2.58
2035 Scenario			
• Moderately Reasonable:	2.65 to 2.35	2.52 to 2.51	2.60 to 2.59
• Midpoint:	2.65 to 2.23	2.52 to 2.47	2.60 to 2.58
• Maximum Potential:	2.65 to 2.10	2.52 to 2.43	2.60 to 2.56

The number of households in the SGA Analysis Area is projected to increase from 1,200 in 2005 to 1,800 by 2020 and 2,300 by 2035. Shifting units to the Rancho Shasta View SGA would result in minimal change in Redding and Shasta County households overall.

Daily Vehicle Miles Traveled (VMT)

Daily VMT generated by households within the Rancho Shasta View SGA Analysis Area is projected to increase from approximately 62,300 in 2005 to approximately 130,700 in 2020 and 173,900 in 2035. This represents an increase of 109.8% between 2005 and 2020 and 179.1% between 2005 and 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change the **daily VMT** generated by households within the SGA Analysis Area, Redding, and Shasta County as follows:

Change in VMT Attributed to Households	Rancho Shasta View SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
2020 Scenario						
• Moderately Reasonable:	+23,100	(+29.3%)	+10,100	(+0.6%)	+11,100	(+0.3%)
• Midpoint:	+50,500	(+64.0%)	-7,300	(-0.5%)	-9,200	(-0.2%)
• Maximum Potential:	+91,600	(+116.1%)	-6,600	(-0.4%)	-6,200	(-0.2%)
2035 Scenario						
• Moderately Reasonable:	+54,200	(+50.0%)	-15,100	(-0.8%)	-27,200	(-0.6%)
• Midpoint:	+103,500	(+95.5%)	-44,500	(-2.4%)	-41,900	(-0.9%)
• Maximum Potential:	+205,300	(+189.4%)	-88,000	(-4.8%)	-75,600	(-1.6%)

These results show that while daily VMT produced by households within the SGA Analysis Area would increase based on additional households in the area, daily VMT produced by households in Redding and Shasta County as a whole would decrease under all scenarios.

Vehicle Miles Traveled (VMT) Per Capita

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change the **daily VMT per capita** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in VMT Per Capita	Rancho Shasta View SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	16.79 to 16.45	15.23 to 15.35	20.32 to 20.43
• Midpoint:	16.79 to 16.59	15.23 to 15.23	20.32 to 20.36
• Maximum Potential:	16.79 to 15.93	15.23 to 15.37	20.32 to 20.47
2035 Scenario			
• Moderately Reasonable:	17.77 to 17.3	16.27 to 16.20	20.88 to 20.85
• Midpoint:	17.77 to 16.69	16.27 to 16.21	20.88 to 20.89
• Maximum Potential:	17.77 to 16.42	16.27 to 16.14	20.88 to 20.96

These results show that daily VMT per capita would decrease in the SGA Analysis Area, the City of Redding, and Shasta County as a whole under all three scenarios. Increasing residential density in urban infill areas has the effect of reducing VMT per capita and household.

Vehicle Trips and Trip Length

Shifting Redding's 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change the **daily vehicle trips** generated by households within the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Vehicle Trips	Rancho Shasta View SGA Analysis Area		City of Redding (Including SGA Area)		Countywide (Including Redding & SGA Area)	
2020 Scenario						
• Moderately Reasonable:	+3,400	(+25.2%)	+200	(+0.1%)	-100	(-0.0%)
• Midpoint:	+7,300	(+54.1%)	-1,900	(-0.7%)	-2,700	(-0.5%)
• Maximum Potential:	+13,600	(+100.7%)	-5,800	(-2.1%)	-5,900	(-1.1%)
2035 Scenario						
• Moderately Reasonable:	+8,000	(+45.2%)	-3,100	(-1.0%)	-4,900	(-0.8%)
• Midpoint:	+15,300	(+90.5%)	-9,400	(-3.4%)	-8,600	(-1.6%)
• Maximum Potential:	+30,400	(+146.2%)	-18,800	(-6.9%)	-18,200	(-3.4%)

Shifting Redding's 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change the **daily vehicle trips per household** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Average Daily Trips Per Capita	Rancho Shasta View SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	2.87 to 2.73	2.67 to 2.68	2.64 to 2.64
• Midpoint:	2.87 to 2.67	2.67 to 2.67	2.64 to 2.64
• Maximum Potential:	2.87 to 2.53	2.67 to 2.65	2.64 to 2.63
2035 Scenario			
• Moderately Reasonable:	2.90 to 2.73	2.70 to 2.69	2.68 to 2.67
• Midpoint:	2.90 to 2.60	2.70 to 2.68	2.68 to 2.67
• Maximum Potential:	2.90 to 2.52	2.70 to 2.64	2.68 to 2.65

These results show that daily vehicle trips per capita would decrease in both the SGA Analysis Area and the City of Redding as a whole under all three scenarios. Increasing residential density in the SGA area has the effect of reducing vehicle trips per capita.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change the **average vehicle trip length** in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Average Trip Length	Rancho Shasta View SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	5.84 to 6.04	5.69 to 5.73	7.70 to 7.73
• Midpoint:	5.84 to 6.22	5.69 to 5.71	7.70 to 7.73
• Maximum Potential:	5.84 to 6.29	5.69 to 5.79	7.70 to 7.78
2035 Scenario			
• Moderately Reasonable:	6.12 to 6.33	6.02 to 6.03	7.80 to 7.82
• Midpoint:	6.12 to 6.42	6.02 to 6.06	7.80 to 7.84
• Maximum Potential:	6.12 to 6.52	6.02 to 6.10	7.80 to 7.91

Roadway Statistics

Daily VMT on roadway segments in the Rancho Shasta View SGA Analysis Area (roadway segments with at least half of their length within ½ mile of the SGA parcels) is projected to increase from 9,300 to 14,200 in 2020 and 22,200 in 2035. This represents an increase of 52.7% by 2020 and 138.7% by 2035.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change **daily VMT** on roadways in the SGA Analysis Area, Redding, and Shasta County as follows:

Change in Daily Roadway VMT per Capita	Rancho Shasta View SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	2.25 to 2.41	21.95 to 21.94	31.55 to 31.64
• Midpoint:	2.25 to 2.47	21.95 to 21.97	31.55 to 31.74
• Maximum Potential:	2.25 to 2.44	21.95 to 22.04	31.55 to 31.95
2035 Scenario			
• Moderately Reasonable:	2.74 to 2.77	22.62 to 22.71	33.87 to 33.91
• Midpoint:	2.74 to 2.89	22.62 to 22.95	33.87 to 34.10
• Maximum Potential:	2.74 to 2.94	22.62 to 23.32	33.87 to 34.43

Daily vehicle hours of delay on roadway segments in the Rancho Shasta View SGA Analysis Area (roadway segments with at least half of their length within ½ mile of the SGA parcels) is projected to increase from 4 in 2005 to 5 in 2020 and then increase to 5 in 2035, based on roadway improvements and land use growth in the area.

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change the **daily vehicle hours of delay** on SGA Analysis Area, Redding, and Shasta County roadways as follows:

Change in Daily Vehicle Hours of Delay	Rancho Shasta View SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	5 to 9	1,859 to 1,874 (+0.8%)	2,136 to 2,156 (+0.9%)
• Midpoint:	5 to 18	1,859 to 1,846 (-0.7%)	2,136 to 2,119 (-0.8%)
• Maximum Potential:	5 to 51	1,859 to 1,907 (+2.6%)	2,136 to 2,176 (+1.9%)
2035 Scenario			
• Moderately Reasonable:	5 to 32	2,562 to 2,507 (-2.1%)	3,426 to 3,352 (-2.2%)
• Midpoint:	5 to 78	2,562 to 2,543 (-0.7%)	3,426 to 3,420 (-0.2%)
• Maximum Potential:	5 to 657	2,562 to 3,116 (+21.6%)	3,426 to 3,970 (+15.9%)

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change the **daily miles of roadway at LOS E or F** on SGA Analysis Area, Redding, and Shasta County roadways as follows:

Change in Daily Miles of Roadway at LOS E or F	Rancho Shasta View SGA Analysis Area	City of Redding (Including SGA Area)	Countywide (Including Redding & SGA Area)
2020 Scenario			
• Moderately Reasonable:	0 to 0	4.8 to 5.2	10.0 to 10.4
• Midpoint:	0 to 0.4	4.8 to 6.6	10.0 to 11.8
• Maximum Potential:	0 to 0.8	4.8 to 9.1	10.0 to 13.5
2035 Scenario			
• Moderately Reasonable:	0 to 0.8	6.9 to 9.0	14.4 to 16.7
• Midpoint:	0 to 1.7	6.9 to 11.4	14.4 to 19.7
• Maximum Potential:	0 to 1.6	6.9 to 10.7	14.4 to 18.6

Transit Statistics

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change the **daily system wide transit boardings** as follows:

Change in Daily Transit Boardings Rancho Shasta View SGA	RABA Systemwide	
2020 Scenario		
• Moderately Reasonable:	2,720 to 2,670	(-1.8%)
• Midpoint:	2,720 to 2,660	(-2.2%)
• Maximum Potential:	2,720 to 2,800	(+2.9%)
2035 Scenario		
• Moderately Reasonable:	2,840 to 2,850	(+0.4%)
• Midpoint:	2,840 to 2,660	(-6.3%)
• Maximum Potential:	2,840 to 2,500	(-12.0%)

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change the **total households within ¼ mile and ½ mile** of any transit stop as follows:

Households Within Distance of Transit Stop Rancho Shasta View SGA	Within 1/4 Mile of Transit Stop		Within 1/2 Mile of Transit Stop	
2020 Scenario				
• Moderately Reasonable:	-200	(-0.6%)	-400	(-0.9%)
• Midpoint:	-400	(-1.2%)	-900	(-1.9%)
• Maximum Potential:	-800	(-2.4%)	-1,800	(-3.9%)
2035 Scenario				
• Moderately Reasonable:	-500	(-1.5%)	-1,300	(-2.6%)
• Midpoint:	-900	(-2.6%)	-2,500	(-5.0%)
• Maximum Potential:	-1,800	(-5.3%)	-5,000	(-10.0%)

Shifting Redding’s 2005-2020 and 2005-2035 growth in residential units to the Rancho Shasta View SGA would theoretically change the **total employment within ¼ mile and ½ mile** of any transit stop as follows:

Employment Within Distance of Transit Stop Rancho Shasta View SGA	Within 1/4 Mile of Transit Stop		Within 1/2 Mile of Transit Stop	
2020 Scenario				
• Moderately Reasonable:	+0	(+0.0%)	+0	(+0.0%)
• Midpoint:	+0	(+0.0%)	+0	(+0.0%)
• Maximum Potential:	+0	(+0.0%)	+0	(+0.0%)
2035 Scenario				
• Moderately Reasonable:	+0	(+0.0%)	+0	(+0.0%)
• Midpoint:	+0	(+0.0%)	+0	(+0.0%)
• Maximum Potential:	+0	(+0.0%)	+0	(+0.0%)

The results above show that implementation of the Rancho Shasta View SGA would result in some beneficial transportation changes in the City of Redding. Citywide VMT would improve, as would other key measures of effectiveness, including VMT per household, VMT per capita, daily trips per household, and vehicle hours of delay.. Increases would be seen in daily VMT within ½ mile of the SGA, average vehicle trip length, and miles of roadway at LOS E or F. Transit benefits could be seen if modifications were made to the fixed route system. Similar to the other SGAs transportation benefits to the City of Redding would be greater under 2035 conditions.

SGA Conclusions

Consolidation of City of Redding growth to any of the four SGA areas would generally result in beneficial changes to numerous measures of effectiveness (MOE's). Some metrics of course fair better than others due to geographic location within Redding and the available transportation infrastructure.

It should be noted that this analysis is somewhat limited regarding infrastructure and transit service assumptions. The modeling of transportation projects relies on those projects anticipated to be completed in the 2010 Regional Transportation Plan, which currently only anticipate projects completed through year 2030. Additionally, it is assumed that current fixed route transit services remain unchanged. Improvements would likely be further realized with changes in fixed-route transit service, transportation and land use investments, and implementation of policies that support planning's "5 D's" (Density, Diversity, Design, Destination accessibility and Distance to transit).

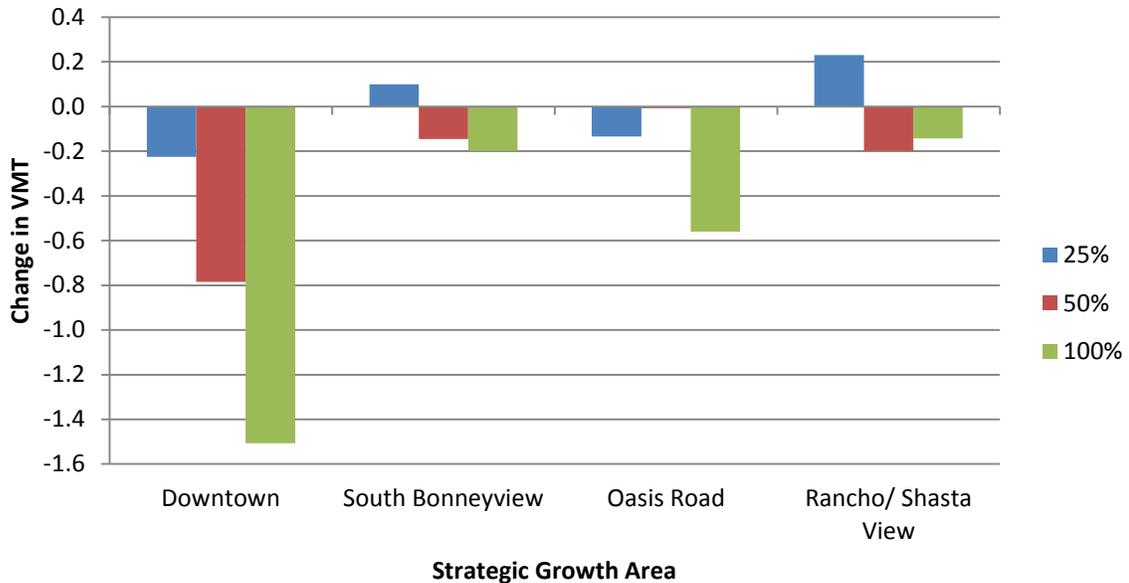
This exercise sought to explore the relationship of increasing Density in various areas of the City of Redding and evaluating those benefits to support reducing vehicle miles traveled. Overall results show that the Downtown SGA has the most beneficial impacts on the MOE's contained in this report. Further review of this report will be conducted by City of Redding planning staff and evaluated against other factors to identify those SGAs most beneficial to the City and region.

Appendix 2, below, provides a series of charts that help to graphically explain many of the tables discussed throughout this report.

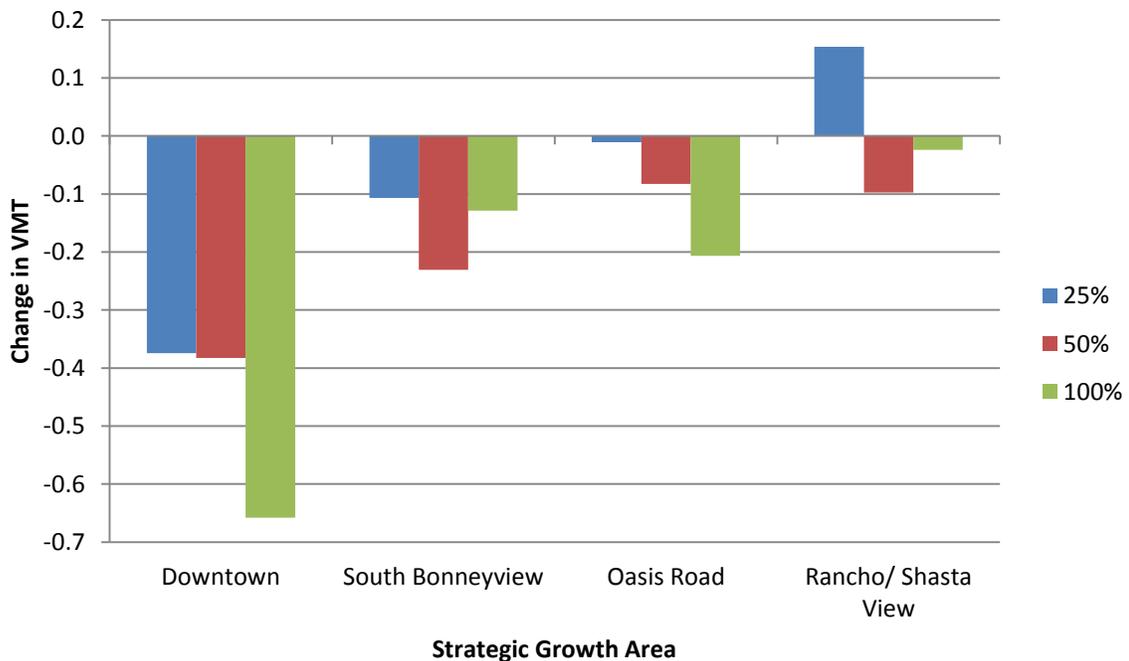
APPENDIX 2 – Redding Strategic Growth Area (SGA) Scenario Charts

Model results show that VMT per household attributed to households in Redding and Shasta County would generally decrease under all SGAs but would clearly decrease most with implementation of the Downtown SGA. As with the tables throughout the report, 25% represents the moderately reasonable scenario, 50% represents the midpoint scenario, and 100% represents the maximum potential scenario for each SGA.

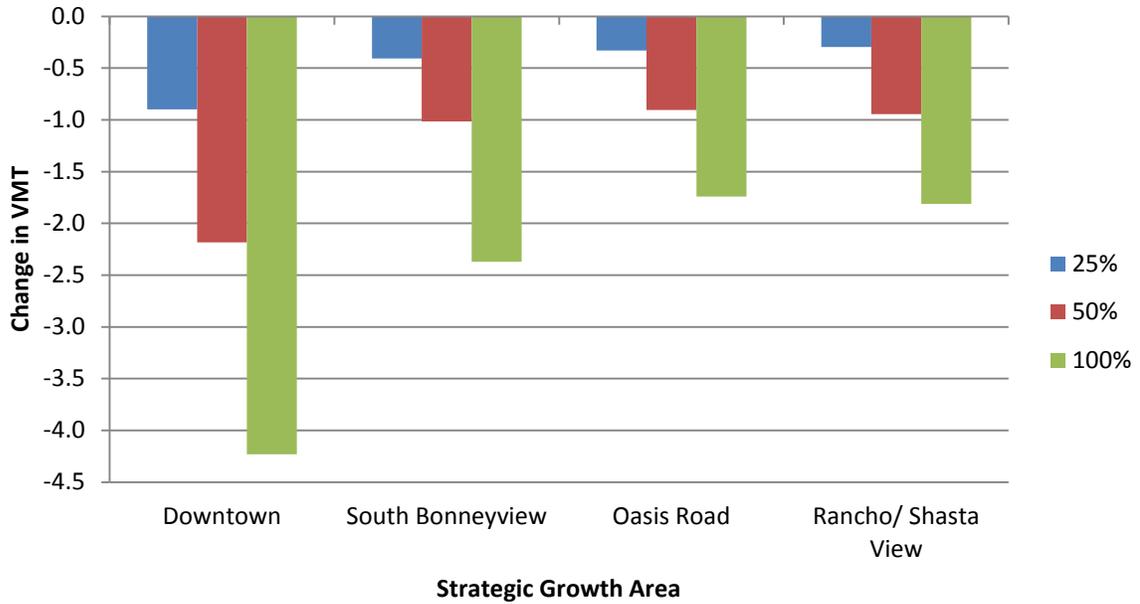
2020 Change in Daily VMT Per Household in Redding



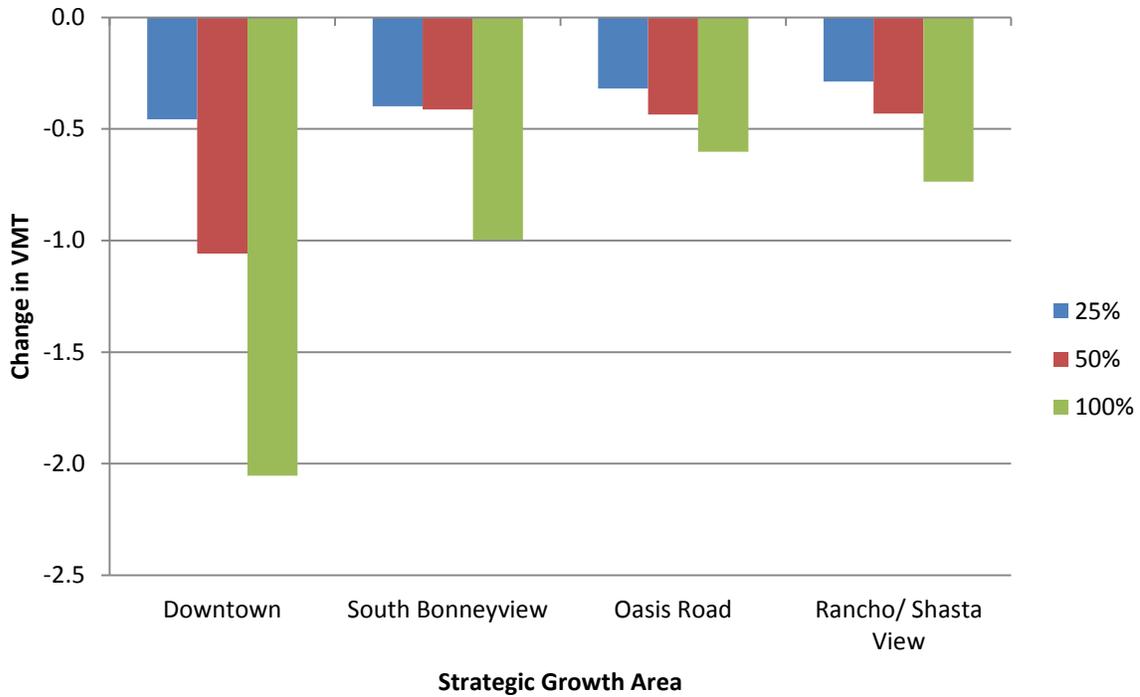
2020 Change in Daily VMT Per Household Countywide



2035 Change in Daily VMT Per Household in Redding

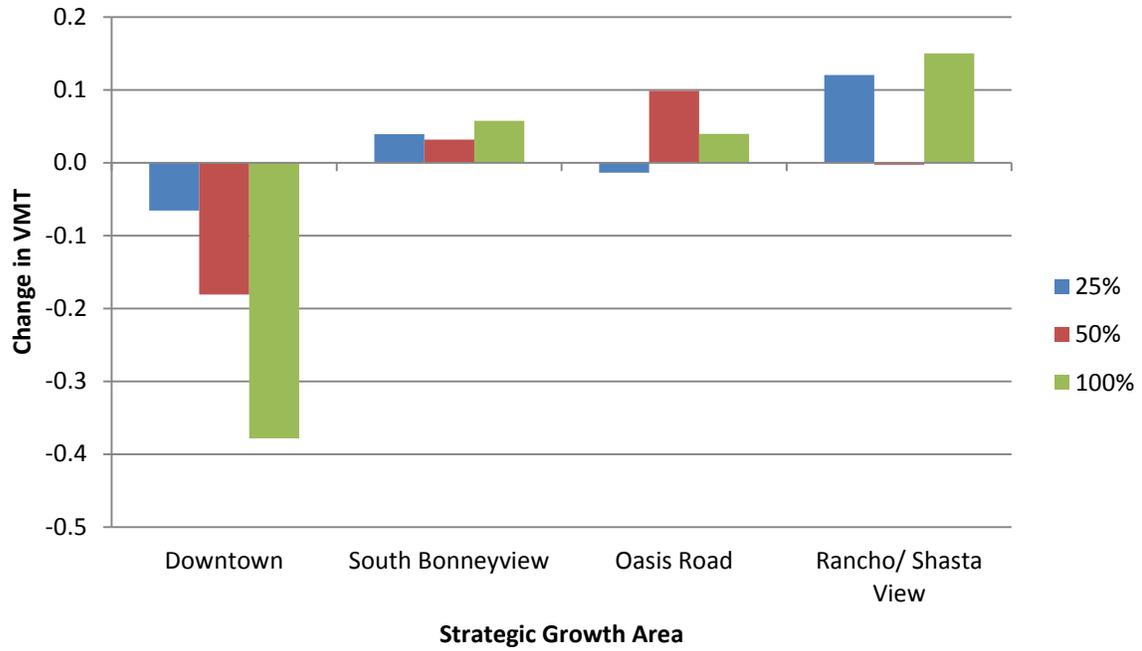


2035 Change in Daily VMT Per Household Countywide

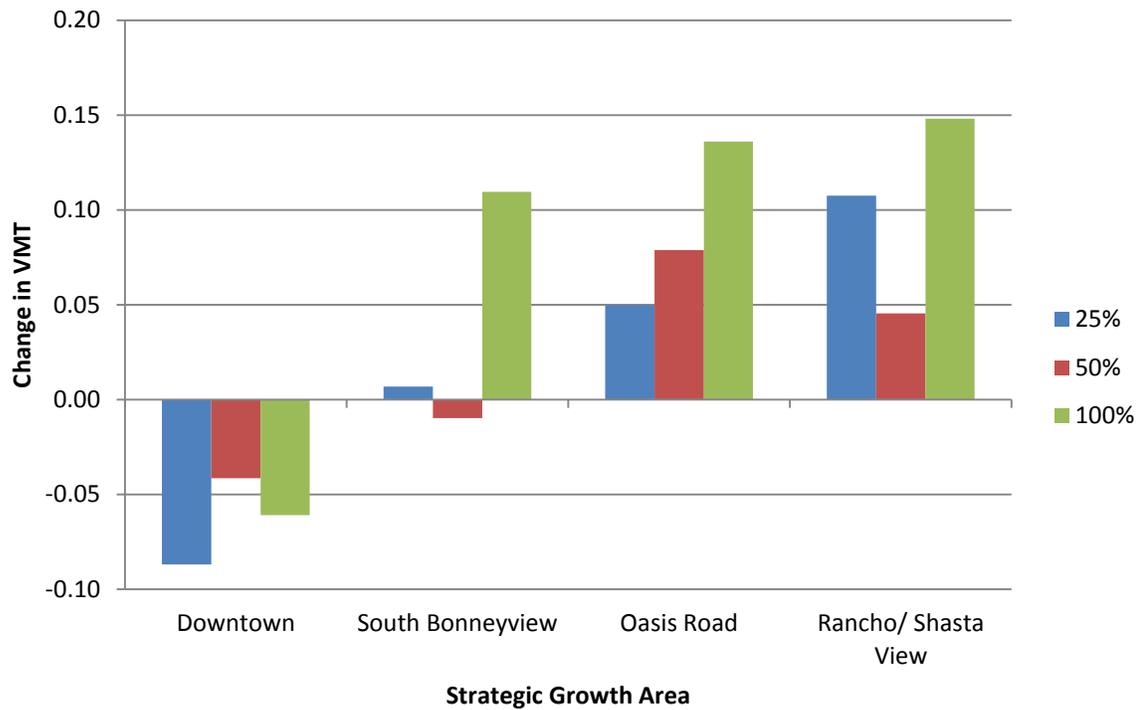


Model results show that VMT per capita attributed to households in Redding and Shasta County would clearly decrease most with implementation of the Downtown SGA.

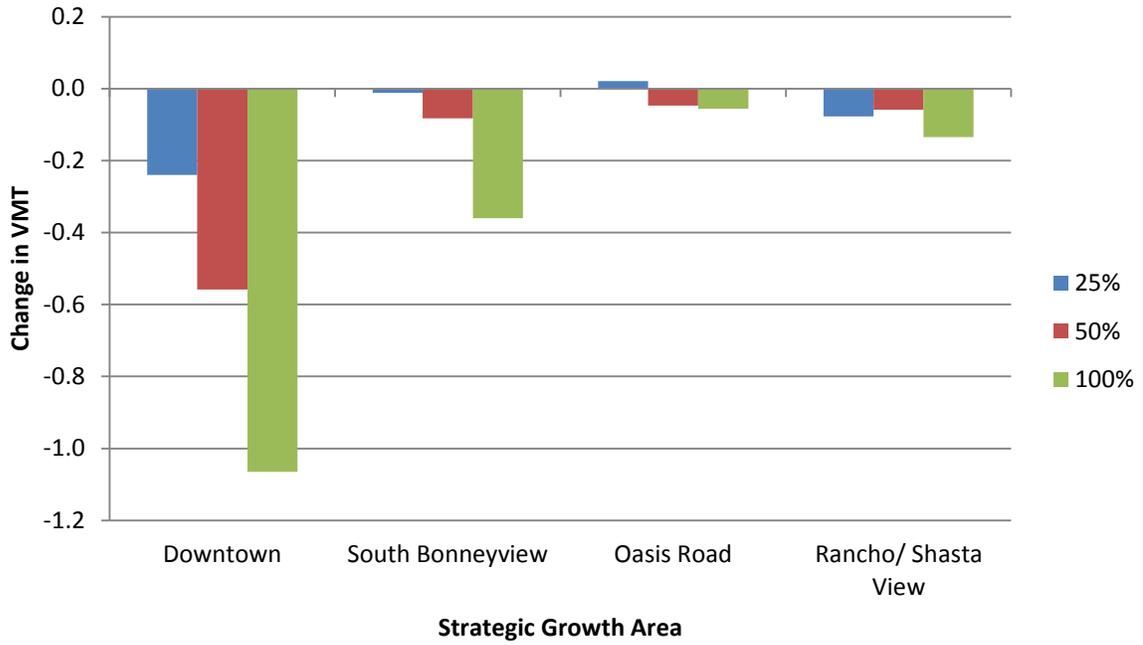
2020 Change in Daily VMT Per Capita in Redding



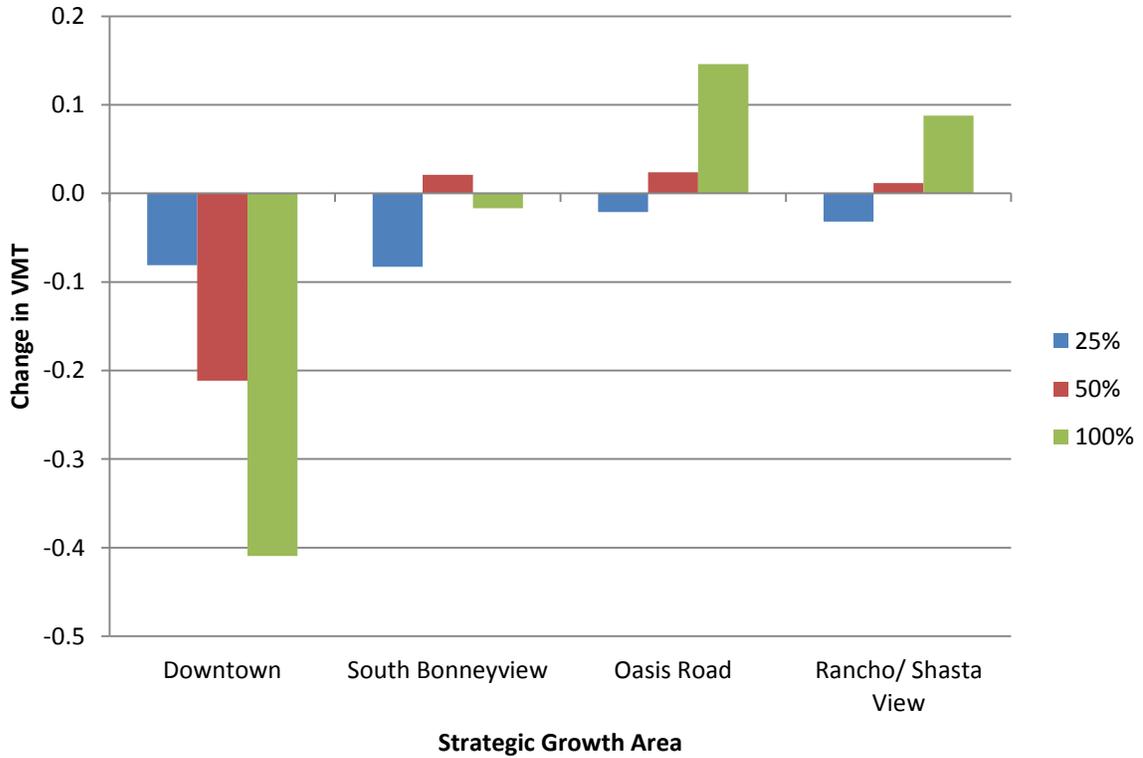
2020 Change in Daily VMT Per Capita Countywide



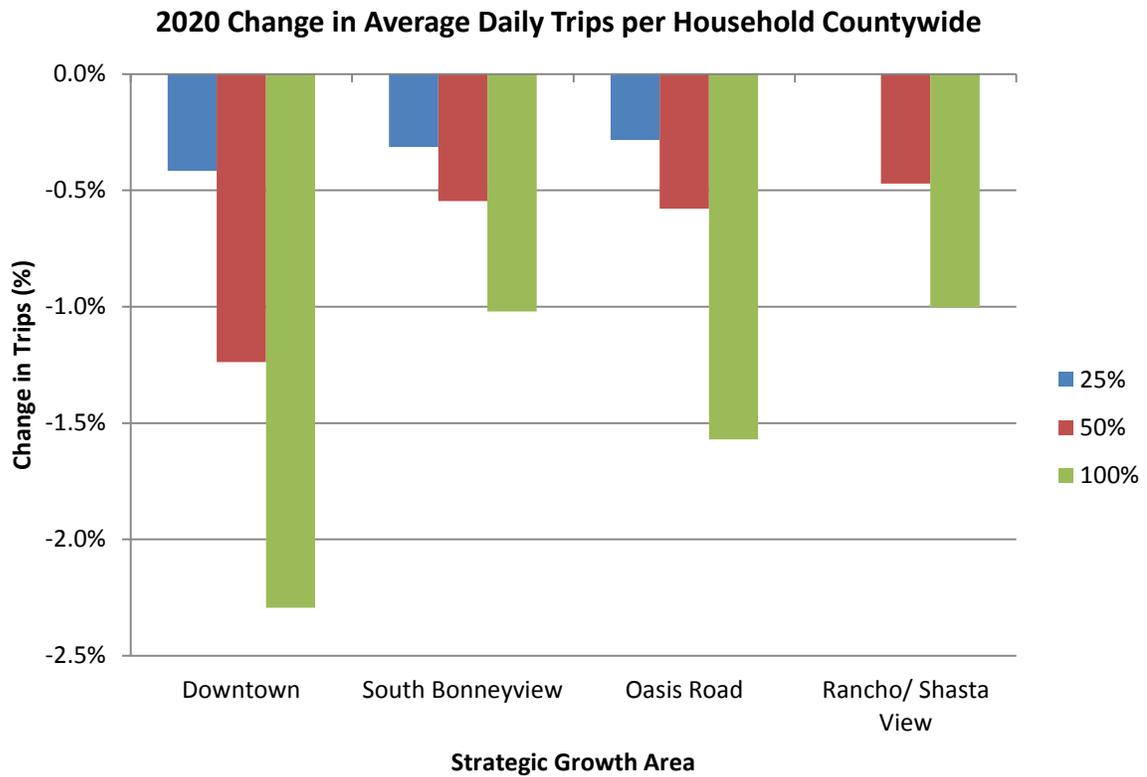
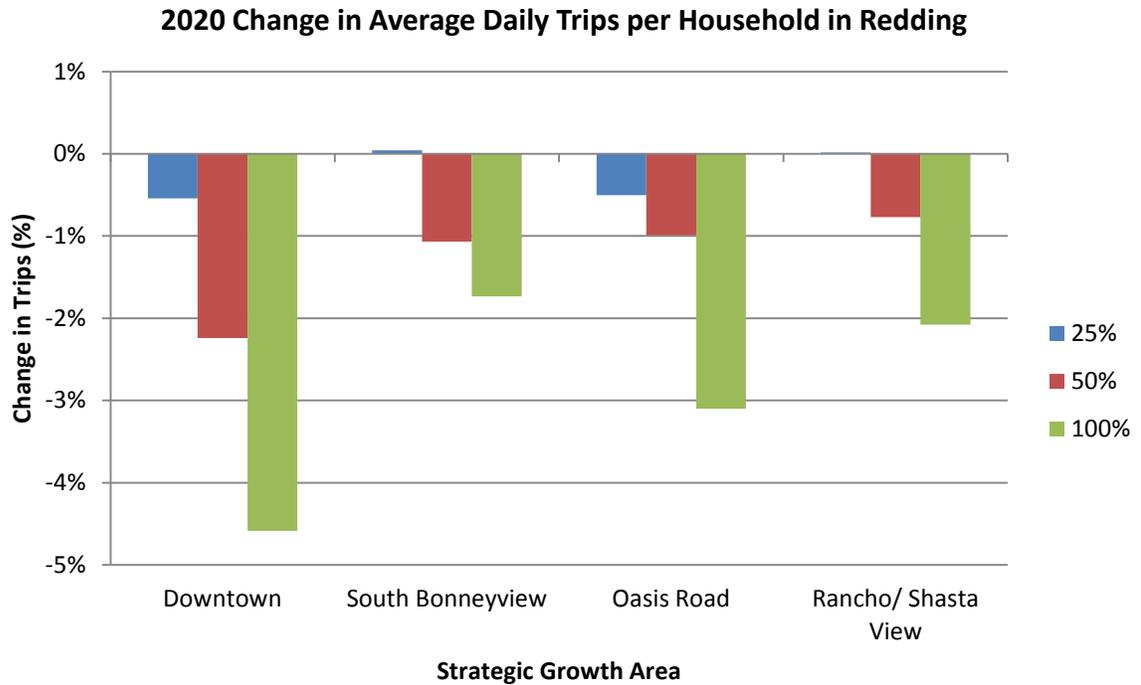
2035 Change in Daily VMT Per Capita in Redding



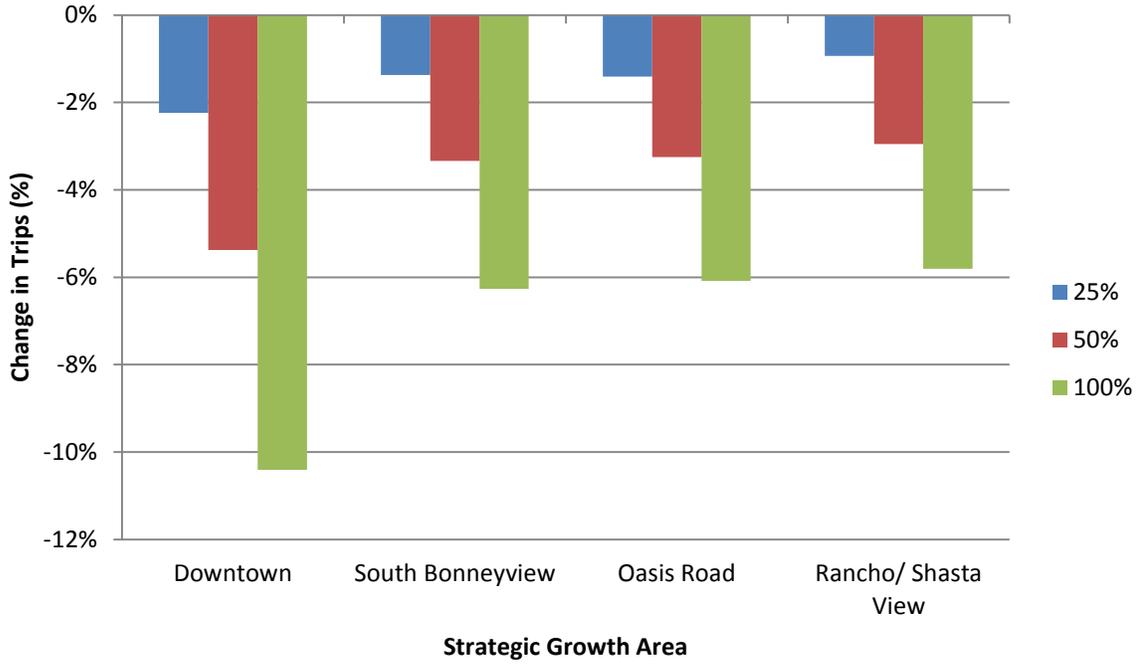
2035 Change in Daily VMT Per Capita Countywide



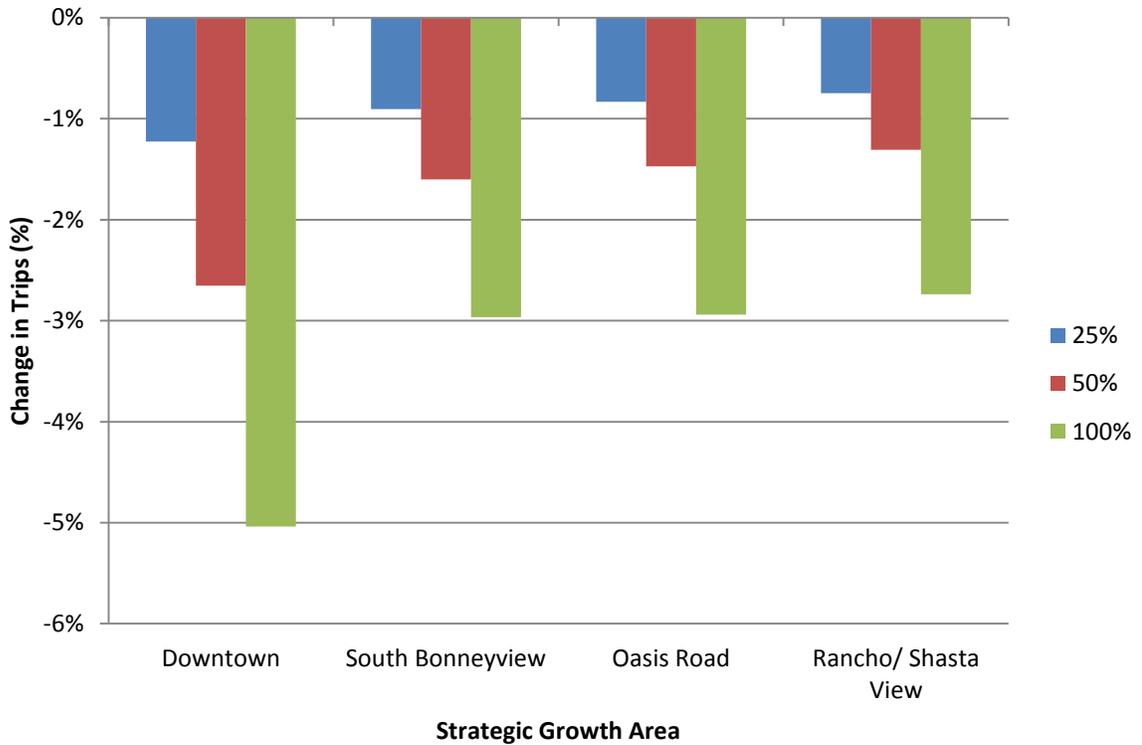
Model results show that daily vehicle trips per household attributed to households in Redding and Shasta County would decrease under all SGAs but would clearly decrease most with implementation of the Downtown SGA.



2035 Change in Average Daily Trips per Household in Redding

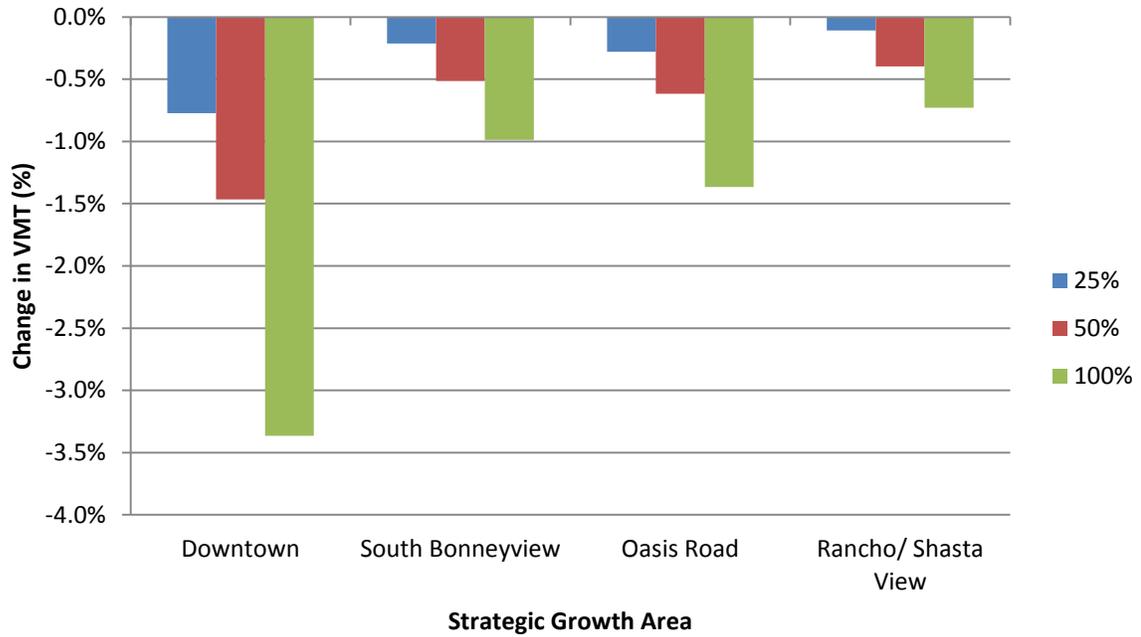


2035 Change in Average Daily Trips per Household Countywide



Model results show that daily VMT on Redding and Shasta County Roadways would clearly decrease most with implementation of the Downtown SGA.

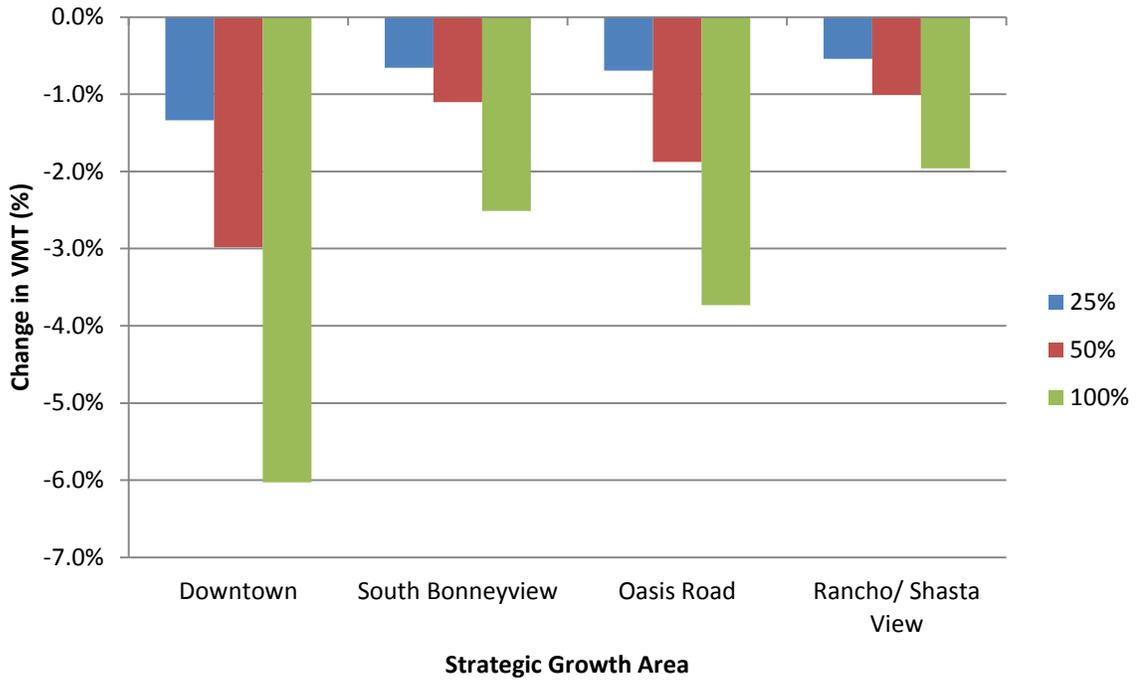
2020 Change in VMT on Redding Roadways



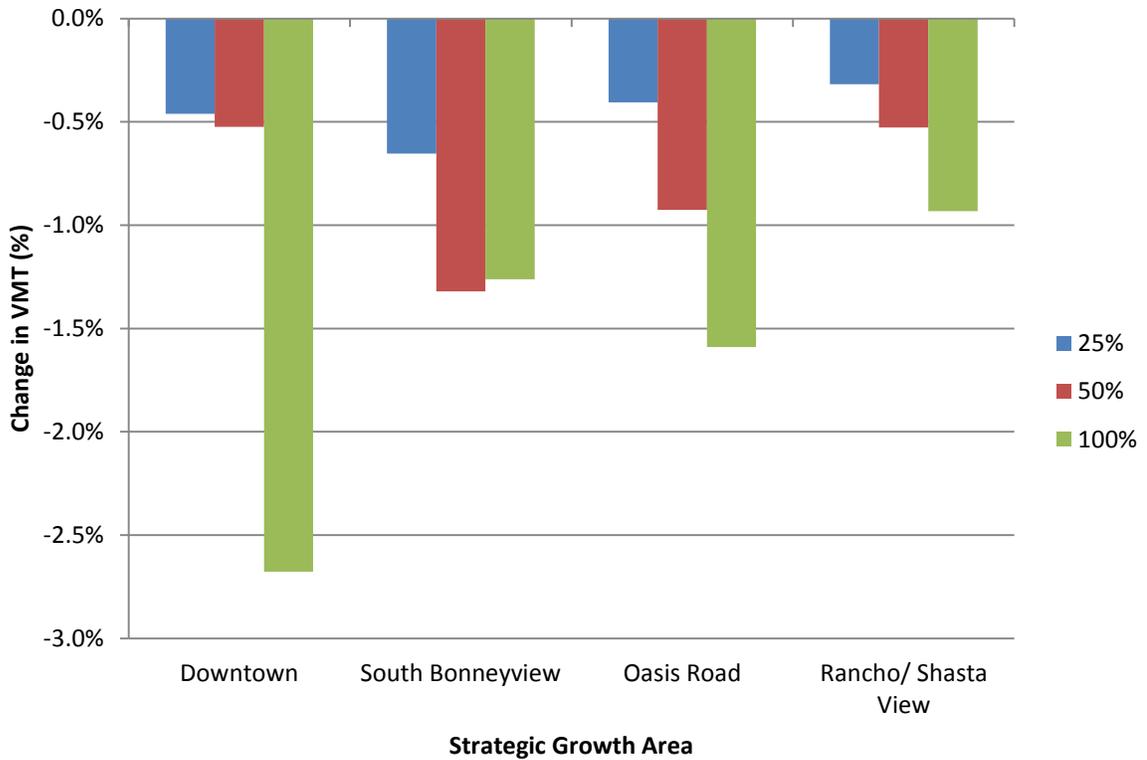
2020 Change in VMT on Shasta County Roadways



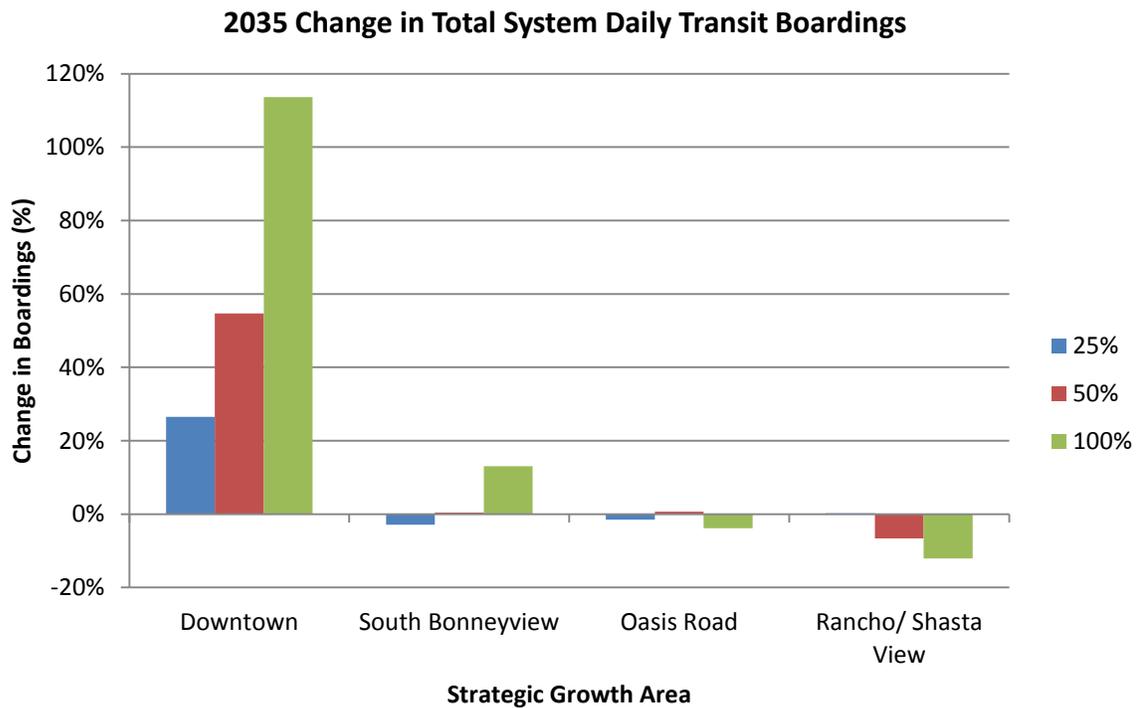
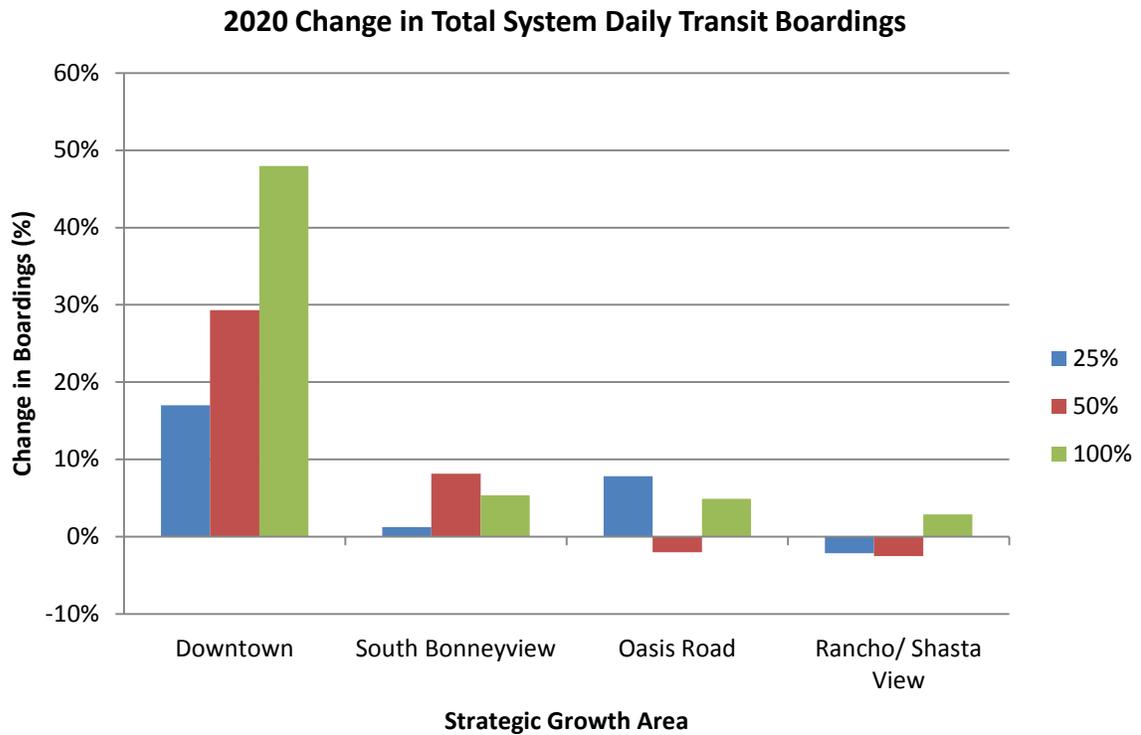
2035 Change in VMT on Redding Roadways



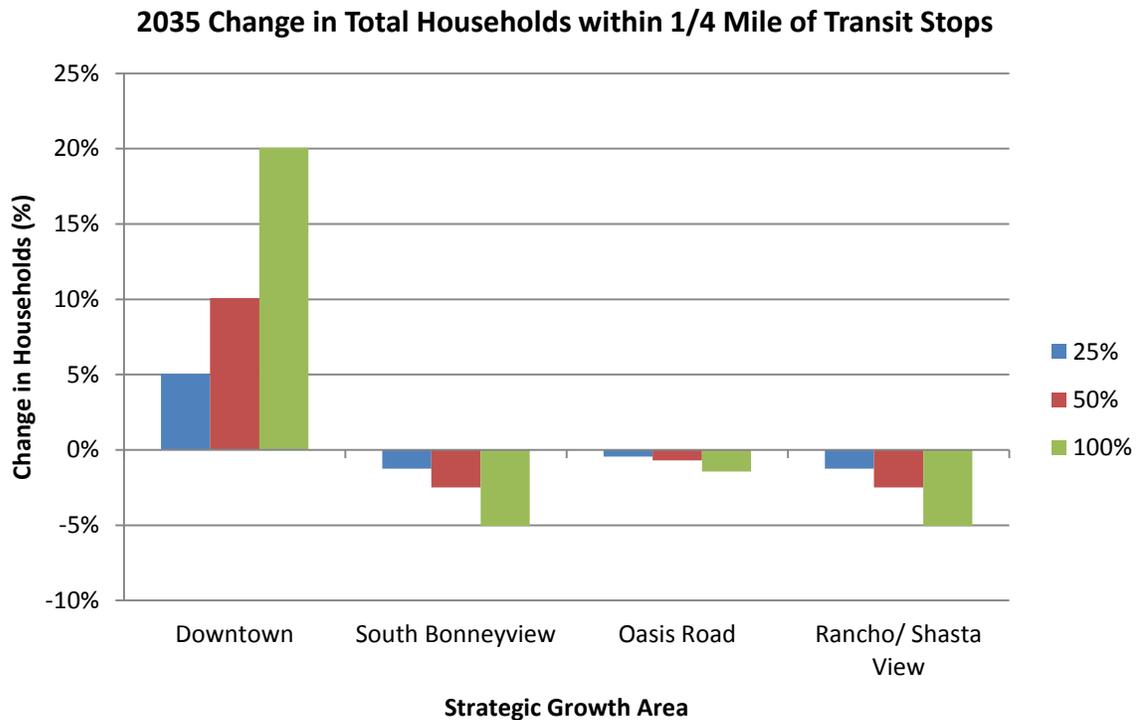
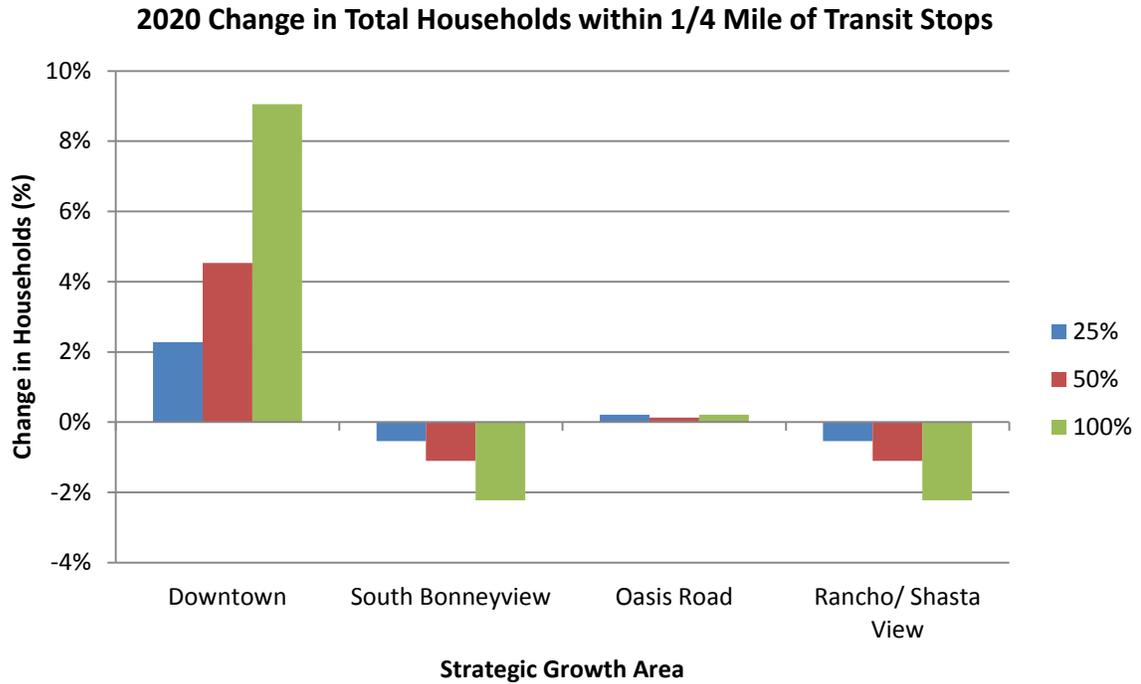
2035 Change in VMT on Shasta County Roadways



Model results show that daily transit boardings would clearly increase most with implementation of the Downtown SGA.

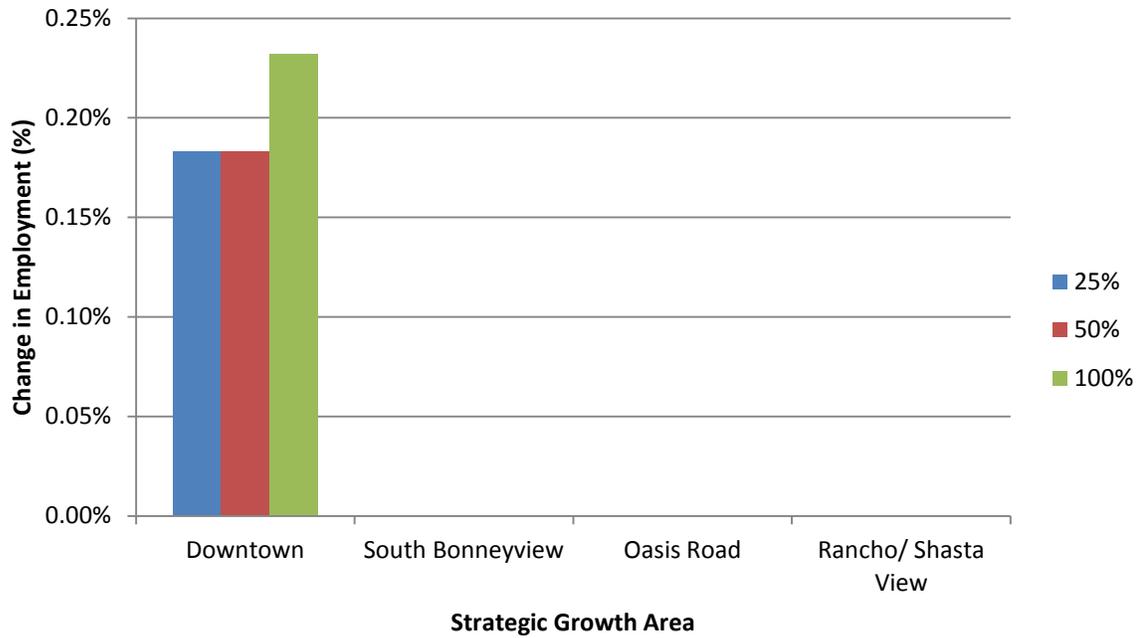


Households within ¼ mile of a transit stop would clearly increase most with implementation of the Downtown SGA.



Employment within ¼ mile of a transit stop would clearly increase most with implementation of the Downtown SGA.

2020 Change in Total Employment within 1/4 Mile of Transit Stops



2035 Change in Total Employment within 1/4 Mile of Transit Stops

