



AGENDA
KERN REGIONAL
TRANSPORTATION MODELING COMMITTEE (TMC)

A sub-committee of Transportation Technical Advisory Committee (TTAC)
(merged with the Kern Climate Change Task Force in May 2010)

KERN COG BOARD ROOM
1401 19TH STREET, THIRD FLOOR
BAKERSFIELD, CALIFORNIA

WEDNESDAY
December 14, 2011
9:00 A.M.

WEB SITE: <http://www.kerncog.org/cms/agendas-minutes/transportation-modeling>

PARKING: All-day free parking in the unmarked spaces of the garage located at 19th and L Streets. This is an open meeting; local government planning, public works staffs are encouraged to attend.

DISCLAIMER: This agenda includes the proposed actions and activities, with respect to each agenda item, as of the date of posting. As such, it does not preclude the Committee from taking other actions on items on the agenda which are different or in addition to those recommended.

- I. Introductions/Sign-in Sheet
- II. Meeting Notes from October, 2011 – See *Attachment* – **Approve**
- III. Update on Regional Planning Advisory Committee – Meeting notes from the November 2 and November 30 RPAC attached. Framework is also attached – Information.
- IV. Regional Traffic Count Program (Heimer/Flickinger) – Action - List of additional locations are due to Kern COG by this meeting.
- V. Census Household Data and TAZ Data Comparison – Update. Action: Approve the forecast household data distribution to incorporate the 2010 Census.
- VI. Draft SB 375 Land Use Model Methodology documentation (Hightower) – Information
- VII. Draft Land Use Model Sample Project Level Model Run (Ball/Hightower/Liu) – Discussion/Information
- VIII. 3rd Draft SCS Conceptual View Centers Map (Invina) – Action – Staff recommends approving Maps for RPAC to review and comment.
- IX. Draft Land Use Model Update (IO6) (Hightower) – Information
- X. Model Improvement Program Update – Status/Timeline/Process – (Ball) Information
- XI. SB 375 Strategy List (Ball/Hightower) – Discussion/ Information
- XII. Kern COG Modeling Activity Report (Liu) – Information
- XIII. Other Business/Schedule Next Meeting – Wed., February 22, 2012 9:00AM at Kern COG
- XIV. Adjourn



**Kern Regional Transportation Modeling Committee (TMC)
A Subcommittee of the Kern COG TTAC**

Meeting Notes
October 26, 2011

I. Members Present:

Steven Young	County of Kern Roads
Warren Maxwell	County of Kern Roads
Brian Blacklock	County of Kern Roads
Barry Nienke	County of Kern Roads
Ed Murphy	City of Bakersfield
Karl Davisson	City of Bakersfield
Ed Murphy	City of Bakersfield
Mike McCabe	City of Delano
Wayne Clausen	City of Shafter
Dave Dmohowski	Premier Planning Group
Paul Gorte	City of Taft
David Berggren	Caltrans
Walter Allen	TRIP/Parsons

Staff Present:

Rob Ball	Kern Council of Governments
Troy Hightower	Kern Council of Governments
Ed Flickinger	Kern Council of Governments
Rochelle Invina	Kern Council of Governments
Becky Napier	Kern Council of Governments
Vincent Liu	Kern Council of Governments

II. Meeting Notes from June 22, 2011 – Approved.

III. Regional Planning Advisory Committee – Information. Minutes from Aug 31, 2011 and October 5, 2011 meeting were available for committee review.

IV. Regional Traffic Count Study – Staff Report Option 3 continued discussion from last meeting – Action - List of additional locations will be provided to Kern COG by next meeting.

V. 2010 Census Data Forecast Checkpoint – Socioeconomic data update – Information. The future year decrease with an associating base year decrease would be more accurate to the census. Action – Review maps of 20 TAZs by next meeting.

VI. Draft Land Use Model Update and review Methodology documentation – Information. The goal is for the SCS to meet the target so we don't have to do an Alternative Planning Strategy (APS). The current land use model reflects comments received by Kern COG staff as of August 31, 2011. The maps distributed are input layers to the Uplan land use model and are based on the same layers used 1.5 years ago as part of the target setting process. The Uplan land use model provides input to the transportation model which provide input into the EMFAC model that outputs CO2. It was suggested that school districts be considered as an attractor. The Census data control total inputs are an input to the Land Use model. Industrial zone is listed as an attractor and represents more of an enterprise zone. All growth is constrained to what is depicted on what was called the "Consolidated General Plan". It is now called the "Combined Land Use Map". Staff requested committee members

review and confirm land uses in the Combined Land Use Map accurately reflect each communities designations. Electronic versions of the input layers and documentation can be found at: <http://www.kerncog.org/cms/climatechange>. A slide presentation of the Draft Land Use model documentation was presented. The Technical Appendix was reviewed which contains input parameters, and the conversion matrix used to create the Combined Land Use Map. The documentation will be forwarded to the RPAC. A model run will be made by mid-November. Action – Provide comments on model documentation before next meeting.

- VII. Draft Land Use Model Sample Project Level Model Run – Information.** - A model run was generated to demonstration the models ability to allocate growth for a designated “Project” or area. The model successfully allocated the growth while maintaining the county control totals or zero sum. The committee requested that staff generate a version of the Project Level model that was not constrained by the control totals.
- VIII. Draft SCS Centers Conceptual View – Information.** - Feedback on potential center or existing center. Connect dots of transit system for SCS.
- IX. Model Improvement Program Update – Status/Timeline/Process - Information.** – \$2.5 Million contract coordination and incorporation of valley transportation models. A large benefit to us is a feedback loop of Cube Land and the transportation model. A large change in our model structure is 10 household and 21 employment types.
- X. Kern COG Modeling Activity Report – Information.**
 - CTC Draft Statewide Transportation System Needs Assessment.
 - Sensitivity model runs to improve VMT – optimal employment/housing ratio
 - PM10 and PM2.5 hot spot analysis for City of Bakersfield.
- XI. Other Business/Schedule Next Meeting:**

Caltrans provides free transportation classes and locals are encouraged to take advantage of. They should contact their Caltrans contact or Randy Treece.

New meeting: Wed., December 14, 2011 9:00 AM at Kern COG

- XII. Adjournment**

KERN COUNCIL OF GOVERNMENTS
REGIONAL PLANNING ADVISORY COMMITTEE

KERN COG CONFERENCE ROOM
1401 19TH STREET, THIRD FLOOR
BAKERSFIELD, CALIFORNIA

WEDNESDAY
November 2, 2011
1:30 P.M.

Chairman Clausen called the meeting to order at approximately 1:30 P.M.

I. ROLL CALL

MEMBERS PRESENT:

Jeff Sorensen	Caltrans
Mike McCabe	Delano
Wayne Clausen	City of Shafter
Paul Gorte	City of Taft
David James	City of Tehachapi
Lorelei Oviatt	County of Kern
Rebecca Moore	LAFCO (non-voting)
Dennis McNamara	City of McFarland

STAFF:

Becky Napier	Kern COG
Rob Ball	Kern COG
Troy Hightower	Kern COG
Rochelle Invina	Kern COG
Linda Urata	Kern COG

OTHER:

Jeff Caton	ESA
Poonam Boparai	ESA
Patty Poire	Western Properties
Craig Murphey	County of Kern

- II. PUBLIC COMMENTS:** This portion of the meeting is reserved for persons to address the Committee on any matter not on this agenda but under the jurisdiction of the Committee. Committee members may respond briefly to statements made or questions posed. They may ask a question for clarification; make a referral to staff for information or request staff to report to the Committee at a later meeting. **SPEAKERS ARE LIMITED TO TWO MINUTES. PLEASE STATE YOUR NAME AND ADDRESS FOR THE RECORD PRIOR TO MAKING A PRESENTATION.**

None

III. APPROVAL OF DISCUSSION SUMMARIES

- a. Meeting of October 5, 2011

Mr. James made a motion to approve the Discussion Summary of October 5, 2011, seconded by Mr. McNamara, motion carried.

IV. ENERGY ACTION PLAN WORK GROUP (Urata)

Ms. Urata stated that Environmental Science Associates (ESA) and KEMA Services Inc. would provide an overview of the Kern Region Energy Action Plans program. Mr. Jeff Caton and Poonam Boparai gave a brief presentation of the Kern Region Energy Action Plans program.

The item was received and filed.

V. Regional Planning Advisory Committee Bylaws Amendment (Napier)

Ms. Napier stated at the October 5th meeting they discussed adding one permanent ex-officio non-voting member for the Kern Economic Development Corporation. She noted that she made the change in the By-Laws.

Ms. Oviatt stated that she would like add to the By-laws a quorum by necessity which would continue the item to the next meeting. Paul Gorte discussed having the ex-officio members to be voting members.

Ms. Napier stated that she would like to talk to the attorney before changing the By-laws.

Mr. Gorte made a motion to recommend to the Kern COG Board that the RPAC By-Laws be amended to add one permanent ex-officio non-voting member for the Kern Economic Development Corporation, seconded by Ms. Oviatt , motion carried.

VI. FY 2012-2013 Overall Work Program (Napier)

Ms. Napier stated that to be considered for inclusion in the 2012-2013 Overall Work Program, transportation related studies requested by local, state, and federal agencies that address regional issues are due by December 15, 2011. She stated that the funding available varies from year to year and averages \$30,000.

The item was received and filed.

VII. Summary of SB-375 Information Sharing (Napier)

Ms. Napier stated that the eight MPO Boards gave concurrence to go forward on a voluntary basis and look at how the updates on the target setting and the SCS strategy could benefit Kern COG. A summary of status of individual MPO Board actions related to assessing SB 375 updated targets, ARB SANDAG Meeting, and ARB Review Methodology comments were provided in the Staff Report.

The item was received and filed.

VIII. Draft SB 375 Modeling Methodology Documentation (Hightower)

Ms. Invina stated that she would be presenting Mr. Hightower's item because he was out of the office. She stated that SB375 requires MPO's and the State to perform new levels of land use and transportation modeling to support the development of the SCS, which are now required for the RTP's. Kern COG will be required to develop an SCS for the 2013/14 RTP that meets the target of reducing emissions of 5% by 2020 and 10% by 2035. The targets are planned for review by ARB in 2012. She explained that the Land Use Model is a tool to assist in the development of the targets. In addition SB375 requires that the modeling methodology used to prepare the SCS be documented. She noted the draft methodology documentation was attached to the Staff Report.

Ms. Invina stated that Kern COG has adopted the same methodology used in the Blueprint process for Land Use Modeling based on the UPlan Modeling Software. They are still in the process of validating the software.

The Modeling Methodology was discussed at great length by the Committee.

The Action requested was to review the draft documentation and submit comments prior to November 30, 2011.

IX. Draft SB 375 Sustainable Communities Strategy Framework (Napier)

Ms. Napier stated that the Framework has been worked on by the City of Shafter, City of McFarland, County of Kern and Kern COG. Ms. Napier noted she has created a combined document, she provided to the Committee for review and comment.

The Framework was discussed and reviewed in great length by the Committee.

There was no Action taken. The Committee agreed to continue to work on the Framework and put it on the agenda for the November 30 meeting. The Committee also agreed to have the first of four project selection process update workshops starting November 30th at 10 A.M.

X. DISCUSSION SUMMARIES/MEETING UPDATES:

- a. Transportation Technical Advisory Committee (TTAC) Meeting Notes of October 5, 2011 were provided to the Committee for their review.

XI. INFORMATION ITEMS/ANNOUNCEMENTS

Ms. Napier announced that the Proposition 84 circuit planner consultant has been selected for the cities under 50,000 in the eight counties. The consultant is URS and the circuit planners for Kern Tulare and Kings will be Karl Schoettler and Greg Collins. Ms. Napier thanked Mr. Gorte for participating in the selection process.

XII. MEMBER ITEMS

There were none

XIII. ADJOURNMENT

The next meeting will be November 30, 2011 at 1:30 P.M. With no further business, the meeting was adjourned at 4:02 p.m.

KERN COUNCIL OF GOVERNMENTS
REGIONAL PLANNING ADVISORY COMMITTEE

KERN COG CONFERENCE ROOM
1401 19TH STREET, THIRD FLOOR
BAKERSFIELD, CALIFORNIA

WEDNESDAY
NOV. 30, 2011
1:30 P.M.

Ms. Napier called the meeting to order at approximately 1:35 P.M.

I. ROLL CALL

MEMBERS PRESENT:

Paul Hellman	City of Bakersfield
Michael Bevins	City of California City
Dennis McNamara	City of McFarland
Wayne Clausen	City of Shafter
Paul Gorte	City of Taft
David James	City of Tehachapi (phone)
Craig Murphy	County of Kern
Jeff Sorensen	Caltrans (phone)
Karen King	GET
Rebecca Moore	LAFCO (non-voting)

STAFF:

Becky Napier	Kern COG
Rob Ball	Kern COG

OTHER:

Charles Felix	CA Rural Legal Assistance
Rub Renteria	CA Rural Legal Assistance
Patty Poire	Western Properties

- II. PUBLIC COMMENTS:** This portion of the meeting is reserved for persons to address the Committee on any matter not on this agenda but under the jurisdiction of the Committee. Committee members may respond briefly to statements made or questions posed. They may ask a question for clarification; make a referral to staff for information or request staff to report to the Committee at a later meeting. **SPEAKERS ARE LIMITED TO TWO MINUTES. PLEASE STATE YOUR NAME AND ADDRESS FOR THE RECORD PRIOR TO MAKING A PRESENTATION.**

None

- III. APPROVAL OF DISCUSSION SUMMARY:** Meeting of Wednesday, November 2, 2011.

Mr. Bevins made a motion to approve the minutes of November 2, 2011, seconded by Mr. McNamara, motion carried.

- IV. DRAFT SB 375 SUSTAINABLE COMMUNITIES STRATEGY FRAMEWORK:**

Ms. Napier presented the item and turned the meeting over to the Chairman. The Chairman proceeded through the Framework item by item and members of the RPAC made revisions.

After lengthy discussion Kern County Representative, Murphy made a motion to approve the SB 375 Sustainable Communities Strategy Framework as amended, seconded by McFarland

Representative, McNamara, motion carried unanimously. Due to meeting length, California City Representative, Bevins, and Tehachapi Representative, James, were not present for the vote

V. DISCUSSION SUMMARIES/MEETING UPDATES:

Meeting notes of the November 2, 2011, Transportation Technical Advisory Committee were provided to the Committee.

VI. MEMBER ITEMS

Mr. Ball stated that on January 4th, the consultant for the SCS outreach will introduce to the RPAC their plan for the workshops. He went on to explain that they are expecting the RPAC to be the primary lead on the message and the information that will be put out to the public.

SACOG released their draft SCS.

Mr. Ball suggested that the Committee consider releasing a preliminary SCS, RTP. It would allow staff feedback as they develop the SCS and RTP.

VII. ADJOURNMENT

The next meeting will be January 4, 2012 at 1:30 P.M. With no further business, the meeting was adjourned at 3:50 p.m.

SB 375 FRAMEWORK

CORE VALUES

- 1) The Sustainable Community Strategy relies on the existing and planned circulation networks and land use designations for Kern County and its eleven (11) incorporated cities.
- 2) The Sustainable Communities Strategy shall not hinder the local land use authority of Kern County and its eleven (11) incorporated cities.
- 3) The Sustainable Community Strategy shall allow Kern County and its eleven (11) incorporated cities to continue the pursuit and promotion of a diversified economic base.
- 4) Kern County shall continue to discuss cooperation and coordination with the seven (7) other counties located in the Central San Joaquin Valley to develop a regional Sustainable Community Strategy that recognizes the both shared and unique characteristics of each of the eight (8) counties.

CORE ACTIONS

- 1) Identify Kern County's existing and planned transportation and circulation network as the Sustainable Communities Strategy (SCS) network.
- 2) Identify and model transportation measures with the purpose of reducing vehicle trips and vehicle miles travelled for Kern County's existing and planned transportation and circulation network to determine anticipated effectiveness.
- 3) I Include clean fuel and clean technology (Pavely) regulations when evaluating any measures that may reduce vehicle trips and vehicle miles traveled.
- 4) Use the adopted land uses that may be amended from time to time, of Kern County and its eleven (11) incorporated cities as the forecasted development patterns.
- 5) Base all models utilized by Kern COG on locally adopted general plans and identified regional economic centers. Any request to change the baseline model will require approval of the local city and/or county whichever has the appropriate authority.
- 6) Consistent with adopted General Plans, model strategic locations for new retail and employment uses to determine whether they reduce vehicle trips and vehicle miles traveled.
- 7) Allow for the flexibility to amend the adopted land use elements of Kern County and its eleven (11) incorporated cities based on market demands and market responses.
- 8) I Identify local, community oriented, alternative feasible transportation strategies such as enhancing biking and walking within established communities.
- 9) Respect the uniqueness of Kern County when the California Air Resources Board considers revising the targets.
- 10) Strive to achieve an acceptable SCS to allow for the use of CEQA streamlining by the development community.

- 11) Identify regional modeling baseline information and provide updates for the eight (8) sub-regions of Kern County to provide feedback on progress towards achieving the state targets.
- 12) Develop two types of strategies within the plan: (1) strategies that reduce emissions county-wide; and (2) strategies that reduce emissions sub-regionally.
- 13) Explore the potential of establishing modeling budgets for each sub-region of the county.

ADDENDUM TO SB 375 FRAMEWORK

The Kern County Story: Putting It into Perspective

From an overall perspective, Kern County, consisting of 8,200 square miles, the size of New Jersey, is the third largest County in California. As the crow flies, Kern County is 159 miles in length from the northwestern boundary to the southeastern boundary. The current population is 850,000 and is expected to grow by 55% percent over the next 20 years and nearly double by 2050. Although two-thirds of Kern's population lives within 1/20th of the area of the county known as Metropolitan Bakersfield, many of the economic centers require long ex-urban commutes to areas that are not conducive to urban development.

There are 11 incorporated cities within Kern County including; Delano, McFarland, Wasco, Shafter, Taft, Maricopa, Bakersfield, Arvin, Tehachapi, Ridgecrest and California City. Kern County is comprised of separate regions based on significant variations in terrain, climate, geographic and environmental factors. The regions are identified as follows:

Valley Region: The southern San Joaquin Valley below an elevation of 1,000 feet mean sea level (MSL).

Mountain Region: The westernmost and central portion of the County above the 1,000 foot MSL contour in the valley and western region of the County and west of the primary alignment of the Los Angeles Aqueduct in the eastern County, including the southernmost portion of the County.

Desert Region: The eastern section of the County east of the primary alignment of the Los Angeles Aqueduct.

Kern County has six (6) significant industry clusters:

Value-Added Agriculture is the leading employment cluster with the bulk of the State's agricultural operations concentrated throughout the Valley. The cluster builds on Kern's historic role as a leading center for crop production, particularly vegetables, nuts, citrus, dairy and cotton. The cluster also benefits from the food processing component, particularly carrot and tomato processing.

Transportation and Logistics is a fast growing industry with tremendous potential within Kern. This is a leading cluster and supports the competitiveness of the Energy and Natural Resources and Value-added Agriculture clusters through the use of warehousing and distribution services. Given Kern's location at the geographic population center of California, logistically and environmentally Kern is the best location in the state to centralize distribution services to the rest of the state with the lowest carbon footprint. Kern also serves as the immediate northern gateway to Los Angeles County. With California's two major north south interstates running through the County as well as the only year-round pass over the Sierra Nevada Mountain

Range in the San Joaquin Valley, it is a natural place for growth in transportation and logistics. Kern has become the location for major distribution centers.

Energy and Natural Resources production is the cornerstone and foundation of Kern County. Historically oil production has driven energy development. Kern County is the top oil producing county in California. This county alone produces 76% of California's total oil. If Kern County were a state, it would be the third largest oil producing state in the U.S., behind Alaska and Texas. Kern County has four (4) giant oil fields (greater than 1 billion barrels of cumulative production) and as a whole produces _____ per day. In terms of future production, Kern County is leading the State in development and production of renewable energy.. Over 7,000 megawatts of renewable energy in the form of wind, solar, geothermal, biogas and gasification production have been permitted countywide. The County's dependence on energy and natural resource production as part of our economic structure is reflective in the fact that all ten (10) of the County's top tax payers are either oil producing and/or processing companies or renewable energy producers. For the year 2010 – 2011, these companies made up an overall assessed value of nearly twenty-eight (28) percent of all general taxes owed and paid to the County.

Aerospace and Defense remains a leading industry cluster for the County and particularly for eastern Kern County where the economy of most of the communities is dependent on the strength of the aerospace and defense industries. The County has some of the best natural assets in the western United States for continued expansion in aerospace and defense. The 2005 Base Realignment and Closure (BRAC) process resulted in the decision to consolidate naval weapons and armament research development and testing at the U.S. Naval Air Weapons Station at China Lake, resulting in a projected 1,400 new direct jobs. The potential for space tourism continues to be great, through other states are fiercely competing for this business.

Tourism, Recreation & Entertainment continues to suggest continued growth opportunities in both annual expenditures and employment. This includes the generation of tourism and visit activity from people traveling between major cities in Northern and Southern California as well as those from large metro areas in Southern California seeking a close weekend get-away destination.

Healthcare Services has been recast to reflect the vast array of services and networks in the County. Throughout the San Joaquin Valley, population growth has resulted in major increases in hospital and health care employment. In addition, the general growth in health care spending has served as the catalyst for the recent or planned expansion of several regional facilities.

Impacts of SB 375 and the Region's Local Economy

While many of the above identified industries are not unique to Kern County alone, the fact that all six (6) of these industries are located within our region sets Kern County apart from the rest of California. As identified above, the unique geographic regions and abundance of natural resources, open space, productive farmland, and available labor market have created a thriving

economic environment for Kern County. Unfortunately, there is a fundamental disconnect associated with an economic industry that cannot be located within urban areas.

While it is the intent of Kern County and the incorporated cities to meet the standards set by the State legislature in the adoption of SB 375, any Sustainable Communities Strategy prepared must: (1) reflect the uniqueness of the various industries and communities that make up Kern County; (2) identify realistic County-wide & sub-regional strategies to reduce vehicle miles traveled, where feasible; and (3) ensure that Kern County and the various incorporated cities' economic prosperity will not be adversely impacted in meeting the California Air Resources Board's greenhouse gas reduction targets for Kern County.



December 14, 2011

TO: Transportation Modeling Committee

FROM: Ron Brummett, Executive Director

By: Ben Raymond, Regional Planner II

SUBJECT: TMC AGENDA ITEM: V
CENSUS HOUSEHOLD DATA &
TAZ DATA COMPARISON - UPDATE

DESCRIPTION:

Kern COG has completed analysis of the 2010 Census data as a checkpoint of existing 2010 TAZ Forecast.

DISCUSSION:

This item was brought before the TMC on October 26, 2011; the committee asked staff to summarize and illustrate with maps how this checkpoint would affect year 2020 and 2035 forecasts.

The Census Bureau released the PL-94 171 file in March 2011. The PL-94 171 file includes data for Households, Occupied Households, and Vacant Households collected in the 2010 decennial census. Staff has performed analysis of Transportation Analysis Zone (TAZ) 2010 Forecasted Household data as it compares to Census 2010 Occupied Household data. The two primary objectives of the analysis were first to validate the Census Data, and upon validation update the TAZ 2010 data to the census data.

There are multiple steps in the analysis process to validate the Census data. The first step of the analysis was tying the block level data to the TAZ areas. The next steps were to identify TAZs which have a significant difference between census occupied households and TAZ households, of greater than 100. Then, perform analysis using aerial imagery, address points, and Kern Assessor data to determine the accuracy of the census data. 143 TAZs were analyzed. Of the 143 TAZs analyzed, 117 were determined to have census data that is more accurate than TAZ data, 11 were determined to have more accurate TAZ data and 15 were undeterminable with information available. The final phase of the analysis was checking the census blocks which overlap TAZ boundaries and reassigning household data if needed. Sixty overlapping blocks were analyzed and 34 needed household data reassigned. Attachment A includes tables summarizing this analysis.

Through the analysis two census blocks were identified as having significant errors. It was determined that the data from one of the blocks had most likely been applied to the other nearby block. This was the only significant error found and is the only proposed alteration to the Census Block data.

Over 91% of TAZs analyzed were determined to have census data that is more accurate than the 2010 TAZ forecast. It is staff's recommendation that we update 2010 Forecast to 2010 Census data as a checkpoint for Kern COG forecasts. Maps & Tables depicting the changes are included in Attachment B. As depicted in the attached maps, the census data shows more compacted growth in 2010. The Census data has shown an increase in persons per household, so while Kern COG's 2010 forecast was within 1% of the Census 2010 population, the number of households has decreased by 5%. This could be explained by the economic down turn forcing more young people to live at home longer, and unemployed persons living with family.

Forecasts adjustments should be made to reflect the 2010 Census checkpoint data. Changes to forecasts years would insure no TAZs have a decrease in households from the 2010 Census data. 327 TAZs were identified to be corrected in forecast year 2020. Over half of the TAZs identified required very minor alterations of less than 10 households each. The five TAZs requiring the largest changes are listed below, a complete summary is provided in Attachment C.

2020 Forecast corrections needed to reflect 2010 Census (5 largest changes)			
TAZ	Census 2010	2020 Forecast	Correction Needed
186	519	262	+257
179	290	31	+259
130	1059	786	+273
219	863	492	+371
1004	786	244	+542

For forecast year 2035, 221 TAZs were identified to be corrected. Again, over half of the TAZs identified required very minor alterations of less than 10 households each. The five TAZs requiring the largest changes are listed below, a complete summary is provided in Attachment C.

2035 Forecast corrections needed to reflect 2010 Census (5 largest changes)			
TAZ	Census 2010	2035 Forecast	Correction Needed
10	1457	1205	+252
179	290	31	+259
130	1059	786	+273
219	863	492	+371
1004	786	244	+542

Filling these TAZs, which were under allocated in forecast years according to the 2010 Census, would require reducing growth to other TAZs. Applying the reduction to all TAZs that show growth in forecast years allows each TAZ to absorb the reduction in proportion to the growth forecasted. This would require 3% of households to be redistributed for 2020 and less than 1% redistributed for 2035. The maps included in Attachment D depict the changes required for forecast years 2020 and 2035.

ACTION: Approve the forecast household data redistribution to incorporate the 2010 Census.

ATTACHMENT A: Data Analysis

143 TAZs Analyzed

TAZ	HHLD_TAZ	HHLD_Census	Cen_HousingUnits	Cen_Vacant	TAZ(-)CenHHLDs	CenError	Error Description	Note
747	1981.34	625	856	231	1356	1	Census Correct	
673	2154.28	1271	1994	723	883	1	Census Correct	1970 units counted
672	811.19	317	796	479	494	1	Census Correct	799 units counted
633	1223.52	741	1545	804	483	4	Neither Correct	1470 units counts
1335	479.76	0	0	0	480	1	Census Correct	
1686	431.52	1	1	0	431	1	Census Correct	
710	1156.90	800	999	199	357	1	Census Correct	1149 units counted
639	1187.98	863	1171	308	325	1	Census Correct	1251 units counted
50	273.30	0	0	0	273	1	Census Correct	
1459	574.98	311	321	10	264	4	Neither Correct	508 units
632	580.62	320	635	315	261	1	Census Correct	702 units counted; hVRate
705	585.03	329	561	232	256	1	Census Correct	546 units counted
1049	2360.33	2124	2729	605	236	1	Census Correct	2766 Counted
718	913.84	679	970	291	235	1	Census Correct	967 units counted; hVRate
277	1199.95	990	1183	193	210	1	Census Correct	
1300	429.89	233	259	26	197	4	Neither Correct	346 units
754	754.33	563	826	263	191	1	Census Correct	813 units counted
589	632.75	442	615	173	191	1	Census Correct	521 units counted
904	184.98	0	0	0	185	1	Census Correct	
1359	183.57	0	0	0	184	1	Census Correct	
845	1209.81	1035	1118	83	175	1	Census Correct	892 units counted
335	704.97	532	715	183	173	1	Census Correct	
605	966.33	802	857	55	164	2	TAZ Correct	944 units counted
1355	235.70	72	75	3	164	1	Census Correct	
146	599.18	438	504	66	161	1	Census Correct	
366	691.43	531	590	59	160	2	TAZ Correct	
58	1428.94	1269	1324	55	160	4	Neither Correct	1370 units: RECHECK
960	806.45	647	797	150	159	1	Census Correct	786 units counted
413	440.59	285	315	30	156	1	Census Correct	
1380	674.97	528	664	136	147	1	Census Correct	
269	960.96	816	941	125	145	1	Census Correct	
384	744.47	600	667	67	144	1	Census Correct	509 units counted
711	1457.20	1313	1680	367	144	4	Neither Correct	1514 units counted
613	418.97	279	300	21	140	1	Census Correct	296 units counted
114	958.96	823	961	138	136	1	Census Correct	
283	644.97	511	610	99	134	1	Census Correct	
389	359.99	228	238	10	132	4	Neither Correct	300 units
1051	131.99	2	2	0	130	1	Census Correct	
276	643.97	514	607	93	130	1	Census Correct	

ATTACHMENT A: Data Analysis

143 TAZs Analyzed

TAZ	HHLD_TAZ	HHLD_Census	Cen_HousingUnits	Cen_Vacant	TAZ(-)CenHHLDs	CenError	Error Description	Note
961	541.96	413	456	43	129	2	TAZ Correct	580 units counted
786	268.02	142	245	103	126	1	Census Correct	265 units counted
1394	393.40	268	293	25	125	4	Neither Correct	atleast 600 units
264	948.96	824	916	92	125	1	Census Correct	
695	227.92	104	129	25	124	2	TAZ Correct	263 units
15	236.99	114	119	5	123	1	Census Correct	
972	480.55	358	443	85	123	1	Census Correct	487 Units Counted
795	121.00	0	0	0	121	1	Census Correct	
1279	338.97	221	246	25	118	1	Census Correct	
739	342.15	225	236	11	117	1	Census Correct	266 units counted
46	495.35	379	391	12	116	1	Census Correct	
65	1044.22	928	1079	112	116	1	Census Correct	CAdd 39 from64
109	1190.95	1075	1231	156	116	1	Census Correct	
415	305.18	191	199	8	114	1	Census Correct	
1490	463.98	350	377	27	114	1	Census Correct	
509	907.86	795	908	113	113	1	Census Correct	891 units counted
12	328.78	217	222	5	112	1	Census Correct	
552	872.71	761	885	124	112	1	Census Correct	869 units counted
850	165.79	55	185	130	111	1	Census Correct	157 units counted
1581	445.60	335	381	46	111	2	TAZ Correct	455 units counted
315	994.96	885	1024	139	110	1	Census Correct	
715	261.29	152	247	95	109	1	Census Correct	219 units counted
798	671.28	563	669	106	108	1	Census Correct	650 units counted
773	399.06	292	414	122	107	1	Census Correct	459 units counted
534	357.01	252	345	93	105	1	Census Correct	323 units counted
1622	111.51	8	9	1	104	1	Census Correct	
860	549.33	446	566	120	103	1	Census Correct	546 units counted
388	388.15	285	294	9	103	1	Census Correct	
712	303.20	202	348	146	101	1	Census Correct	362 units counted
1332	50.97	0	0	0	51	5	Corrected	0 units
962	1049.07	1015	1233	218	34	4	Neither Correct	1126 units counted
743	491.81	466	631	165	26	1	Census Correct	666 units counted
1446	127.92	110	113	3	18	1	Census Correct	CAdded 100; from21
554	1117.75	1102	1266	164	16	1	Census Correct	1272 units counted
375	15.04	0	238	0	15	1	Census Correct	
121	339.99	326	440	114	14	1	Census Correct	Census too many H_Units
1331	2.25	0	253	0	2	1	Census Correct	
21	1.74	0	0	0	2	5	Corrected	CMoved 100; to1446
24	326.99	331	361	30	-4	1	Census Correct	368 units; CMove128

ATTACHMENT A: Data Analysis

143 TAZs Analyzed

TAZ	HHLD_TAZ	HHLD_Census	Cen_HousingUnits	Cen_Vacant	TAZ(-)CenHHLDs	CenError	Error Description	Note
240	402.98	423	434	11	-20	1	Census Correct	CAdded128
221	742.66	764	885	121	-21	1	Census Correct	
1050	144.99	168	252	84	-23	1	Census Correct	227 units counted
772	1069.48	1096	1193	97	-27	2	TAZ Correct	1166 units counted
164	836.97	877	990	113	-40	1	Census Correct	
1620	272.73	315	402	87	-42	1	Census Correct	410 units counted
602	314.32	362	443	81	-48	1	Census Correct	412 units counted
576	425.52	479	627	148	-53	1	Census Correct	574 units counted
1128	174.99	234	281	47	-59	1	Census Correct	
1277	330.81	390	437	47	-59	1	Census Correct	
548	310.84	378	422	44	-67	1	Census Correct	423 units counted
1023	402.90	471	529	58	-68	2	TAZ Correct	
1647	655.34	724	791	67	-69	4	Neither Correct	935 units counted
611	595.11	668	709	41	-73	4	Neither Correct	782 units counted
657	275.99	350	392	42	-74	1	Census Correct	360 units counted
919	281.01	356	388	32	-75	1	Census Correct	357 units counted
952	130.17	207	231	24	-77	1	Census Correct	237 units counted
169	353.40	432	458	26	-79	1	Census Correct	
1017	197.99	280	310	30	-82	1	Census Correct	
434	565.45	649	686	37	-84	1	Census Correct	691 Counted
140	297.99	383	401	18	-85	1	Census Correct	
168	533.98	620	660	40	-86	1	Census Correct	
354	740.97	827	917	90	-86	1	Census Correct	
577	953.90	1041	1319	278	-87	1	Census Correct	1329 units counted
1613	62.29	155	172	17	-93	5	Corrected	SplitBlock 86 Counted: RE-EVAL
330	361.99	459	490	31	-97	1	Census Correct	
76	831.97	930	980	50	-98	1	Census Correct	
1392	228.01	327	364	37	-99	1	Census Correct	
1124	55.24	160	181	21	-105	1	Census Correct	
682	59.95	165	178	13	-105	1	Census Correct	
1039	24.94	130	145	15	-105	4	Neither Correct	Census Error
55	170.65	283	307	24	-112	1	Census Correct	
538	7.00	120	132	12	-113	1	Census Correct	
1487	204.59	320	344	24	-115	1	Census Correct	CBoundary <> TAZ
531	3.08	119	132	13	-116	1	Census Correct	173 units counted
1132	473.98	590	626	36	-116	1	Census Correct	
681	85.86	207	227	20	-121	1	Census Correct	
456	507.62	629	653	24	-121	1	Census Correct	700 Counted
457	506.29	630	641	11	-124	1	Census Correct	623 Counted

ATTACHMENT A: Data Analysis

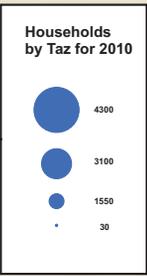
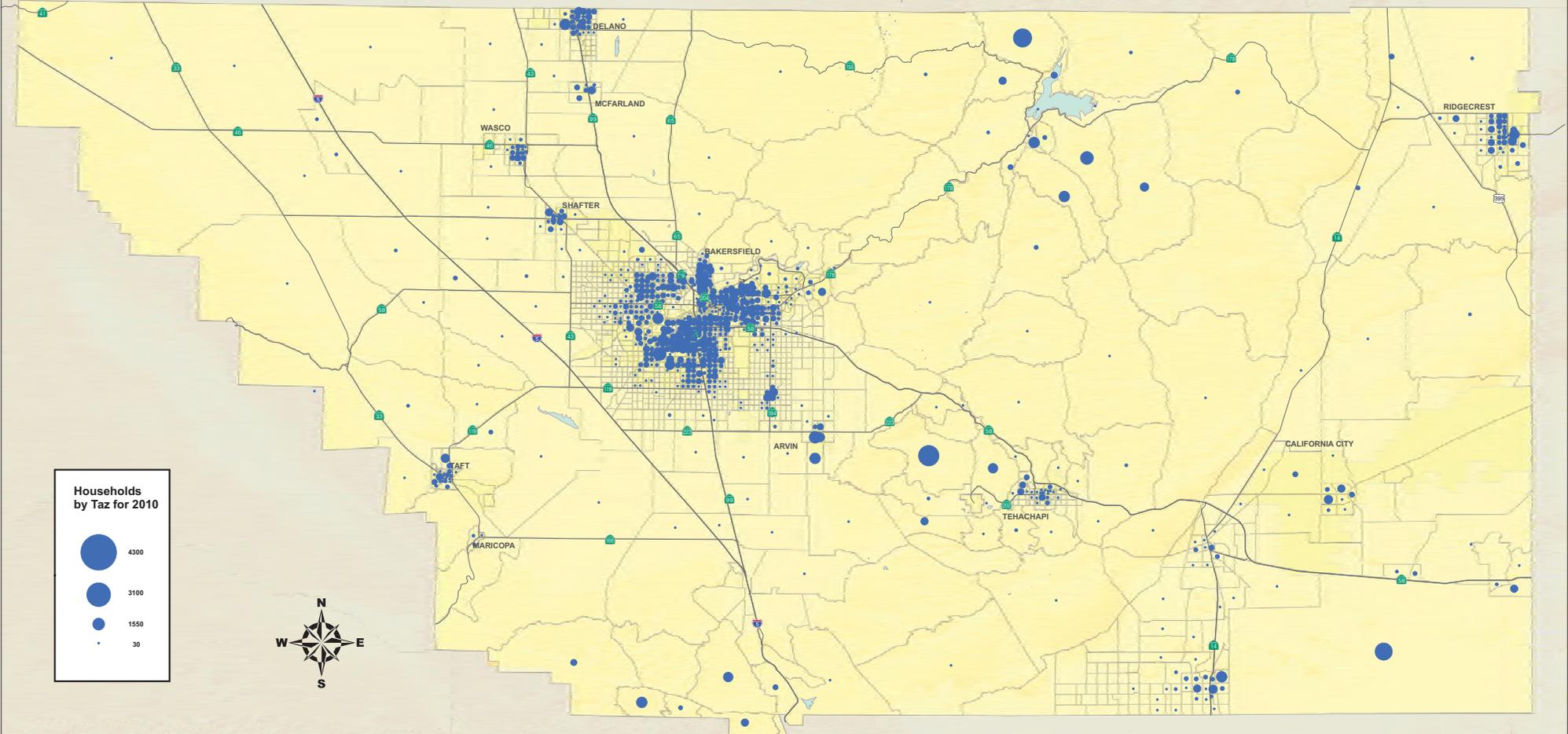
143 TAZs Analyzed

TAZ	HHLd_TAZ	HHLd_Census	Cen_HousingUnits	Cen_Vacant	TAZ(-)CenHHLds	CenError	Error Description	Note
578	731.33	861	1040	179	-130	4	Neither Correct	1102 units counted
999	388.98	520	555	35	-131	1	Census Correct	
77	980.96	1112	1181	69	-131	1	Census Correct	
244	39.79	172	188	16	-132	1	Census Correct	
521	1339.90	1473	1547	74	-133	4	Neither Correct	1493 Counted
1412	571.98	711	746	35	-139	1	Census Correct	
1135	90.36	234	261	27	-144	4	Neither Correct	200 units; 61 CMoved
166	505.98	654	693	39	-148	1	Census Correct	
341	498.98	647	699	52	-148	4	Neither Correct	573 units
301	243.99	397	466	69	-153	1	Census Correct	
138	595.98	752	793	41	-156	1	Census Correct	
134	597.90	760	812	52	-162	1	Census Correct	
495	751.93	925	1108	183	-173	1	Census Correct	1105 Counted
1486	158.63	339	345	6	-180	1	Census Correct	
546	762.83	946	1015	69	-183	1	Census Correct	1018 units counted
479	594.40	804	832	28	-210	1	Census Correct	796 Counted
1417	349.23	585	602	17	-236	1	Census Correct	
1434	382.25	622	638	16	-240	1	Census Correct	
10	1204.95	1457	1582	125	-252	1	Census Correct	
186	261.99	519	549	30	-257	1	Census Correct	
179	26.00	290	320	30	-264	1	Census Correct	
130	785.97	1059	1137	78	-273	2	TAZ Correct	
1449	296.33	596	665	69	-300	2	TAZ Correct	
1395	47.16	361	388	27	-314	2	TAZ Correct	
219	491.98	862	970	108	-370	1	Census Correct	
1004	243.99	786	947	161	-542	4	Neither Correct	690 units

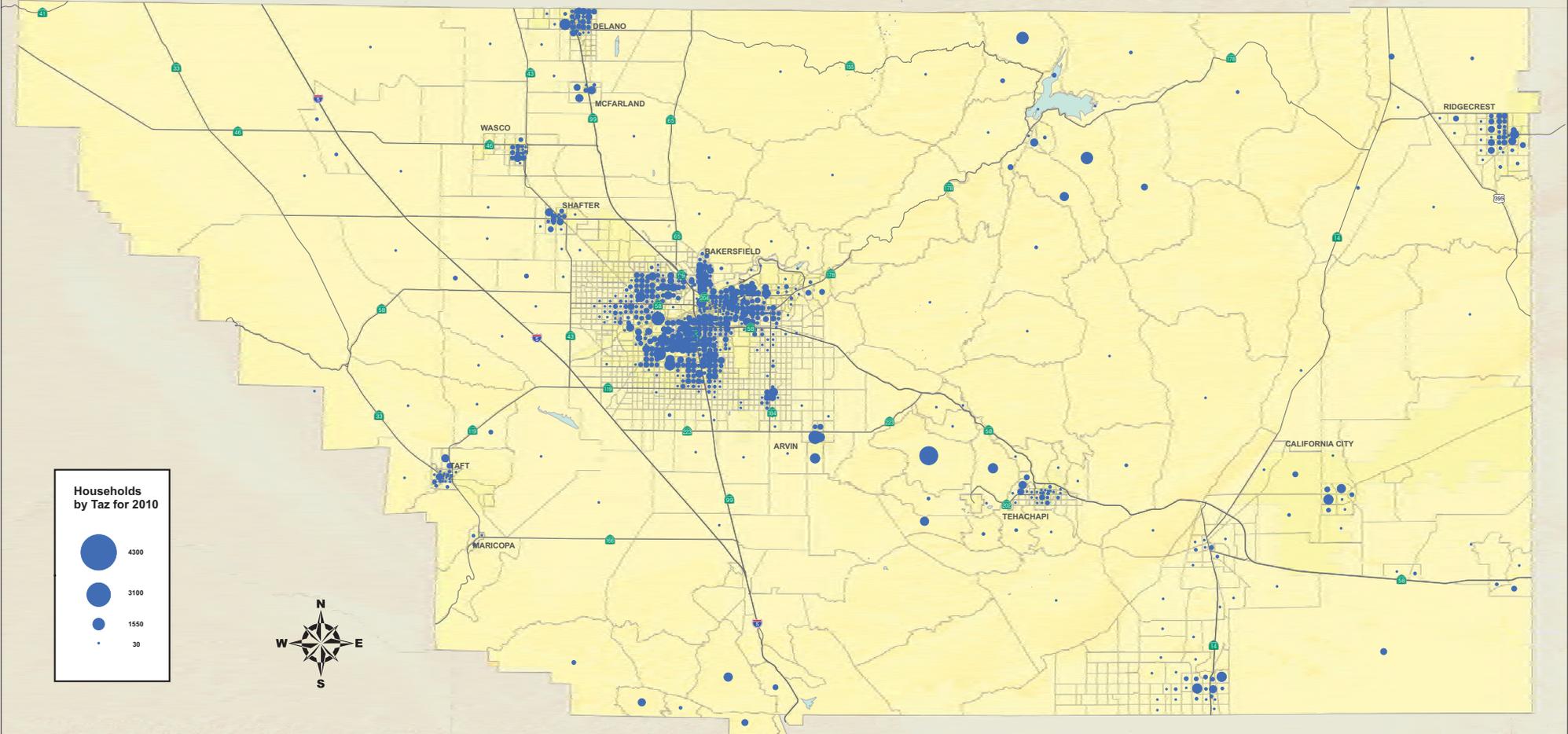
ATTACHMENT A: Data Analysis
34 Census Block/TAZ Overlapping Boundary Corrections

TAZ_from	TAZ_to	Census HUnits Moved	Census Occupied Moved	Status
21	1446	100	98	Fixed
24	240	128	128	Fixed
48	52	15	14	Fixed
52	387	34	31	Fixed
57	259	31	31	Wash
64	65	39	39	Fixed
204	1120	41	31	Fixed
207	996	24	24	Fixed
259	57	20	20	Wash
379	1351	66	62	Fixed
379	1353	18	16	Fixed
397	1188	67	38	Fixed
496	1581	70	70	Fixed
540	532	26	26	Fixed
585	431	90	90	Fixed
614	603	22	10	Undeterminable
679	992	47	47	Fixed
962	961	127	111	Fixed
992	680	59	59	Fixed
1064	1065	29	29	Fixed
1125	1124	33	29	Fixed
1135	136	31	26	Fixed
1135	1136	30	25	Fixed
1142	129	77	77	Fixed
1187	399	33	23	Fixed
1272	1273	28	26	Fixed
1278	1279	39	39	Fixed
1296	384	104	104	Fixed
1332	375	238	208	Fixed
1332	1331	253	222	Fixed
1039	1396	NotMoved: 145	NotMoved: 130	CensusError
1411	1410	25	25	Fixed
1434	389	56	56	Fixed
1435	388	94	94	Fixed
1448	7	26	26	Fixed
1613	695	119	109	Fixed
1649	702	30	30	Fixed
1355	378	35	35	Fixed

2010 Existing Forecast Households



2010 Census Updated Households

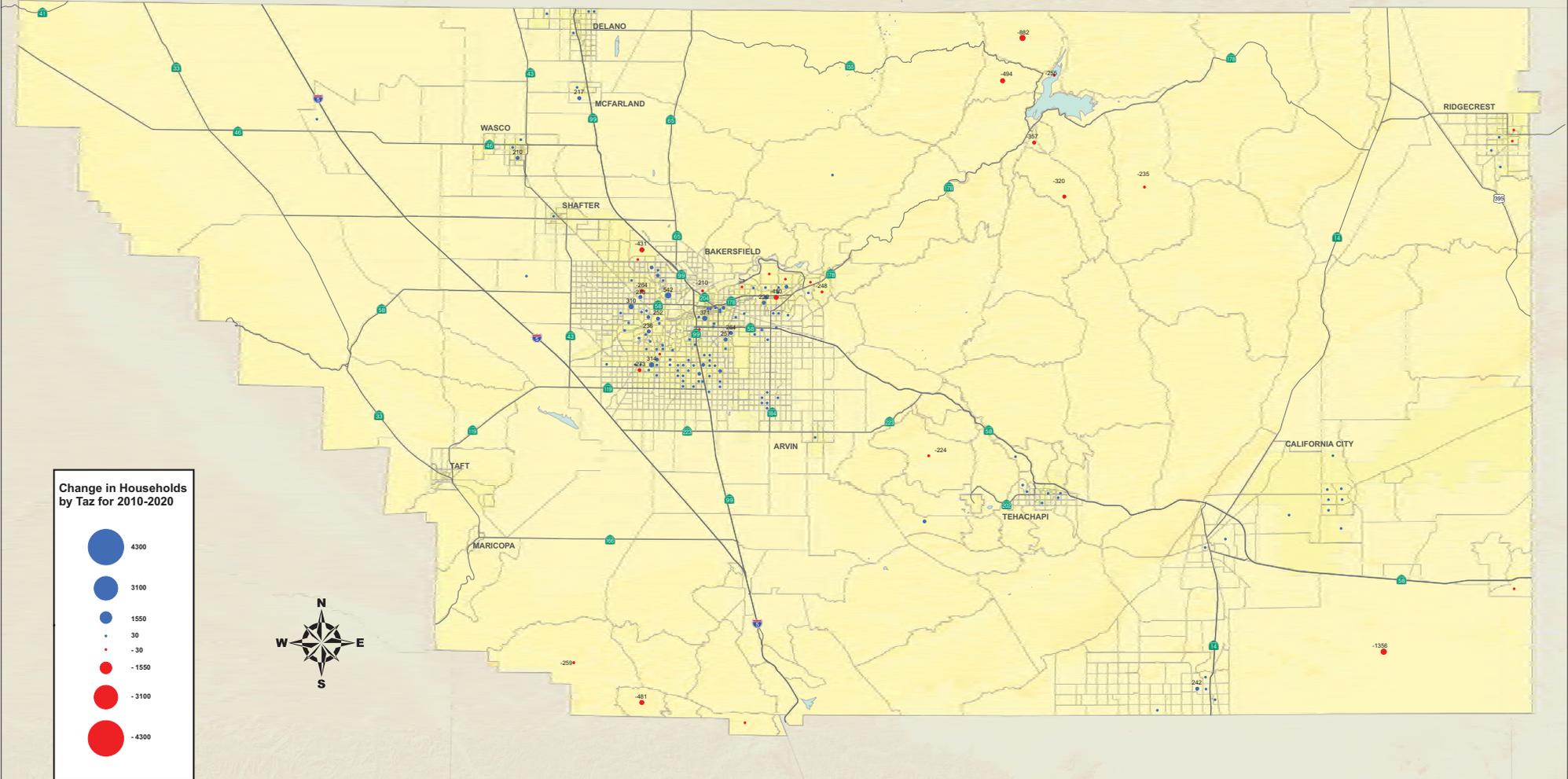


**Households
by Taz for 2010**

- 4300
- 3100
- 1550
- 30



2010 Forecast to 2010 Census Change in Households (Census - Forecast)



ATTACHMENT B: 2010 Forecast Adjustments

Subregion- and RSA	2010 Census Checkpoint				2010 Existing Forecast Values				Difference Between Census and 2010 Forecast (Census - Forecast)	
	Total Population	Household Population	Group Quarters	Number of Households	Total Population	Household Population	Group Quarters	Number of Households	Total Population	Number of Households
Westside Kern	21,884	18,767	3,117	6,189	19,659	18,873	785	7,206	2,226	(1,017)
Greater Taft/Maricopa	21,884	18,767	3,117	6,189	19,659	18,873	785	7,206	2,226	(1,017)
Delano_McFarland	69,114	56,902	12,213	13,712	62,942	54,706	8,236	14,039	6,172	(328)
Greater Delano/McFarland	69,114	56,902	12,213	13,712	62,942	54,706	8,236	14,039	6,172	(328)
Wasco	29,981	24,221	5,759	6,087	29,904	22,478	7,426	6,165	77	(78)
Greater Wasco	29,981	24,221	5,759	6,087	29,904	22,478	7,426	6,165	77	(78)
Tehachapi_Frazier	45,242	39,240	6,002	15,098	45,744	37,344	8,400	16,350	(502)	(1,252)
Greater Frazier Park	8,577	8,577	-	3,484	8,517	8,500	17	4,588	60	(1,104)
Greater Tehachapi	36,665	30,663	6,002	11,614	37,227	28,844	8,383	11,762	(562)	(148)
Metro	583,457	576,686	6,770	179,180	587,128	577,684	9,444	185,055	(3,672)	(5,875)
Greater Arvin	20,698	20,347	351	4,596	21,931	21,799	132	4,975	(1,233)	(379)
Greater Shafter	25,933	23,660	2,274	6,212	31,737	28,094	3,642	7,110	(5,803)	(898)
Metro - Central	20,769	20,369	400	8,248	21,181	19,822	1,360	8,462	(413)	(214)
Metro - N.O.R.	129,183	128,800	384	44,451	137,849	137,483	366	46,464	(8,666)	(2,013)
Metro - Northeast	97,970	96,707	1,263	29,451	103,184	101,267	1,918	31,939	(5,214)	(2,488)
Metro - Southeast	142,696	141,596	1,101	37,484	127,543	126,767	776	37,053	15,153	431
Metro - Southwest	146,207	145,208	999	48,739	143,703	142,454	1,249	49,052	2,504	(314)
Southeast Kern	44,412	41,544	2,868	14,625	46,777	43,339	3,439	16,381	(2,366)	(1,756)
Greater Cal City/Mojave	22,753	20,121	2,632	7,307	22,021	18,586	3,435	7,959	732	(652)
Greater Rosamond	21,658	21,423	236	7,318	24,756	24,753	3	8,422	(3,098)	(1,104)
Lake Isabella	16,500	16,423	78	7,634	16,945	16,630	314	10,951	(445)	(3,316)
Greater Lake Isabella	16,500	16,423	78	7,634	16,945	16,630	314	10,951	(445)	(3,316)
Indian Wells	35,011	34,817	193	13,775	36,501	36,145	356	15,180	(1,490)	(1,406)
Greater Ridgecrest	35,011	34,817	193	13,775	36,501	36,145	356	15,180	(1,490)	(1,406)
Grand Total	845,600	808,600	37,000	256,300	845,600	807,200	38,400	271,327	0	(15,027)

ATTACHMENT C
2020 Forecast vs 2010 Census Data

TAZ	CENSUS	2020FORECAST	DIFFERENCE
1	5	4	1
7	278	252	26
10	1457	1205	252
18	295	295	0
24	331	327	4
25	712	684	28
30	775	764	11
37	1	0	1
44	131	101	30
54	1	0	1
55	340	244	97
59	358	295	63
61	391	324	67
75	557	512	45
76	930	832	98
77	1112	981	131
79	362	309	54
82	6	4	2
90	151	144	7
92	57	0	57
95	479	461	18
105	7	2	5
119	416	405	11
120	437	392	45
126	423	370	53
130	1059	786	273
131	639	577	62
136	524	467	57
138	752	596	156
139	698	686	12
140	383	298	85
144	31	28	3
164	877	837	40
166	654	506	148
167	459	433	26
168	620	534	86
169	437	377	61
177	287	282	5
178	175	175	0
179	290	31	259
181	136	112	24
184	4	3	1
186	519	262	257
190	12	8	4
193	1	1	0
196	12	0	12

TAZ	CENSUS	2020FORECAST	DIFFERENCE
198	11	9	2
200	2	0	2
202	4	0	4
208	42	18	24
209	26	19	7
210	64	9	55
215	118	75	43
218	405	370	35
219	863	492	371
223	1	1	0
234	67	62	5
238	48	0	48
240	423	403	20
244	175	101	74
249	23	11	12
250	16	3	13
257	642	639	3
259	434	429	5
280	1	1	0
292	77	75	2
297	43	23	20
298	75	37	38
299	64	13	51
301	397	284	113
313	180	173	7
330	459	362	97
331	513	488	25
333	340	338	2
341	647	499	148
352	500	485	15
354	828	741	87
375	209	64	145
381	1	1	0
383	9	1	8
399	39	14	25
400	3	3	0
407	17	17	0
409	3	1	2
417	1	1	0
430	49	6	43
451	559	534	25
456	725	585	140
457	630	599	31
463	83	57	26
470	179	172	7
478	27	22	5

ATTACHMENT C
2020 Forecast vs 2010 Census Data

TAZ	CENSUS	2020FORECAST	DIFFERENCE
479	804	607	197
483	477	466	12
495	934	908	26
521	1474	1358	116
531	119	19	100
537	168	155	13
538	120	7	113
545	181	147	34
546	1005	874	130
549	5	3	2
551	107	37	70
556	2	1	1
565	33	0	33
566	7	0	7
578	862	852	11
579	144	102	42
582	1	1	0
601	125	110	15
602	362	315	47
611	693	653	40
622	330	311	19
634	2	0	2
641	62	50	12
643	46	32	14
650	30	27	3
657	353	276	77
661	56	19	37
677	75	22	53
680	637	628	9
681	207	133	74
682	165	161	4
683	2	0	2
685	17	14	3
693	6	1	5
697	2	1	1
697	2	1	1
699	2	0	2
700	2	0	2
707	149	113	36
708	94	91	3
717	92	85	7
722	131	123	8
723	30	29	1
725	45	41	4
737	32	27	5
745	160	150	10

TAZ	CENSUS	2020FORECAST	DIFFERENCE
746	17	9	8
761	11	6	5
764	17	17	0
765	6	2	4
771	57	30	27
775	119	114	5
777	99	97	2
778	274	267	7
779	11	5	6
780	30	27	3
781	70	62	8
783	57	35	22
785	39	38	1
790	501	490	11
791	1	1	0
796	3	3	0
799	9	8	1
802	31	25	6
804	32	29	3
814	3	1	2
816	2	2	0
824	35	34	1
827	22	18	4
828	24	15	9
831	2	0	2
832	39	38	1
841	270	246	24
847	14	13	1
853	3	0	3
856	4	0	4
867	28	23	5
868	11	6	5
882	319	317	2
893	4	3	1
901	364	362	2
907	6	6	0
913	12	11	1
919	356	281	75
921	28	28	0
931	16	16	0
934	15	15	0
938	54	21	33
940	9	9	0
949	40	38	2
952	207	169	38
963	2	2	0

ATTACHMENT C
2020 Forecast vs 2010 Census Data

TAZ	CENSUS	2020FORECAST	DIFFERENCE
970	126	88	38
977	5	3	2
980	1	1	0
988	6	0	6
993	1	1	0
995	4	4	0
998	21	0	21
999	520	389	131
1004	786	244	542
1005	619	619	0
1012	8	5	3
1017	280	198	82
1031	208	199	9
1041	488	461	27
1044	365	304	61
1045	582	577	5
1050	173	145	28
1053	13	0	13
1059	3	1	2
1060	19	2	17
1063	1	1	0
1066	7	5	2
1080	1	0	1
1091	20	19	1
1093	15	0	15
1095	1	0	1
1103	20	19	1
1105	5	4	1
1109	4	0	4
1111	9	3	6
1115	10	9	1
1118	12	10	2
1119	2	0	2
1121	98	74	24
1124	234	97	137
1128	234	175	59
1132	590	474	116
1135	215	113	102
1136	26	23	3
1146	544	479	65
1157	4	4	0
1159	49	1	48
1166	77	65	12
1168	242	207	35
1172	5	0	5
1174	1	1	0

TAZ	CENSUS	2020FORECAST	DIFFERENCE
1184	6	0	6
1190	2	0	2
1195	12	12	0
1213	2	1	1
1228	1	1	0
1232	2	1	1
1242	56	42	14
1246	5	2	3
1247	11	0	11
1248	23	13	10
1250	1	0	1
1253	3	0	3
1268	1	1	0
1269	2	1	1
1272	1	1	0
1273	90	65	25
1275	1	0	1
1276	419	381	38
1278	92	81	11
1283	9	6	3
1285	69	21	48
1286	1	1	0
1292	2	1	1
1296	472	472	0
1304	8	7	1
1315	154	149	5
1317	319	293	26
1324	401	341	60
1325	355	320	35
1329	189	176	13
1331	222	28	194
1347	61	36	25
1365	14	12	2
1372	564	551	13
1375	11	10	1
1376	22	0	22
1377	2	0	2
1382	161	144	17
1391	1	1	0
1392	343	328	15
1395	361	170	191
1396	80	14	66
1397	334	325	10
1406	400	329	71
1412	711	572	139
1413	442	428	14

ATTACHMENT C
2020 Forecast vs 2010 Census Data

TAZ	CENSUS	2020FORECAST	DIFFERENCE
1417	585	366	219
1433	85	69	16
1434	566	389	177
1436	408	365	43
1449	607	351	256
1452	234	178	56
1456	10	1	9
1474	169	75	94
1475	116	105	11
1486	339	162	177
1487	324	248	76
1498	2	2	0
1499	1	1	0
1500	3	2	1
1504	412	410	2
1506	166	154	12
1511	31	22	9
1513	31	30	0
1514	23	22	1
1525	3	0	3
1540	2	0	2
1541	5	0	5
1548	7	1	6
1570	5	1	4
1577	16	11	5
1585	1	0	1
1591	1	0	1
1595	12	7	5
1599	3	0	3
1600	4	2	2
1607	11	11	0
1610	145	91	54
1617	109	96	13
1620	318	310	7
1630	35	29	6
1633	19	18	1
1635	11	0	11
1640	22	14	8
1641	13	3	10
1644	4	1	3
1645	1	0	1
1649	122	104	18
1651	89	72	17
1656	17	14	3
1661	3	2	1
1668	10	6	4

TAZ	CENSUS	2020FORECAST	DIFFERENCE
1669	23	19	4
1678	7	5	2
1687	11	7	4
1689	10	7	3
1691	3	3	0

ATTACHMENT C
2035 Forecast vs 2010 Census Data

TAZ	CENSUS	2020FORECAST	DIFFERENCE
1	5.00	4.00	1.00
7	278.00	251.99	26.01
10	1457.00	1204.95	252.05
18	295.00	294.99	0.01
24	331.00	326.99	4.01
25	712.00	683.97	28.03
30	775.00	763.97	11.03
37	1.00	0.00	1.00
54	1.00	0.00	1.00
59	358.00	294.99	63.01
61	391.00	323.99	67.01
75	557.33	511.98	45.35
76	930.00	831.97	98.03
77	1112.00	980.96	131.04
82	6.00	4.00	2.00
90	151.00	143.99	7.01
92	57.00	0.00	57.00
95	479.00	460.98	18.02
105	7.00	2.00	5.00
119	416.00	404.98	11.02
120	437.00	391.98	45.02
126	423.00	369.98	53.02
130	1059.00	785.97	273.03
131	639.00	576.98	62.02
136	523.66	467.03	56.63
138	752.00	595.98	156.02
139	698.00	685.97	12.03
140	383.00	297.99	85.01
144	31.00	28.00	3.00
164	877.00	836.97	40.03
166	654.00	505.98	148.02
167	459.00	432.98	26.02
168	620.00	533.98	86.02
169	437.33	407.05	30.28
177	287.00	281.99	5.01
179	290.00	31.46	258.54
181	136.00	112.00	24.00
184	4.00	3.00	1.00
186	519.00	312.95	206.05
193	1.00	1.00	0.00
196	12.00	0.34	11.66
198	11.00	9.00	2.00
200	2.00	0.00	2.00
202	4.00	0.00	4.00
208	42.00	18.00	24.00
209	26.00	19.00	7.00

TAZ	CENSUS	2020FORECAST	DIFFERENCE
210	64.00	9.00	55.00
215	118.00	75.12	42.88
218	405.00	369.98	35.02
219	863.33	491.98	371.35
223	1.00	1.00	0.00
234	67.00	62.00	5.00
238	48.00	0.00	48.00
240	423.00	402.98	20.02
244	174.66	123.00	51.66
249	23.00	11.00	12.00
250	16.00	3.00	13.00
257	641.99	638.97	3.02
259	434.00	428.98	5.02
280	1.00	1.00	0.00
292	77.00	75.28	1.72
297	43.00	23.00	20.00
298	75.00	37.00	38.00
299	64.00	13.91	50.09
313	180.00	173.10	6.90
330	459.00	361.99	97.01
331	513.00	487.98	25.02
333	340.00	337.99	2.01
341	647.00	498.98	148.02
354	828.33	740.97	87.36
381	1.00	1.00	0.00
383	9.00	1.00	8.00
400	3.00	3.00	0.00
407	17.00	17.00	0.00
409	3.00	1.87	1.13
417	1.00	1.00	0.00
430	49.00	6.00	43.00
456	724.88	698.29	26.59
463	83.00	70.40	12.60
470	179.00	172.19	6.81
479	804.00	623.91	180.09
521	1474.33	1392.45	81.88
531	119.00	45.13	73.87
538	120.00	7.00	113.00
551	107.00	58.58	48.42
565	33.00	0.52	32.48
566	7.00	0.36	6.64
601	124.98	119.68	5.30
602	362.00	314.70	47.30
611	693.30	688.29	5.01
622	330.00	310.99	19.01
634	2.00	0.27	1.73

ATTACHMENT C
2035 Forecast vs 2010 Census Data

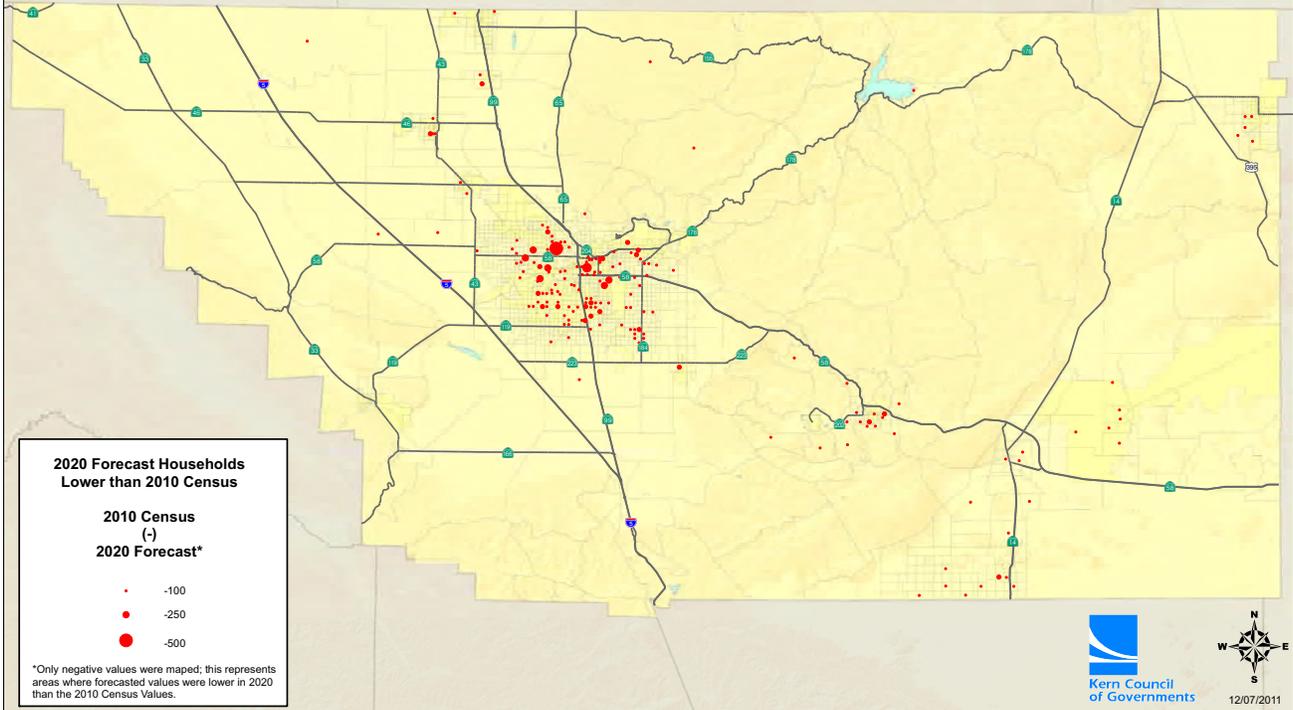
TAZ	CENSUS	2020FORECAST	DIFFERENCE
643	46.00	38.55	7.45
650	30.00	27.64	2.36
657	352.66	275.99	76.67
661	56.00	23.97	32.03
677	75.00	22.00	53.00
680	637.00	627.97	9.03
683	2.00	0.42	1.58
685	17.00	14.00	3.00
693	6.00	1.47	4.53
699	2.00	0.18	1.82
707	149.00	125.42	23.58
746	17.00	15.80	1.20
764	17.00	17.00	0.00
765	6.00	2.00	4.00
783	56.66	48.13	8.53
790	501.00	489.98	11.02
796	3.00	3.00	0.00
799	9.00	8.00	1.00
802	31.00	25.00	6.00
804	32.00	29.00	3.00
814	3.00	1.00	2.00
827	22.00	19.49	2.51
828	24.00	22.00	2.00
832	39.00	38.35	0.65
847	14.00	13.00	1.00
853	3.00	0.37	2.63
856	4.00	0.35	3.65
868	11.00	6.00	5.00
893	4.00	3.14	0.86
907	6.00	6.00	0.00
913	12.00	11.23	0.77
919	356.00	281.22	74.78
921	28.00	28.00	0.00
938	54.00	24.84	29.16
970	126.00	103.45	22.55
980	1.00	1.00	0.00
988	6.00	0.44	5.56
993	1.00	1.00	0.00
995	4.00	4.00	0.00
998	21.00	0.28	20.72
999	520.00	388.98	131.02
1004	786.00	243.99	542.01
1005	619.00	618.97	0.03
1012	8.00	5.00	3.00
1017	280.00	197.99	82.01
1031	208.00	204.06	3.94

TAZ	CENSUS	2020FORECAST	DIFFERENCE
1041	488.00	460.98	27.02
1044	365.00	303.99	61.01
1050	173.33	144.99	28.33
1053	13.00	0.54	12.46
1059	3.00	1.00	2.00
1060	19.00	14.35	4.65
1063	1.00	1.00	0.00
1066	7.00	5.00	2.00
1080	1.00	0.18	0.82
1091	20.00	19.00	1.00
1093	15.00	0.38	14.62
1095	1.33	0.37	0.97
1105	5.00	4.00	1.00
1109	4.00	0.55	3.45
1111	9.00	5.90	3.10
1115	10.00	9.00	1.00
1118	12.00	10.00	2.00
1119	2.00	0.51	1.49
1128	234.00	174.99	59.01
1132	590.00	473.98	116.02
1146	544.00	478.98	65.02
1157	4.00	4.00	0.00
1159	49.00	0.94	48.06
1172	5.00	0.34	4.66
1174	1.00	1.00	0.00
1184	6.00	0.00	6.00
1190	2.00	0.32	1.68
1195	12.00	12.00	0.00
1213	2.00	1.00	1.00
1232	2.00	1.05	0.95
1242	56.00	52.39	3.61
1247	11.00	0.87	10.13
1250	1.00	0.22	0.78
1253	3.00	0.00	3.00
1268	1.00	1.00	0.00
1269	2.00	1.00	1.00
1272	1.00	1.00	0.00
1275	1.00	0.00	1.00
1276	419.00	380.98	38.02
1283	9.00	6.00	3.00
1285	69.00	21.00	48.00
1286	1.00	1.00	0.00
1292	2.33	1.04	1.29
1304	8.00	7.00	1.00
1315	154.00	148.99	5.01
1317	319.00	292.99	26.01

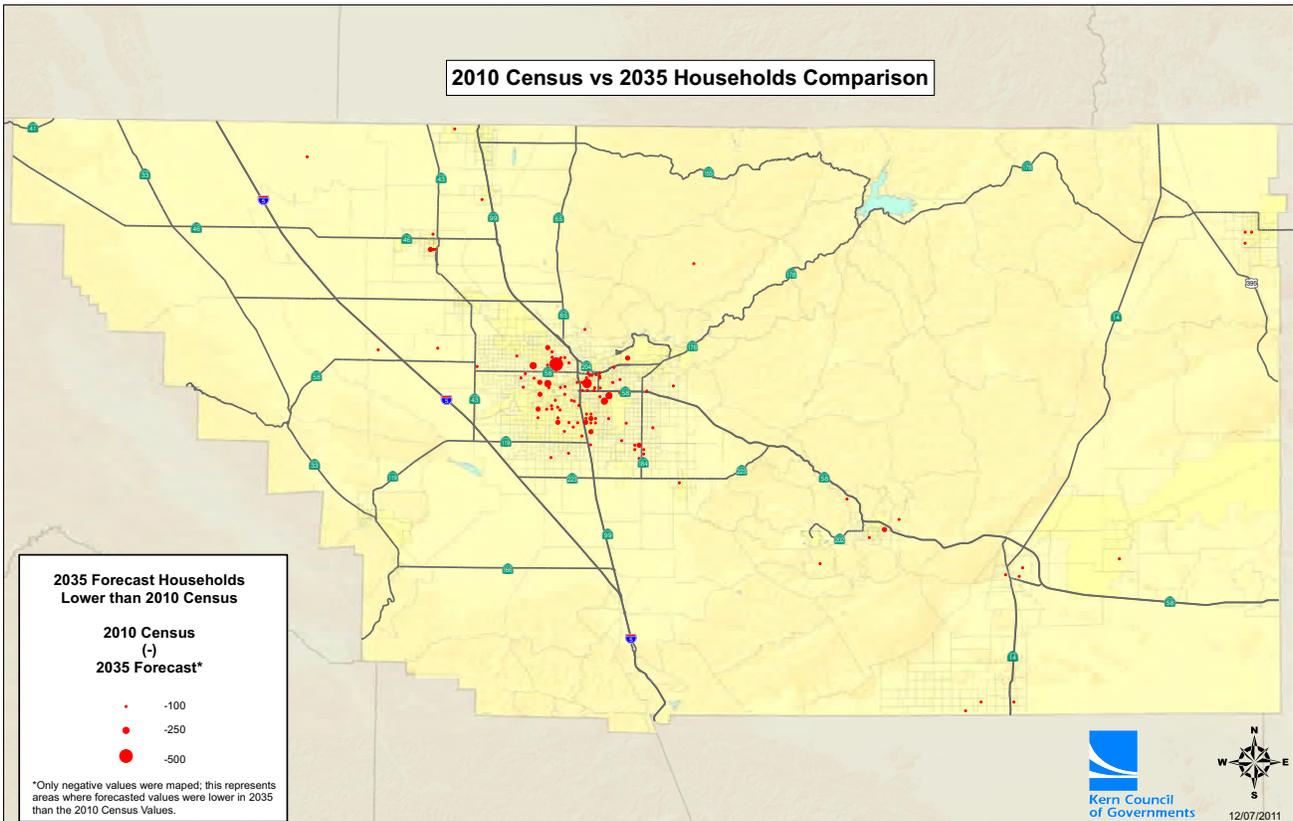
ATTACHMENT C
2035 Forecast vs 2010 Census Data

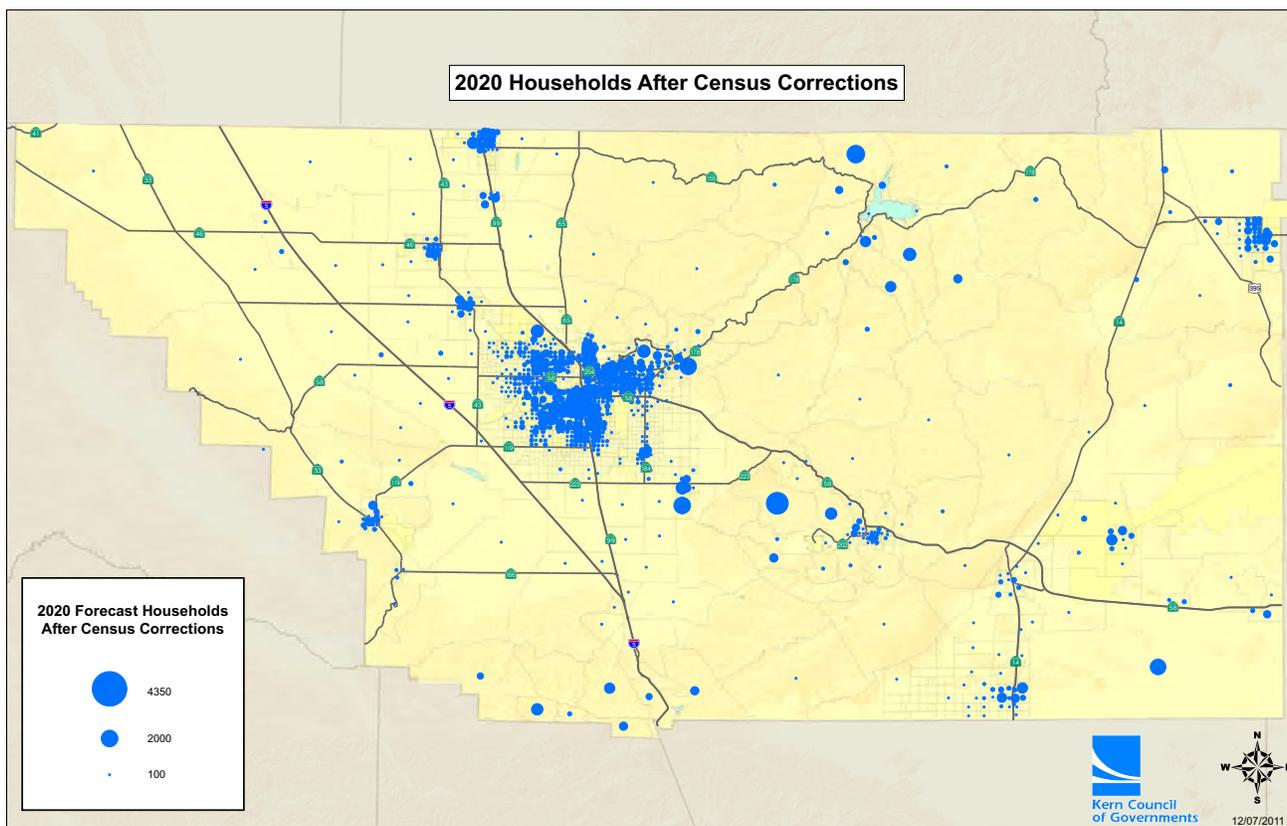
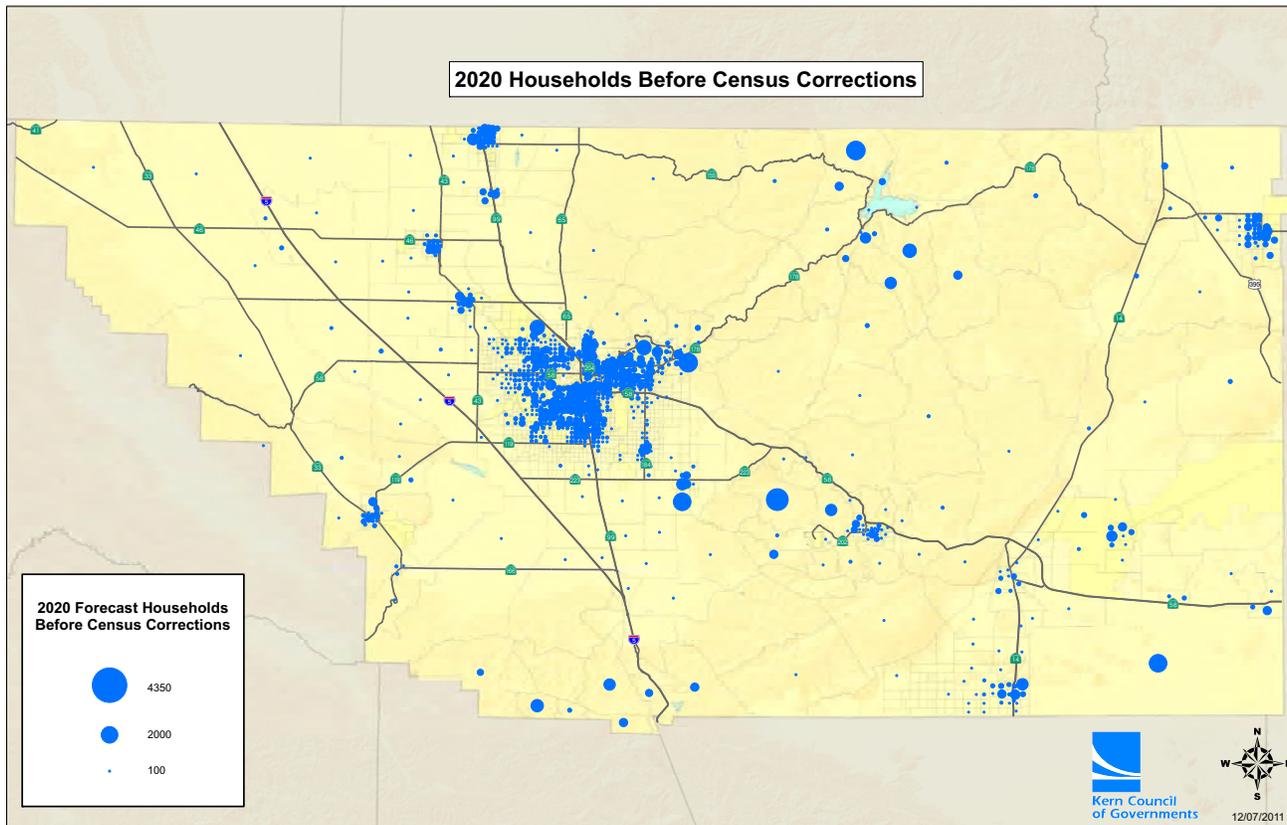
TAZ	CENSUS	2020FORECAST	DIFFERENCE
1329	189.00	187.02	1.98
1365	14.33	12.00	2.33
1372	564.00	550.98	13.02
1375	11.00	10.00	1.00
1376	22.00	0.00	22.00
1377	2.00	0.00	2.00
1382	161.00	143.99	17.01
1391	1.00	1.00	0.00
1396	80.29	76.92	3.37
1406	400.00	328.99	71.01
1412	711.00	571.98	139.02
1413	441.65	437.46	4.19
1417	585.00	420.91	164.09
1434	566.00	408.81	157.19
1436	408.33	364.98	43.35
1449	606.65	511.29	95.36
1452	234.00	192.48	41.52
1456	10.33	1.00	9.33
1486	339.00	172.31	166.69
1487	323.99	312.32	11.68
1498	2.00	2.00	0.00
1499	1.00	1.00	0.00
1500	3.00	2.00	1.00
1504	412.00	409.98	2.02
1525	3.00	1.61	1.39
1540	2.00	0.17	1.83
1541	5.00	0.16	4.84
1548	7.00	1.71	5.29
1570	5.00	1.00	4.00
1577	16.00	11.09	4.91
1599	3.00	2.40	0.60
1610	145.00	105.76	39.24
1641	13.33	10.62	2.71
1645	1.00	0.00	1.00
1661	3.00	2.31	0.69
1669	23.00	19.00	4.00
1687	11.00	7.02	3.98

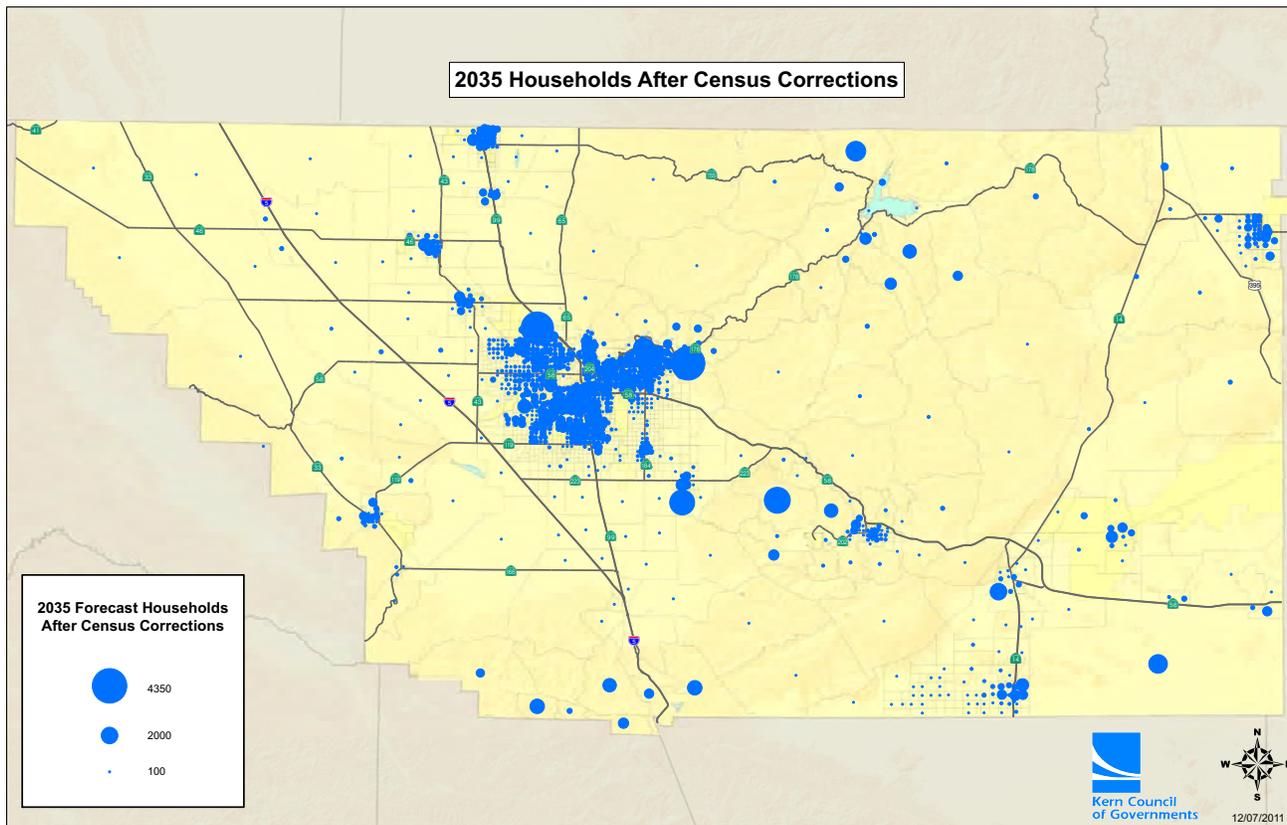
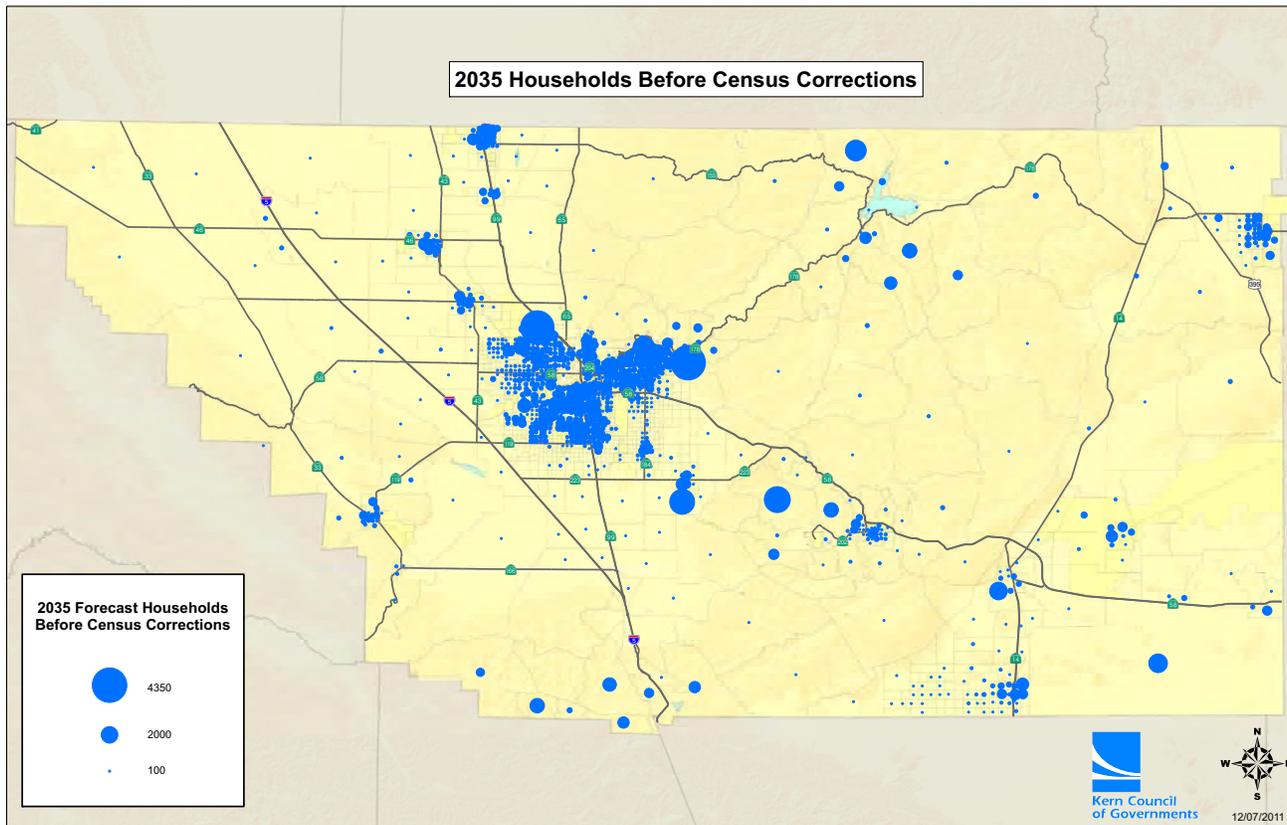
2010 Census vs 2020 Households Comparison



2010 Census vs 2035 Households Comparison









December 14, 2011

TO: Kern Regional Transportation Modeling Committee

FROM: RONALD E. BRUMMETT
EXECUTIVE DIRECTOR

BY: Rob Ball, Director of Planning
Troy Hightower, Planner II

SUBJECT: AGENDA ITEM: VI
Draft SB 375 Land Use Model Methodology documentation

DESCRIPTION:

An updated version of the Draft Land Use Modeling Methodology for the Sustainable Communities Strategy (SCS) is available for review at: <http://kerncog.org/cms/climatechange>.

DISCUSSION:

Background

In September 2008 the Governor signed Senate Bill (SB) 375 to control Climate Change emissions from cars, SUVs and light duty trucks. SB 375 requires MPO's in the state to perform new levels of Land Use and Transportation modeling to support development of Sustainable Communities Strategies which are now required for Regional Transportation Plans. Copies of the ARB staff report and related material are available at <http://www.arb.ca.gov/cc/sb375/sb375.htm>.

Kern COG staff first presented the Land Use modeling methodology and Input (attraction) Layers at the September 29, 2009 meeting of the Climate Change Task Force, which has become the Transportation Modeling Committee (TMC). The methodology was largely derived from the UPlan GIS-based modeling process used to develop the Kern Regional Blueprint. The UPlan program has been upgraded to version 2.66. The input layers and parameters were updated as well. The process of updating the model is on-going.

On September 23, 2010 as required by statute under SB 375 the ARB Board of Directors set provisional targets to reduce emissions for the San Joaquin Valley Municipal Planning Organizations (MPO's) at 5% by 2020, and 10% by 2035. Kern COG will be required to develop a Sustainable Communities Strategy (SCS) for the 2013/14 Regional Transportation Plan (RTP) that meets the target. Kern COG staff plans to provide documentation on the modeling methodology used to develop the SCS.

Kern COG is collaborating with the other SJ Valley MPO's in a Model Improvement Program (MIP). The goal of the MIP is to review current modeling capabilities, review more advanced models that may be available, and provide recommendations for the SJ Valley MPO's to enhance, or upgrade their models. The outcome of this program will be used to help SJ Valley MPO's perform the modeling requirements of SB 375. This effort does include the land use models, but it is largely focused on the transportation models. The results of the MIP are scheduled to be available in February 2012.

Recent Activity

On February 23, 2011, Kern COG staff presented to the TMC the modeling methodology and updated input layers for the Land Use model. A draft version of the land use model methodology documentation was distributed to the Committee. Initial model run results were also presented.

On May 25, 2011, Kern COG staff presented to the TMC the updated input layers that are being used in the land use model. Namely, the Combined (County-wide) Land Use Map and the Input Attraction Layers. Committee members were asked to review the maps and provide comments by July 31, 2011.

Over the last 10 months Kern COG staff has been updating the input layers to reflect changes, new data and comments received from member jurisdictions, committee members, and other stakeholders. Kern COG staff has identified the latest version of the model (Run F03) the Draft New Base 2035 land use.

Kern COG staff requested both the RPAC and TMC submit any comments on the documentation by November 30, 2011. An electronic version of the updated model documentation can be found at:
<http://kerncog.org/cms/climatechange>.

Next Steps

Kern COG plans to continue ongoing development of the land use models and model documentation to assist in the preparation of the Sustainable Communities Strategy for the 2013/2014 RTP with the assistance and oversight of the Kern Regional Transportation Modeling Committee, Technical Transportation Advisory Committee, and the Regional Planning Advisory Committee. This will include reviewing the modeling methodology and documentation.

This same process and documentation will be used to submit revised targets to ARB in late 2012 for their consideration.

Attachments (Draft copy of model documentation is available on the Kern COG website)

Meeting Schedule

January 4, 2012 - RPAC Review Draft Model Documentation
February 25, 2012 – TMC Review Draft Model Documentation

ACTION: Information



December 14, 2011

TO: Kern Regional Transportation Modeling Committee

FROM: RONALD E. BRUMMETT
EXECUTIVE DIRECTOR

BY: Rob Ball, Director of Planning
Troy Hightower, Planner II
Vincent Liu, Planner II

SUBJECT: Agenda Item: VII
Draft Land Use Model Sample Project Level Model Run

DESCRIPTION:

As part of the Land Use Model evaluation, Kern COG has prepared a sample Project Level model to help evaluate one possible method for calculating Greenhouse Gas (GHG) emissions from passenger vehicles for specific areas and/or projects.

DISCUSSION:

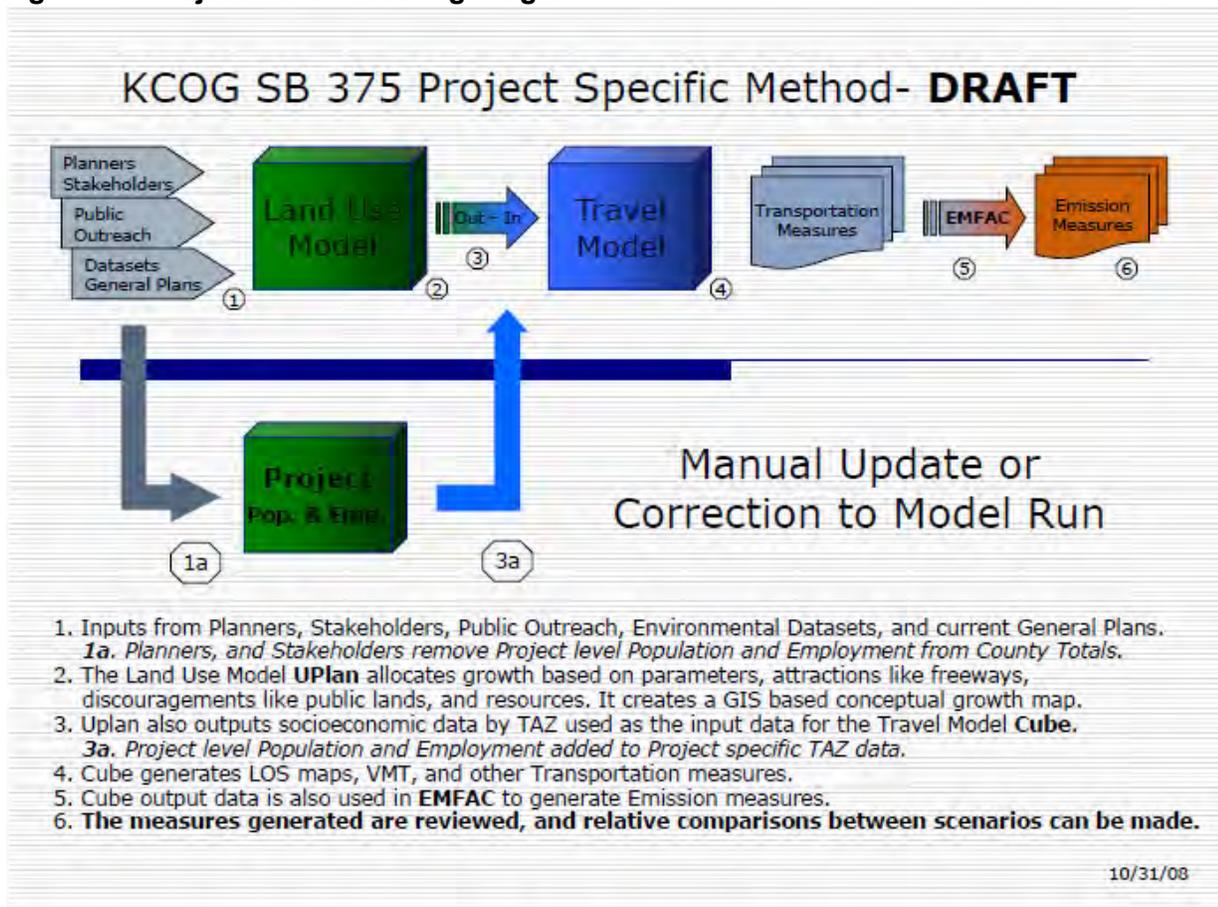
During the development of the land use model in 2009/10, the Kern COG Climate Change Task Force requested a method to calculate offsite passenger vehicle travel and GHG emissions. Kern COG staff has prepared a Project Level modeling example or sensitivity test that could be used to model growth for a specific project or planning area. This project level method is one of several that staff plans on exploring. At the October 24, 2011 meeting the Modeling Committee requested an additional model run using the “worst case” method for comparison.

Project Level Redistribution Methodology

The project level methodology is largely based on the same methodology used to develop the base land use model. See Figure 1. The Project Level model uses the same input layers and parameters as a draft Base land use model (run F03). The primary difference is the addition of steps 1a and 3a. In these steps the households and employment at the proposed project location subtracted from the countywide total before running the land use model. Next, they are added back in at exact location of the proposed project prior to running the travel model. The result is a net redistribution of the households and employment from other areas using the land use model while maintaining the adopted countywide forecasted growth. Attachment 1 contains maps illustrating this net redistribution of households and employment.

Electronic versions of the latest model input layers, maps and documentation can be found on the Kern COG website at: <http://kerncog.org/cms/agendas-minutes/transportation-modeling>

Figure 1 – Project Level Modeling Diagram



Project Level Redistribution Model Results

A hypothetical project was modeled that adds a balanced mix of 3000 households and 3000 employees to a Transportation Analysis Zone (TAZ) on the North edge of Bakersfield. The following table compares the Project Level Redistribution model run (second row) with the base model results (first row) and a worst case scenario (third row). The worst case scenario left the employment in the TAZs the same as in the base run, but added an additional 3000 households and 3000 employees on top of the households in the base run. It is called “worst case” because countywide it contains 3000 more households and 3000 more employees than the other two model runs. The worst case method is commonly used in most traffic studies.

Table 1 – Project Level Modeling Comparison Summary – Countywide Results

Sample Project Level Run Compared to Base				
Model	Households	Employment	VMT per HH Pop+Emp	CO2 per Capita
2035 Base F03	416,886	461,460	23.24	15.8318
2035 Project Level Redistribution P02 v2	416,897	461,460	23.18	15.7526
2035 New Project Level Worst Case v2	419,886	464,460	23.28	15.9109

The project level redistribution of growth from other areas to the proposed development location resulted in a lower GHG/CO2 emission per capita than the base model run and the worst case scenario. A more detailed comparison is found in attachment 1. The results may vary based on the

location within the model. Areas with an imbalance in housing and employment should consider developments that help that area move towards a more balanced mix to minimize travel outside the area. For example, an area with plenty of forecasted households could consider projects that provide greater employment to improve the jobs housing balance of the sub area. Household size, income and school enrollment affect the balance between trip attractions and productions in the model as well.

Attachments 3 and 4 contain household, and employment mix from the Kern COG and Sacramento COG models that resulted in lower Vehicle Miles Traveled (VMT) and a corresponding reduction in GHG emissions from passenger vehicles.

Strengths of the Project Level Redistribution Method

The proposed project level redistribution model methodology has several strengths.

- Provides a voluntary method for new general plan amendment proponents to quantify their progress toward SB 375 goals if they so choose.
- The method provides a more accurate alternative to the current worst case scenario modeling method used in most project level traffic studies.
- The method redistributes growth based on latest planning assumptions and attractions being developed and updated by the Transportation Modeling Committee.
- The method may help a project more accurately quantify and mitigate emissions as needed.

Limitations of the Project Level Redistribution Method

The proposed project level redistribution model methodology as with all transportation modeling has limitations.

- Small projects may be difficult to show consistent results above the background noise in the model.
- The land use model redistribution process has difficulty removing the precise amount of households and employment, possibly requiring additional post model adjustments to quantify progress towards the SB 375 goal.

Next Steps

A pre-requisite for the project level model methodology is the establishment of a base model run for comparison purposes. With input from member agencies, Kern COG staff plans to continue development of the Project Level Model and base model.

In response to RPAC recommendations Kern COG staff is developing a Strategic Employment Center land use model scenario. This new scenario will be developed using the same methodologies used for the base land use model and the Project Level model.

Attachments

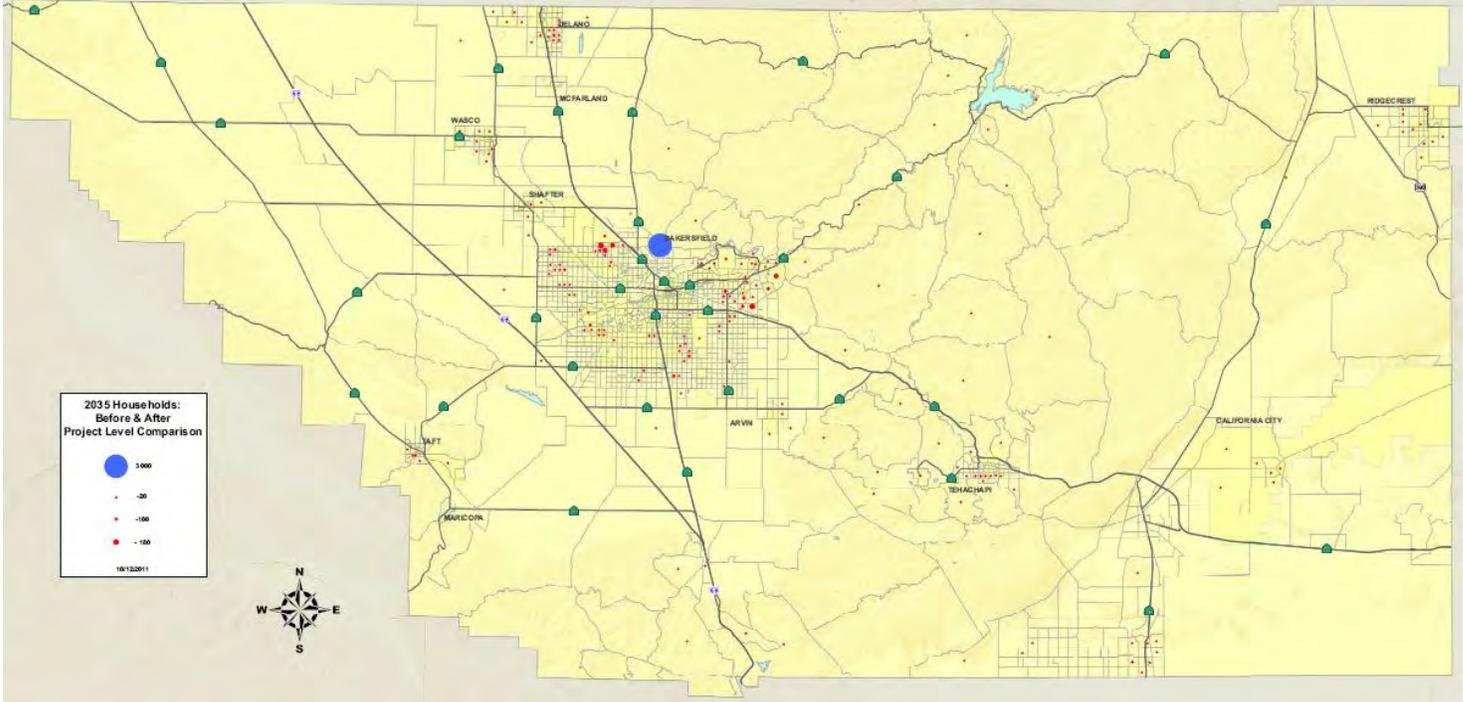
1. Project Level Model Results Comparison Maps
2. Project Level Model Results Comparison Tables
3. Optimum Jobs Housing Mix Ranges In the Kern Model
4. Sacramento COG Draft SCS – Jobs Housing Balance Analysis

ACTION: Discussion / Information

Attachment 1 - Project Level Model - Redistribution Maps

Red dots on maps shows analysis zones where the land use model took the households and employment from, before adding it back at the sample project location (the big blue and green dots).

2035 Households: Before & After Project Level Comparison



2035 Employment: Before & After Project Level Comparison



Attachment 2 - Project Level Model Results Comparison Tables

2035 Upland Land Use Model Results by RSA - Base (F03)									
County Division Regional Statistical Area	Household	Household Population	Percent of County Population	Total Employment	Emps. per Household	Vehicle Miles Traveled (VMT)	Percent of County VMT	VMT Per HH Pop + Emp	
Valley Air Basin	345,253	1,073,196	85.0%	379,126	1.10	30,351,392	75.7%	20.90	
Metro Bakersfield	286,515	867,162	68.6%	235,883	0.82	20,496,787	51.1%	18.58	
Greater Arvin	6,176	24,820	2.0%	34,249	5.55	1,901,333	4.7%	32.19	
Greater Delano/McFarland	24,533	87,548	6.9%	33,090	1.35	1,824,063	4.6%	15.12	
Greater Shafter	11,483	38,584	3.1%	41,456	3.61	2,867,650	7.2%	35.83	
Greater Taft/Maricopa	8,210	24,491	1.9%	14,944	1.82	1,497,585	3.7%	37.98	
Greater Wasco	8,336	30,591	2.4%	19,504	2.34	1,763,974	4.4%	35.21	
Mountains	31,755	81,220	6.4%	26,662	0.84	4,211,438	10.5%	39.04	
Greater Lake Isabella	9,086	20,541	1.6%	4,904	0.54	1,164,760	2.9%	45.78	
Greater Frazier Park	4,067	10,229	0.8%	4,150	1.02	735,450	1.8%	51.15	
Greater Tehachapi	18,602	50,450	4.0%	17,608	0.95	2,311,228	5.8%	33.96	
Desert	39,878	108,867	8.6%	55,672	1.40	5,512,576	13.8%	33.50	
Greater Ridgecrest	17,378	45,024	3.6%	19,027	1.09	1,007,954	2.5%	15.74	
Greater Cal City/Mojave	9,335	25,867	2.0%	11,966	1.28	2,571,465	6.4%	67.97	
Greater Rosamond	13,165	37,976	3.0%	24,679	1.87	1,933,157	4.8%	30.85	
Kern County Total	416,886	1,263,283	100.0%	461,460	1.11	40,075,406	100.0%	23.24	

2035 Upland Land Use Model Results by RSA - Project Level Redistribution V2 (P02)									
County Division Regional Statistical Area	Household	Household Population	Percent of County Population	Total Employment	Emps. per Household	Vehicle Miles Traveled (VMT)	Percent of County VMT	VMT Per HH Pop + Emp	
Valley Air Basin	345,647	1,075,272	85.1%	379,685	1.10	30,277,947	75.7%	20.81	
Metro Bakersfield	287,653	871,345	68.9%	237,718	0.83	20,480,926	51.2%	18.47	
Greater Arvin	6,154	24,757	2.0%	35,213	5.72	1,944,864	4.9%	32.43	
Greater Delano/McFarland	24,334	86,983	6.9%	32,889	1.35	1,815,472	4.5%	18.40	
Greater Shafter	11,037	37,322	3.0%	39,524	3.58	2,767,776	6.9%	36.02	
Greater Taft/Maricopa	8,176	24,395	1.9%	14,880	1.82	1,508,830	3.8%	38.42	
Greater Wasco	8,293	30,470	2.4%	19,461	2.35	1,760,079	4.4%	35.25	
Mountains	31,580	80,721	6.4%	26,418	0.84	4,185,779	10.5%	39.07	
Greater Lake Isabella	9,058	20,458	1.6%	4,842	0.53	1,172,847	2.9%	46.36	
Greater Frazier Park	4,048	10,175	0.8%	4,125	1.02	720,557	1.8%	50.39	
Greater Tehachapi	18,474	50,088	4.0%	17,451	0.94	2,292,375	5.7%	33.94	
Desert	39,670	108,276	8.6%	55,357	1.40	5,530,681	13.8%	33.80	
Greater Ridgecrest	17,315	44,844	3.5%	18,956	1.09	1,029,353	2.6%	16.13	
Greater Cal City/Mojave	9,265	25,669	2.0%	11,693	1.26	2,561,169	6.4%	68.55	
Greater Rosamond	13,090	37,763	3.0%	24,708	1.89	1,940,159	4.9%	31.06	
Kern County Total	416,897	1,264,269	100.0%	461,460	1.11	39,994,407	100.0%	23.18	

2035 Upland Land Use Model Results by RSA - Project Level Worst Case V2 (socio-economic on top)									
County Division Regional Statistical Area	Households	Household Population	Percent of County Population	Total Employment	Emps. per Household	Vehicle Miles Traveled	Percent of County VMT	VMT Per HH Pop + Emp	
Valley Air Basin	348,253	1,073,196	85.0%	382,126	1.10	30,476,409	75.8%	20.94	
Metro Bakersfield	289,515	867,162	68.6%	238,883	0.83	20,603,985	51.2%	18.63	
Greater Arvin	6,176	24,820	2.0%	34,249	5.55	1,902,743	4.7%	32.21	
Greater Delano/McFarland	24,533	87,548	6.9%	33,090	1.35	1,827,518	4.5%	15.15	
Greater Shafter	11,483	38,584	3.1%	41,456	3.61	2,872,619	7.1%	35.89	
Greater Taft/Maricopa	8,210	24,491	1.9%	14,944	1.82	1,501,715	3.7%	38.08	
Greater Wasco	8,336	30,591	2.4%	19,504	2.34	1,767,829	4.4%	35.29	
Mountains	31,755	81,220	6.4%	26,662	0.84	4,225,477	10.5%	39.17	
Greater Lake Isabella	9,086	20,541	1.6%	4,904	0.54	1,169,143	2.9%	45.95	
Greater Frazier Park	4,067	10,229	0.8%	4,150	1.02	738,499	1.8%	51.36	
Greater Tehachapi	18,602	50,450	4.0%	17,608	0.95	2,317,835	5.8%	34.06	
Desert	39,878	108,867	8.6%	55,672	1.40	5,513,799	13.7%	33.51	
Greater Ridgecrest	17,378	45,024	3.6%	19,027	1.09	1,009,428	2.5%	15.76	
Greater Cal City/Mojave	9,335	25,867	2.0%	11,966	1.28	2,571,593	6.4%	67.97	
Greater Rosamond	13,165	37,976	3.0%	24,679	1.87	1,932,778	4.8%	30.85	
Kern County Total	419,886	1,263,283	100.0%	464,460	1.11	40,215,685	100.0%	23.28	

*Population is the total household population, does not include group quarters and prisons

Attachment 3 – Optimum Jobs/Housing Mix Ranges in the Kern Model Using Kern COG 2006 Transportation Model for the 2035 Base Year

Optimum Socio-Economic Mix Generating Lowest Vehicle Miles Traveled Based on 9 Model Runs for 3000 Households in 3 Areas									
			Analysis Zone In:			Compared to All TAZs In:			
Socio Economic Category	Variable	Description	Rosedale Area	San Emidio Area	California City Area	Metro Bakersfield	Indian Wells Valley	Kern County	Ranges of Mix
	TAZ	Transportation Analysis Zone	3	958	1620				
Households	HOUSEHOLDS	Occupied Housing Units	3,000	3,000	3,000	269,835	17,578	417,192	
Population	HHPOP	Houshold Population	15,970	14,400	9,035	842,178	41,381	1,264,082	
	PPHH	Persons Per Household	5.3	4.8	3.0	3.1	2.4	3.0	2.4 to 5.3
Income	HHINCOME	Household Income	\$ 82,008	\$ 39,890	\$ 16,125				
Employment	TOTEMP	Total Employment by place of work	6,457	7,803	2,707	262,645	22,610	460,599	
	TOTEMP/HH	Employees per Household	2.15	2.60	0.90	0.97	1.29	1.10	.9 to 2.6
	BASIC %	Manufacturing, Mining, Ag, etc.	12%	24%	25%	18%	24%	25%	12% to 24%
	RHRET %	Retail High	14%	10%	11%	10%	10%	9%	10% to 14%
	RMRET %	Retail Medium	16%	7%	24%	5%	7%	4%	5% to 24%
	SCSER %	Service Commercial	27%	20%	11%	26%	20%	25%	11% to 27%
	SOSER %	Service Office	19%	38%	16%	34%	38%	31%	16% to 34%
	BWOTH %	Basic, Warehousing, Other	12%	1%	12%	6%	1%	6%	1% to 12%
Enrollment	TOTENROL	Total School Enrollment by school site	3,894	4,578	1,306	239,461	14,990	361,968	
	TOTEN/HH	Enrollment per household	1.30	1.53	0.44	1.13	1.17	1.15	.44 to 1.53
	ELEMSCHOOL	Elementary School Enrollment	2,843	3,343	728	138,161	10,063	213,376	
	ELE/HH	Elem. Enroll per Household	0.95	1.11	0.24	0.51	0.57	0.24	.24 to 1.11
	HIGHSCHOOL	Highschool Enrollment	1,051	1,235	578	56,359	2,355	94,336	
	HIGH/HH	H.S. Enrollment per Houshold	0.35	0.41	0.19	0.21	0.13	0.23	.13 to .41
	COLLEGE	College Enrollment	-	-	-	44,941	2,572	54,256	
	COL/HH	College Enrollment per Hhld.	0.00	0.00	0.00	0.17	0.15	0.13	.15 to .17
VMT	VMT County Wide		42,847,592	42,412,135	42,644,688				
	HHPOP County Wide		1,301,334	1,301,335	1,301,334				
	VMT/Capita (Vehicle Miles traveled per person)		32.93	32.59	32.77				

Attachment 4 – Sacramento COG Draft SCS Jobs/Housing Balance Analysis

Table 3.12

Job Housing Balance in Four-Mile Radius of Major Employment Centers

County	Employment Center	Jobs-Housing Balance	
		2008	2035
El Dorado	Latrobe Business Park	0.98	1.14
Placer	Roseville-Douglas Corridor	0.98	1.12
Placer	Sunset Industrial Area	0.98	1.17
Sacramento	Downtown Sacramento	2.25	2.00
Sacramento	East Sac/UC Davis Medical Center	1.92	1.72
Sacramento	Power Inn/Florin-Perkins	1.34	1.18
Sacramento	Rancho Cordova	1.52	1.44
Sacramento	Folsom	1.38	1.41
Sacramento	Elk Grove/Laguna Springs	0.61	0.75
Sacramento	Expo-Arden-Point West Area	1.80	1.68
Sacramento	Northgate/North Market Area	1.14	1.22
Sutter	Yuba City/Hwy 20	1.08	1.10
Yolo	UC Davis	1.31	1.30
Yolo	West Sacramento/Harbor/Industrial Area	2.16	1.87
Yolo	NE Woodland Industrial Area	1.47	1.44
Yuba	Downtown Marysville	1.09	1.11

Source: SACOG, September 2011



December 14, 2011

TO: Transportation Modeling Committee

FROM: Ronald E. Brummett
Executive Director

By: Rob Ball, Director of Planning
Rochelle Invina, Planner I

SUBJECT: TMC AGENDA ITEM: VIII
3rd Draft SCS Conceptual View Centers Map

DESCRIPTION:

An updated conceptual view map series designed to illustrate some of the strategies that may be included in the Sustainable Communities Strategy (SCS) is available for review at <http://www.kerncog.org/cms/agendas-minutes/transportation-modeling> under the handouts section.

DISCUSSION:

The Kern COG TMC members were asked to submit comments of the Draft Sustainable Communities Strategy (SCS) Conceptual View Centers Maps by July 31, 2011. Staff has updated the maps with the received comments from the Cities of Tehachapi, Shafter, and Arvin and the comments from the August 24, 2011 TMC meeting.

The Maps have been developed based on the adopted 2008 Kern Regional Blueprint Conceptual View maps. Strategies must be financially constrained to be included in the final SCS. The Maps are distinguished by phases; resources and other layers, existing, planned, and potential, and a map that combines all the phase layers.

Attachment 1 is a SCS Centers Map Summary Sheet describing the transit priority centers, strategic employment centers, transit service, and resource and other layers. The Maps also include City spheres of influence, intensive (irrigated) agricultural areas outside the spheres of influence from the County General Plan, the transportation model network, and the major transit routes from the Draft Metropolitan Bakersfield Long Range Transit Plan.

These maps are for conceptual purposes only. The RTP/SCS is updated every 4 years, and local General Plans can be updated quarterly. For more detailed information on the latest planning assumptions, please refer to the locally latest adopted General Plan for each community. Local General Plan updates will be incorporated into the next 4 years RTP/SCS.

ACTION:

Staff recommends approving Maps for RPAC to review and comment.

ATTACHMENTS:

1. Conceptual View – DRAFT SCS Centers Map Summary Sheet

Conceptual View – DRAFT SCS Centers Map Summary Sheet

TRANSIT PRIORITY CENTERS

Metropolitan Center

- A metropolitan center has a population greater than 50,000
- The regions primary business, civic, commercial, and cultural center
- Mid to high density residential, office and commercial development
- High levels of employment
- Draws activity throughout the region
- Served by numerous transportation services

Future enhancements

- Mid to high rise story mix-use (residential, office, and commercial) buildings
- Walkable design, improved public transit service, tourism
- High speed rail station

Community Center

- A community center has a population of 15,000 to 50,000 population
- Sub-regional business, civic, commercial, and cultural centers
- Mid to low density residential, office and commercial development
- Medium levels of employment
- Draws activity from sub-regional areas

Future enhancements

- Multi story mix-use (residential, office, and commercial) buildings
- Walkable design, improved transit service, tourism

Town Center

- A town center has a population of 5,000 to 15,000 population
- Town center for business activity, may include civic and cultural activities areas
- Mid to low density residential, office and commercial development
- Low levels of employment
- Draws activity from the town and immediate areas

Future enhancements

- 2-story mix-use (residential, office, and commercial) buildings
- Walkable design, improved public transit service, tourism

Village Center

- A village center has a population of 50 to 5,000 population
- Village center for business activity and essential local services
- Low density residential, office and commercial development
- Low levels of employment draws activity from the immediate area
- Provides essential services to surrounding rural areas

Future enhancements

- Mix-use (residential, office, and commercial) buildings
- Walkable design, improved public transit service, tourism

Education Center – education centers represent existing and planned college campuses

High School – existing and planned high school campuses

STRATEGIC EMPLOYMENT CENTERS

Strategic Employment Centers are based on employee average within an area and there are three levels: less than 2,000; 2,000-7,000; and more than 7,500. These strategic employment centers are based on locations of workplaces and input received from city staff.

TRANSIT SERVICE

Passenger Rail Stations – existing, planned, and potential passenger rail stations that include Amtrak stations and high speed rail stations.

Bus Transit Centers – existing, planned, and potential bus transit centers within Metro Bakersfield

Passenger/Commuter Rails – existing, planned, and potential passenger/commuter rail routes that include Amtrak and high speed rail

Feeder Bus Routes – existing, planned, and potential feeder bus routes within Metro Bakersfield and Kern County

Express Bus Routes – existing, planned, and potential express bus routes within Metro Bakersfield

BRT Routes- planned and existing BRT routes within Metro Bakersfield

High Speed Rail Alignments – planned high speed rail alignments

RESOURCE AND OTHER LAYERS

Urban, Built Up, Sphere of Influence – existing, planned and potential urban areas that include the existing built up area and sphere of influence.

Irrigated Farmland

Public Resources

Federal Lands

Community Center Areas – existing and planned community areas in Metro Bakersfield. The community areas illustrate major community attractions such as shopping areas.

Major Routes – existing and planned major routes

Rail Service – existing rail service



December 14, 2011

TO: Kern Regional Transportation Modeling Committee

FROM: RONALD E. BRUMMETT
EXECUTIVE DIRECTOR

BY: Rob Ball, Director of Planning
Troy Hightower, Planner II

SUBJECT: AGENDA ITEM: IX
Draft Land Use Model Update (I06)

DESCRIPTION:

An updated version of the land use model for the Sustainable Communities Strategy (SCS) is available for review at <http://kerncog.org/cms/climatechange>.

DISCUSSION:

Background

In September 2008 the Governor signed Senate Bill (SB) 375 to control Climate Change emissions from cars, SUVs and light duty trucks. SB 375 requires MPO's in the state to perform new levels of Land Use and Transportation modeling to support development of Sustainable Communities Strategies which are now required for Regional Transportation Plans. Copies of the ARB staff report and related material are available at <http://www.arb.ca.gov/cc/sb375/sb375.htm>.

Kern COG staff first presented the Land Use modeling methodology and Input (attraction) Layers at the September 29, 2009 meeting of the Climate Change Task Force, which has become the Transportation Modeling Committee (TMC). The methodology was largely derived from the UPlan GIS-based modeling process used to develop the Kern Regional Blueprint. The UPlan program has been upgraded to version 2.66. The input layers and parameters were updated as well. The process of updating the model is on-going.

On September 23, 2010 as required by statute under SB 375 the ARB Board of Directors set provisional targets to reduce emissions for the San Joaquin Valley Municipal Planning Organizations (MPO's) at 5% by 2020, and 10% by 2035. ARB has given the SJ Valley MPO's an opportunity to submit revised targets in 2012. Kern COG will be required to develop a Sustainable Communities Strategy (SCS) for the 2013/14 Regional Transportation Plan (RTP) that meets the target. Kern COG staff plans to use the Land Use model to assist in the development of the revised targets, and the SCS.

Kern COG is collaborating with the other SJ Valley MPO's in a Model Improvement Program (MIP). The goal of the MIP is to review current modeling capabilities, review more advanced models that may be available, and provide recommendations for the SJ Valley MPO's to enhance, or upgrade their models. The outcome of this program will be used to help SJ Valley MPO's perform the modeling requirements

of SB 375. This effort does include the land use models, but it is largely focused on the transportation models. The results of the MIP are scheduled to be available in February 2012.

Recent Activity

On February 23, 2011, Kern COG staff presented to the TMC the modeling methodology and updated input layers for the Land Use model. A draft version of the land use model methodology documentation was distributed to the Committee. Initial model run results were also presented.

On May 25, 2011, Kern COG staff presented to the TMC the updated input layers that are being used in the land use model. Namely, the Combined (County-wide) Land Use Map, and the Input Attraction Layers. Committee members were asked to review the maps and provide comments by July 31, 2011.

On June 22, 2011, and August 3, 2011 Kern COG staff presented an overview of the latest Land Use model (Run D06) to the newly formed Regional Planning Advisory Committee. The comment period was extended to August 31, 2011.

On September 28, 2011 Kern COG staff announced at the RPAC meeting that a draft land use model (Run E02) was prepared based on the inputs received as of August 31, 2011 by member jurisdictions and stakeholders.

On October 19, 2011 Kern COG staff presented at the TMC meeting a draft Project Level land use model (Run P02) to illustrate how the land use model could be used to model growth for a specific project, or area.

Over the last 10 months Kern COG staff has been updating the input layers to reflect changes, new data and comments received from member jurisdictions, committee members, and other stakeholders. Kern COG staff has identified the model run F03 as the Draft 2035 New Base land use.

The first "scenario" model run was developed to model employment growth in the designated "Wind Areas". This scenario is identified as model run I06 and presented at this TMC meeting. The SB 375 VMT and emissions report were generated using EMFAC 2007. The results of both the Base model and the wind scenario are summarized in the table below. Additional output data is attached.

Model Run	SB 375 VMT	CO 2 Emissions (lbs/Capita)
Base Model - F03	26,313,491	15.8317
Wind Area Scenario - I06	26,669,968	16.0062
Difference from the Base	+ 356,477	+ 00.1744

Kern COG staff has also been developing documentation of the land use model methodology that is being used. Electronic versions of the input layers and documentation can be found at: <http://kerncog.org/cms/climatechange>.

Next Steps

Kern COG plans to continue ongoing development of the land use models to assist in the preparation of the Sustainable Communities Strategy for the 2013/2014 RTP with the assistance and oversight of the Kern Regional Transportation Modeling Committee, Technical Transportation Advisory Committee, and the Regional Planning Advisory Committee. This will include reviewing the modeling methodology and development of the UPlan and CubeLand based Land Use models. This same process will be used to submit revised targets to ARB in late 2012 for their consideration.

Kern COG staff has begun developing scenarios or alternatives of the New Base land use model. The first scenario models changes to the Delano Subarea demographics. Additional scenarios to model growth for Strategic Growth Centers, Tejon Mountain Village and High-Speed Rail are planned. Staff plans to develop these scenarios from input and direction from the TMC. Scenario results will be compared to the Base model results.

Kern COG staff plans to present the Draft Base Land Use model with emissions data at the January 4, 2011 RPAC meeting.

Attachments (copies of attachments and model data are available on the Kern COG website)

1. Draft Land Use Map Wind Area Scenario – I06
2. Draft Land Use Model Comparison Tables

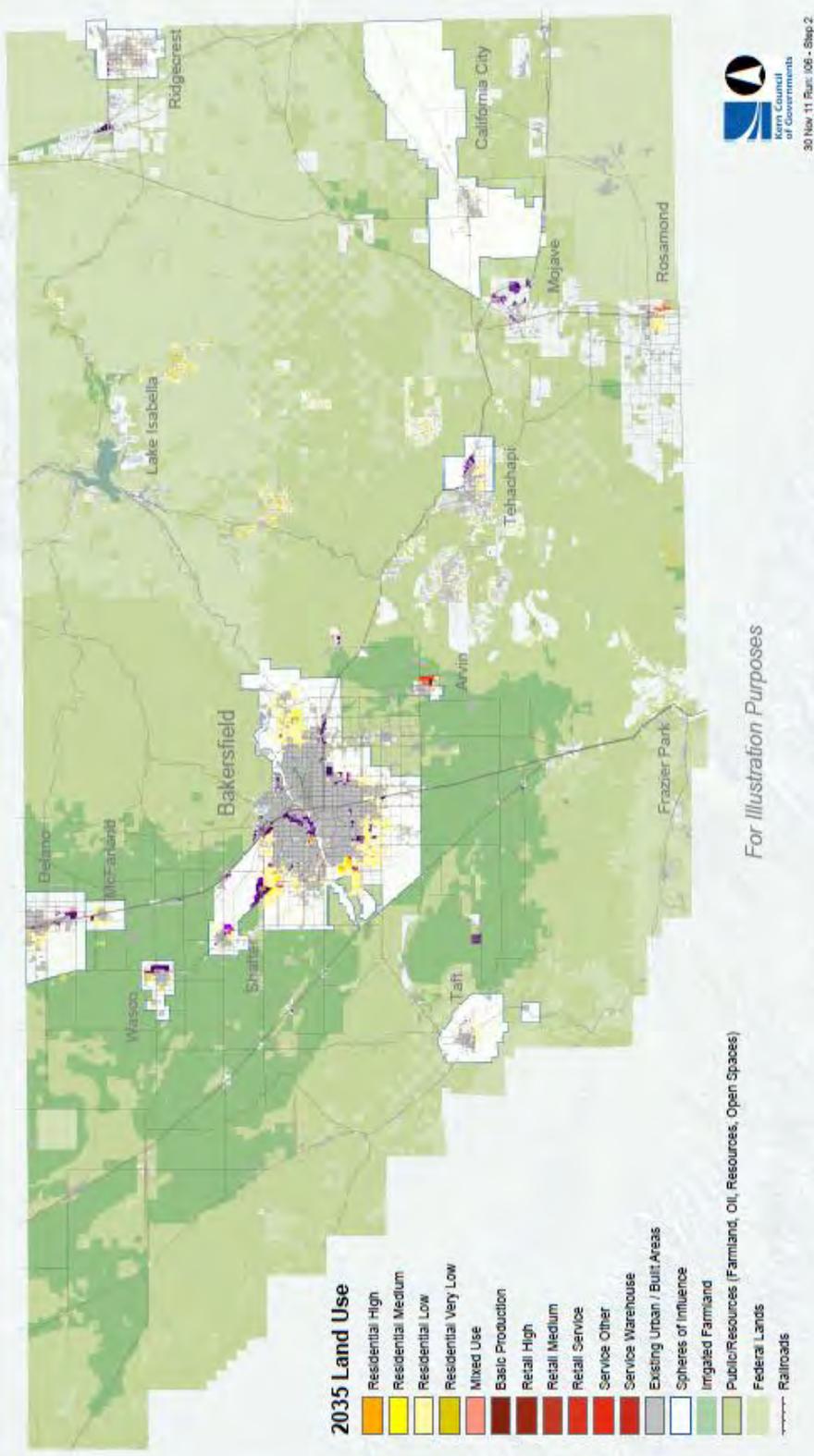
Meeting Schedule

January 4, 2012 - RPAC Review Draft Base Land Use Model
February 25, 2012 – TMC Review Draft Base Land Use Model

ACTION: Information

Attachment 1

Draft Kern SB 375 Land Use Model - Wind Areas



Attachment 2

Comparison Tables – I06 model vs spreadsheet data

2035 Spreadsheet Derived Values						2035 with Delano updated 11/30/11	2035 Land Use Model Derived Values				
Subregion- and RSA	Total Population	Household Population	Group Quarters	Number of Households	Total Employment	Emp/HH	Total Population	Household Population	Group Quarters	Number of Households	Total Employment
Westside Kern	32,720	24,518	8,201	9,213	15,104	1.64	30018	24596	5422	9033	14276
Greater Taft/Maricopa	32,720	24,518	8,201	9,213	15,104	1.64	30018	24596	5422	9033	14276
Delano_McFarland	84,113	70,812	13,301	17,745	30,355	1.71	95988	82687	13301	22973	30726
Greater Delano/McFarland	84,113	70,812	13,301	17,745	30,355	1.71	95988	82687	13301	22973	30726
Wasco	46,654	37,742	8,912	10,648	18,163	1.71	37801	28889	8912	8212	18475
Greater Wasco	46,654	37,742	8,912	10,648	18,163	1.71	37801	28889	8912	8212	18475
Tehachapi_Frazier	78,058	71,449	6,609	28,436	27,181	0.96	70995	61607	9388	24097	22142
Greater Frazier Park	17,414	17,397	17	8,046	7,805	0.97	10597	10580	17	5252	4185
Greater Tehachapi	60,644	54,052	6,592	20,390	19,376	0.95	60399	51027	9372	18845	17957
Metro	937,649	925,065	12,584	293,602	304,756	1.04	945262	932678	12584	298396	311753
Greater Arvin	34,162	34,030	132	7,751	5,712	0.74	24684	24552	132	5854	36938
Greater Shafter	54,886	48,730	6,156	16,109	36,180	2.25	45463	39307	6156	10691	40662
Metro - Central	23,335	21,590	1,745	9,134	39,664	4.34	21567	19822	1745	8462	33956
Metro - N.O.R.	250,224	249,858	366	80,674	83,060	1.03	252143	251777	366	82954	72125
Metro - Northeast	171,811	169,768	2,042	54,947	24,453	0.45	175983	173941	2042	55142	18749
Metro - Southeast	172,218	171,441	776	49,769	41,105	0.83	147695	146919	776	43487	31966
Metro - Southwest	231,014	229,647	1,366	75,216	74,582	0.99	277728	276362	1366	91806	77358
Southeast Kern	79,886	73,264	6,622	27,180	36,978	1.36	72340	65718	6622	23526	37917
Greater Cal City/Mojave	39,641	33,023	6,619	13,595	13,007	0.96	30248	23629	6619	9569	13446
Greater Rosamond	40,245	40,242	3	13,585	23,891	1.76	42092	42089	3	13957	24471
Lake Isabella	20,182	19,867	314	12,699	5,727	0.45	21020	20705	314	12252	5789
Greater Lake Isabella	20,182	19,867	314	12,699	5,727	0.45	21020	20705	314	12252	5789
Indian Wells	41,737	41,382	356	17,578	22,617	1.29	46738	46382	356	18448	19611
Greater Ridgecrest	41,737	41,382	356	17,578	22,617	1.29	46738	46382	356	18448	19611
Grand Total	1,321,000	1,264,100	56,900	417,100	460,882	1.10	1320163	1263263	56900	416937	460689

Subregion- and RSA	2010-2035 Spreadsheet Annual Growth Rates		2010-2035 Land Use Model Annual Growth Rates		Difference in Annual Growth Between Spreadsheet and Land Use Model		Difference in Growth Between Spreadsheet and Land Use Model	
	Number of Households	Total Employment	Number of Households	Total Employment	Number of Households	Total Employment	Number of Households	Total Employment
Westside Kern	80	170	73	136	(7)	(33)	(180)	(828)
Greater Taft/Maricopa	80	170	73	136	(7)	(33)	(180)	(828)
Delano_McFarland	148	305	357	320	209	15	5,229	371
Greater Delano/McFarland	148	305	357	320	209	15	5,229	371
Wasco	179	184	82	196	(97)	12	(2,436)	311
Greater Wasco	179	184	82	196	(97)	12	(2,436)	311
Tehachapi_Frazier	483	531	310	329	(174)	(202)	(4,339)	(5,039)
Greater Frazier Park	138	175	27	31	(112)	(145)	(2,794)	(3,620)
Greater Tehachapi	345	355	283	298	(62)	(57)	(1,545)	(1,419)
Metro	4,342	3,926	4,534	4,206	192	280	4,795	6,997
Greater Arvin	111	78	35	1,327	(76)	1,249	(1,897)	31,226
Greater Shafter	360	680	143	859	(217)	179	(5,419)	4,482
Metro - Central	27	229	(0)	1	(27)	(228)	(672)	(5,708)
Metro - N.O.R.	1,368	1,293	1,460	856	91	(437)	2,279	(10,936)
Metro - Northeast	920	295	928	67	8	(228)	195	(5,703)
Metro - Southeast	509	523	257	158	(251)	(366)	(6,282)	(9,139)
Metro - Southwest	1,047	827	1,710	938	664	111	16,590	2,775
Southeast Kern	432	536	286	573	(146)	38	(3,654)	939
Greater Cal City/Mojave	225	299	64	313	(161)	14	(4,026)	359
Greater Rosamond	207	236	221	260	15	23	372	580
Lake Isabella	70	105	52	108	(18)	2	(447)	62
Greater Lake Isabella	70	105	52	108	(18)	2	(447)	62
Indian Wells	96	351	131	231	35	(120)	870	(3,006)
Greater Ridgecrest	96	351	131	231	35	(120)	870	(3,006)
Grand Total	5,831	6,107	5,824	6,100	(7)	(8)	(163)	(193)



December 14, 2011

TO: Kern Regional Transportation Modeling Committee

FROM: RONALD E. BRUMMETT
EXECUTIVE DIRECTOR

BY: Rob Ball, Director of Planning
Troy Hightower, Planner II

SUBJECT: Agenda Item: XI
Draft SB 375 Strategy List

DESCRIPTION:

SB 375 requires regions to analyze strategies to reduce per capita greenhouse gas emissions (GHG) from passenger vehicle travel.

DISCUSSION:

The following is a list of core policy variables that the California Air Resources Board (ARB) associated with key land use and transportation-related components associated with GHG reductions. These variables and factors are consistent with those qualitatively assessed in the MPOs' model sensitivity analysis during the target setting process. While ARB staff believes this list includes the most important variables for analysis, staff realizes it may not be appropriate for an MPO to do a sensitivity test on each one, given the MPO's unique SCS, complexity, and resources.

Tool Used		
Travel Model	Land Use Model	ARB Modeling Variable
		Land Use:
x	x	a. Modify distribution of households, population, jobs or other variables
x	x	b. Rebalance the mix of land uses
x	x	c. Increase the level of density
x	x	d. Improve the pedestrian environment
		Road Projects:

Tool Used		
Travel Model	Land Use Model	ARB Modeling Variable
x		a. Add HOV lanes
x		b. Implement Intelligent Transportation Systems (ITS)/Traffic management (e.g., change auto travel times, change highway free-flow speed)
x		c. Add general purpose roadway lanes (e.g., change highway capacities)
		Transit:
x		a. Construct new transit lines
x		b. Increase service (e.g., change transit headways, increase network connectivity)
x		c. Upgrade transit service (e.g., change from bus to light rail)
x	x	d. Improve accessibility (e.g., change bike/walk access distance to transit stations, change auto access distance to transit stations)
		Pricing:
x		a. Develop tolls and toll roads
x		b. Implement HOT lanes
x		c. Increase the cost of parking
x		d. Change in transit fares
X		e. Change in auto operation cost
		Transportation Demand Management:
X		a. Promote carpooling, vanpooling, telecommuting and teleconferencing
X	x	b. Promote walking and biking
X		c. Implement employer-based trip reduction strategies

http://www.arb.ca.gov/cc/sb375/scs_review_methodology.pdf

Off Model Strategies From the Big 4-MPOs

In addition to these variables or strategies, the 4 biggest MPOs prepared a memo about “off-model” strategies that would be used adjust their GHG emissions forecast. The following is a list of those strategies from last year. SaCOG took credit for an additional 1-2% points in per capita reduction using their off model methodology. See attachment (Table 6 from the following memo).

<http://www.arb.ca.gov/cc/sb375/mpo/prelimreport.mtc.sacog.sandag.scag.pdf>

Issue

Kern needs to identify rural-urban connectivity and other strategies that are more relevant to our unique region.

ACTION: Discussion / Information

**Table 6 - TSM and TDM Strategies Used for Determining Regional Travel Impacts
(Large MPOs)**

Region & Categories	On-Model/ Off-Model	Adopted RTP Deployment (2030-35)	Proposed Deployment - Most Ambitious Scenario (2035)
MTC			
<i>System Efficiency:</i>			
Bottleneck relief/gap closure projects	On	x	x
Ramp Metering	On	x	x
Incident Management	On	x	x
Traveler Information/511	n/a		
<i>Transportation Demand Management:</i>			
Work-based Incentives: Telecommuting/flexible/alternative work schedules/transit passes	n/a		
Bus/Van/Carpool programs	n/a		
Safe routes to schools strategies	n/a		
Car-sharing Programs	n/a		
Total estimated % per capita reduction		1% - 2%	1% - 2%
SCAG			
<i>System Efficiency:</i>			
Bottleneck relief/gap closure projects	On	x	x
Ramp Metering	On	x	x
Incident Management	Off	x	x
Traveler Information/511	Off	x	x
<i>Transportation Demand Management:</i>			
Work-based Incentives: Telecommuting/flexible/alternative work schedules/transit passes	On	x	x
Bus/Van/Carpool programs	Off	x	x
Safe routes to schools strategies	Off	x	x
Car-sharing Programs	Off	x	x
Total Estimated % Per Capita Reduction		NA	2%
SANDAG			
<i>System Efficiency:</i>			
Bottleneck relief/gap closure projects	On	x	x
Ramp Metering	On	x	x
Incident Management			
Traveler Information/511			
<i>Transportation Demand Management:</i>			
Work-based Incentives: Telecommuting/flexible/alternative work schedules/transit passes	On	x	x
Bus/Van/Carpool programs	Off		x
Safe routes to schools strategies	Off		x
Car-sharing Programs			
Total Estimated % Per Capita Reduction		NA	9 - 10%*
SACOG			
<i>System Efficiency:</i>			
Bottleneck relief/gap closure projects	On	x	x
Ramp Metering	On	x	x
Incident Management	Off	x	x
Traveler Information/511	Off	x	x
<i>Transportation Demand Management:</i>			
Work-based Incentives: Telecommuting/flexible/alternative work schedules/transit passes	Off	x	x
Bus/Van/Carpool programs	Off	x	x
Safe routes to schools strategies	n/a	x	x
Car-sharing Programs	Off	x	x
Total Estimated % Per Capita Reduction		-0.5% for Off model only	-1.1% for Off model only

* Results are for Scenario A (TDM/TSM alternative)