KERN COUNCIL OF GOVERNMENTS
REGIONAL PLANNING ADVISORY COMMITTEE
TRANSPORTATION MODELING COMMITTEE

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

WEDNESDAY
February 3, 2016
1:30 P.M.

Call in Number: (312) 878-3080
Access Code: 586-617-702

I. ROLL CALL:

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 factual information or request staff to report back 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.**

Disabled individuals who need special assistance to attend or participate in a meeting of the Regional Planning Advisory Committee may request assistance at 1401 19th Street, Suite 300; Bakersfield CA 93301 or by calling (661) 861-2191. Every effort will be made to reasonably accommodate individuals with disabilities by making meeting material available in alternative formats. Requests for assistance should be made at least three (3) working days in advance whenever possible.

III. APPROVAL OF DISCUSSION SUMMARIES

- RPAC Meeting of Wednesday, November 4, 2015

IV. SB 375 GREENHOUSE GAS REDUCTION TARGET SETTING TIMELINE (Ball)

Comment: Draft revised targets for the Kern region to reduce greenhouse gas emissions (GHG) from passenger vehicle travel are scheduled for California Air Resources Board approval by late 2016.

Action: Information

V. ENVIRONMENTAL AND SOCIAL EQUITY ROUNDTABLE (Napier)

Comment: The Environmental and Social Equity Roundtable was reactivated to begin the Regional Transportation Plan (RTP) process for the 2018 RTP.

Action: Information

VI. GROWTH FORECAST BY SUB-REGION (Raymond)

Comment: The 2015-2050 Growth Forecast distribution by Kern's Regional Statistical Areas (RSA) and sub-regions.

Action: Approve Kern COG staff's distribution of 2015-2050 Regional Growth Forecast for 10 county sub-regions.

VII. MODEL INPUT ASSUMPTIONS: DRAFT AVERAGE LAND USE DENSITY ANALYSIS YIELD RATES (Heimer)

Comment: To update land use model assumptions, average residential land use density rates, derived from the developed areas of local general and specific plans for all jurisdictions in Kern County, are being circulated for review and comment.

Action: Information. Provide comments to staff by March 2, 2016.

VIII. DRAFT REGIONAL TRANSPORTATION MONITORING SYSTEM PROGRAM UPDATE (Flickinger)

Comment: Kern COG is updating the Regional Traffic Count Program to include bicycle and pedestrian counts locations.

Action: Provide feedback on the sample data from the Bicycle and Pedestrian Pilot. Accept Phase II amendment of Chapter 3 of the RTMIP as discussed at November 4, 2015 RPAC and have Kern COG choose at least one location per community based on budget and on the criteria in the amendment of Chapter 3 unless the member agency has chosen a location(s). Decide if bike and pedestrian counts should be 24 hour, 4 hour, or a combination of both.

IX. CEQA GUIDELINES UPDATE

Comment: Senate Bill 743 was signed by Governor Brown on September 27, 2013. The legislation required that the Governor's Office of Planning and Research (OPR) amend the California Environmental Quality Act (CEQA) Guidelines to provide an alternative to delay-based level of service (LOS) for evaluating transportation impacts.

Action: Information

X. SUSTAINABLE COMMUNITIES STRATEGIES AND CONSERVATION

Comment: The Nature Conservancy published a document entitled "Sustainable Communities Strategies and Conservation" in January 2016.

Action: Information

XI. INFORMATION ITEMS/ANNOUNCEMENTS

XII. MEMBER ITEMS

- City of Ridgecrest – Median Project
- Autonomous Vehicle Presentation – Rob Ball

XIII. ADJOURNMENT

The next scheduled meeting of the RPAC/TMC meeting will be March 2, 2016.

KERN COUNCIL OF GOVERNMENTS
REGIONAL PLANNING ADVISORY COMMITTEE
TRANSPORTATION MODELING COMMITTEE

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

WEDNESDAY
November 4, 2015
1:30 P.M.

Chairman McNamara called the meeting to order at 1:37 p.m.

I. ROLL CALL

MEMBERS PRESENT:	Paul Hellman	City of Bakersfield
	Craig Platt	City of California City
	Dennis McNamara	City of McFarland
	Suzanne Forrest	City of Shafter
	Mark Staples	City of Taft (phone)
	Marcia Smith	City of Tehachapi
	Roger Mobley	City of Wasco
	Lorelei Oviatt	Kern County
	Karen King	GET
	Paul Marquez	Caltrans
	Richard Rowe	Community Member
	Patty Poire	Community Member (phone)
STAFF:	Rob Ball	Kern COG
	Ben Raymond	Kern COG
	Becky Napier	Kern COG
	Ed Flickinger	Kern COG
	Troy Hightower	Kern COG
	Robert Phipps	Kern COG
OTHERS:	Ted James	Consultant
	Dave Dmohowski	Consultant
	Bill Gollnick	Tejon Tribe
	Alec Kimmel	Caltrans District 6 (phone)
	Wayne Clausen	City of Shafter
	Mike McCabe	Citizen
	Cindy Parra	Bike Bakersfield
	Jason Cater	Bike Bakersfield

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.

- Bill Gollnick from the Tejon Tribe introduced himself and explained that the Tejon Tribe as a federally recognized Tribe is working with the County of Kern on a Government to Government basis. He explained that the Tribe was looking forward to working with Kern COG on a Government to Government basis on projects of mutual benefit.

III. SELECTION OF REGIONAL PLANNING ADVISORY COMMITTEE VICE-CHAIRMAN

Chairman McNamara nominated Patty Poire for the position of Vice-Chairman, seconded by Committee Member Platt. Motion passed with all in favor.

IV. APPROVAL OF DISCUSSION SUMMARY:

- RPAC Meeting of Wednesday, April 1, 2015
- RPAC Meeting of Wednesday, June 3, 2015
- RPAC Meeting of Wednesday, August 5, 2015
- RPAC Meeting of Wednesday, September 30, 2015

Committee Member King made a motion to approve the minutes of April 1, June 3, August 5, and September 30, 2015, Committee Member Forrest seconded the motion with all in favor.

V. 2015 – 2050 GROWTH FORECAST DRAFT REPORT (Raymond)

Mr. Raymond informed the Committee that the Regional Growth Forecast for total countywide population is scheduled to be considered by the Kern COG Board in November 2015. The Draft Report was made available beginning August 12, 2015, for public review and comment. The public comment period closed September 12, 2015.

Mr. Raymond informed the Committee that the Draft Report shows Kern's total population reaching 1 million by 2022 and by 2050 the population will almost double to 1.6 million from 874,000 in 2015. The number of households is expected to almost double by 2050 from 263,000 in 2015 to about 512,000 in 2050. Total employment is forecasted to grow from 274,000 to 540,000 during that same time period.

Committee Member Platt made a motion to recommend the Transportation Planning Policy Committee adopt the 2015-2050 Regional Growth Forecast, seconded by Committee Member Mobley. Motion carried by unanimous vote.

VI. FY 2016-17 OVERALL WORK PROGRAM (Phipps)

Mr. Phipps introduced himself as the Administrative Services Director at Kern COG. He explained that Kern COG is beginning the process of developing its 2016-17 Overall Work Program and is soliciting eligible projects for potential inclusion. Mr. Phipps encouraged the Committee to contact him or Mr. Hakimi if they have any potential projects.

This item was for information.

VII. TIMELINE FOR ENVIRONMENTAL AND SOCIAL EQUITY ROUNDTABLE (Napier)

Ms. Napier informed the Committee that in preparing for development of the 2018 Regional Transportation Plan, Kern COG is planning to reactivate the Environmental and Social Equity Roundtable (Roundtable). The purpose of the Roundtable is to review the methods used by Kern COG to designate Environmental Justice areas as required by the California Regional Transportation Plan Guidelines and federal and state law. Committee Member Oviatt requested that Mr. Gollnick of the Tejon Tribe be invited to the Roundtable meetings.

This item was for information.

VIII. KERN COG OFFERS GEOGRAPHIC INFORMATION SYSTEM (GIS) SERVICES AND MAPPING SUPPORT AGREEMENTS TO MEMBER AGENCIES (Ball)

Mr. Ball stated that Maricopa, Wasco, Shafter, the East Kern Resource Conservation District and the Kern County Water Agency have on-going agreements with Kern COG to provide on call, priority GIS mapping and technical support for a fixed hourly rate. This is in addition to the normal level of technical assistance provided by Kern COG at no charge as resources are available. Mr. Ball stated that other member agencies are encouraged to consider this member agency service when needed.

This item was for information.

IX. DRAFT REGIONAL TRAFFIC MONITORING SYSTEM PROGRAM UPDATE (Flickinger)

Mr. Flickinger reported to the Committee that part of the on-going Regional Traffic Count Program will include bicycle and pedestrian count locations. Mr. Flickinger encouraged the Committee to review the maps provided in the staff report for each community that show the proposed count locations. Committee Member Oviatt requested that staff research coordinating the selection of the count locations to the federal income limits for CDBG grants. Any proposed changes to the count locations for bicycle and pedestrian counts should be reported to Mr. Flickinger by the end of December 2015.

This was an information item.

X. INFORMATION ITEMS/ANNOUNCEMENTS

1. Mr. Ball announced that the Kern region was awarded a $250,000 Active Transportation Planning Grant.

XI. MEMBER ITEMS

1. Committee Member Marquez announced that the FY 2016-17 Sustainable Planning Grant deadline has been extended to the end of December. Mr. Marquez encouraged that those who are interested, visit the Sustainable Planning Grant website.

XII. ADJOURNMENT

With no further business the meeting was adjourned at 2:33 p.m.

The next meeting will be Wednesday, January 6, 2016, at 1:30 p.m.

Kern Council of Governments

IV.
RPAC

February 3, 2016

TO: Regional Planning Advisory Committee

FROM: Ahron Hakimi,
Executive Director

By: Rob Ball,
Director of Planning

SUBJECT: RPAC AGENDA ITEM: IV
SB 375 GREENHOUSE GAS REDUCTION TARGET SETTING TIMELINE

DESCRIPTION:

Draft revised targets for the Kern region to reduce greenhouse gas emissions (GHG) from passenger vehicle travel are scheduled for California Air Resources Board approval by late 2016.

DISCUSSION:

Background – In June 2014, Kern COG adopted the regular 4-year update to the long-range Regional Transportation Plan (RTP). This was the first plan with the Sustainable Community Strategy (SCS) element as required by Senate Bill (SB) 375. The law requires California Air Resources Board (ARB) to set GHG emission reduction targets for the 18 Metropolitan Planning Organizations (MPOs) in the state, including Kern COG. SB 375 focuses on reducing greenhouse gas emissions (GHG) from passenger vehicle travel by better coordinating land use planning with transportation expenditures. On July 23, 2015, ARB unanimously approved acceptance of the Kern COG Sustainable Community Strategy (SCS) and found that the methodology adequately demonstrates that the plan, if implemented, would meet the state greenhouse gas emission reduction targets for passenger vehicle travel. A thorough technical evaluation was developed on the SCS by ARB staff and is available online along with the Kern COG SCS at http://www.arb.ca.gov/cc/sb375/sb375.htm .

ARB Cycle Two GHG Target Setting Timeline as of September 16, 2015

1. Winter/Spring 2015: ARB-MPO meetings and collaboration.
2. Spring 2016 (April): MPOs provide their recommendations formally or informally so that ARB staff can review and evaluate the recommended targets before incorporating them into an ARB staff proposal.
3. Late spring 2016 (May): ARB staff provides a progress report to our Board on MPO target recommendations.
4. Summer 2016: ARB staff holds public workshops, develops a staff proposal, and prepares and circulates a draft environmental document.
5. Fall 2016: ARB staff reviews and responds to public input on the staff proposal, and responds to comments on and finalizes the environmental document.
6. Late 2016: ARB Board considers approval of updated targets, which would become effective for RTP/SCSs that will be adopted by MPOs after January 1, 2018.

ACTION: Information

Kern Council of Governments

V.
RPAC

February 3, 2016

TO: Regional Planning Advisory Committee

FROM: Ahron Hakimi
Executive Director

BY: Becky Napier
Regional Planner

SUBJECT: RPAC AGENDA ITEM: V
ENVIRONMENTAL AND SOCIAL EQUITY ROUNDTABLE

DESCRIPTION:

The Environmental and Social Equity Roundtable was reactivated to begin the Regional Transportation Plan (RTP) process for the 2018 RTP.

DISCUSSION:

Kern Council of Governments (COG) kicked off development of its 2018 Regional Transportation Plan on December 16, 2015, when it held the Environmental and Social Equity Roundtable. The reason for the Roundtable was to review the methodology to be used by Kern COG to designate Environmental Justice areas and Title VI areas in Kern County. Over twenty participants attended from various interest areas in the community including the Tejon Tribe, Lamont/Weedpatch Collaborative, North of the River Recreation and Park District, Kern County Department of Public Health, Caltrans, Greater Bakersfield Legal Assistance, First 5 Kern, Bike Bakersfield, Garden Pathways, and the Center for Race, Poverty and the Environment.

The meeting notes are attached for your convenience. A second meeting is scheduled for March 10, 2016.

Kern COG also intends to reactivate the Business and Industry Roundtable in the near future.

ACTION

Information

Environmental and Social Equity Roundtable
December 16, 2015
Notes of Meeting

Kern Council of Governments (COG) kicked off development of its 2018 Regional Transportation Plan on December 16, 2015, when it held the Environmental and Social Equity Roundtable. The reason for the Roundtable was to review the methodology to be used by Kern COG to designate Environmental Justice areas and Title VI areas in Kern County. Over twenty participants attended from various interest areas in the community including the Tejon Tribe, Lamont/Weedpatch Collaborative, North of the River Recreation and Park District, Kern County Department of Public Health, Caltrans, Greater Bakersfield Legal Assistance, First 5 Kern, Bike Bakersfield, Garden Pathways, and the Center for Race, Poverty and the Environment.

Information was discussed about the differences between Environmental Justice requirements and the requirements of Title VI. Environmental Justice requirements are governed by Executive Order 12898 issued by President Clinton in 1994. Its purpose is to focus attention on the environmental and human health effects of Federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities. EJ principles are to be considered throughout the planning and decision-making process. Procedures must provide meaningful opportunities for public involvement during the planning and development of programs, policies, and activities, including potential effects, alternatives, and mitigation measures. Any project that uses Federal funds must comply with Executive Order 12898 and its updates.

Title VI states that no person, on the grounds of race, color, or national origin, is excluded from participation in, denied the benefits of, or subjected to discrimination under any program or activity receiving Federal financial assistance.

In the development of past Regional Transportation Plans, Kern COG combined Environmental Justice regulations with Title VI regulations. At the direction of Kern COG's Federal Review Agencies, Kern COG will develop separate evaluation to comply with Environmental Justice regulations and Title VI regulations in the 2018 Regional Transportation Plan.

Kern COG's Federal Review Agencies suggested use of the Federal Environmental Protection Agency (EPA) EJSCREEN tool. This tool is an environmental justice mapping and screening tool that provides EPA with a nationally consistent dataset and approach for combining environmental and demographic indicators. Users choose a geographic area; the tool then provides demographic and environmental information for that area. All of the EJSCREEN indicators are publicly-available data.

After lengthy discussion, participants requested that Kern COG develop maps depicting how the new methodology compares with the previous methodology. In addition, participants requested that Kern COG develop maps that show the differences, if any, using the EJSCREEN tool versus the California CalEnviroScreen tool. CalEnviroScreen is a screening methodology that can be used to help identify California disadvantaged communities that are disproportionately burdened by multiple sources of pollution.

A second meeting is scheduled for March 10, 2016, to enable participants to review the methodologies.

Kern Council of Governments

VI.
RPAC

February 3rd, 2016

TO: Regional Planning Advisory Committee

FROM: Ahron Hakimi,
Executive Director

By: Ben Raymond,
Regional Planner

SUBJECT: RPAC AGENDA ITEM: VI
GROWTH FORECAST BY SUB-REGION

DESCRIPTION:

The 2015-2050 Growth Forecast distribution by Kern's Regional Statistical Areas (RSA) and sub-regions.

DISCUSSION:

Background

The 2015-2050 Regional Growth Forecast – The Kern COG board adopted the 2015-2050 regional growth forecast at its November 19th Board meeting. The growth forecast is a long-range projection for countywide total population. The population total is used to develop housing, employment, school enrollment, and income forecasts. The forecast is used for local transportation and air quality planning as well as by the member agencies for a variety of long range planning activities. The forecast will serve as the growth assumption for the 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The countywide forecasts as adopted by Kern COG board are provided on page 2 of this staff report.

Regional Statistical Areas (RSA) – Kern COG has developed 16 RSA's for analyzing the transportation system. The RSA boundaries group Transportation Analysis Zones by regions within the county.

Uplan Growth Model – The Uplan model allocates growth based on latest land use and planning assumptions. This tool allows Kern COG to develop and present the public with scenarios as required for the development of Kern's SCS. Kern's Uplan model is a sub-county model which allows input of growth numbers for county sub-areas. Working with the RPAC and Transportation Modeling Committee (TMC), Kern COG selected 10 sub-regions aggregated from the 16 RSA's. A map depicting the 10 sub-regions and 16 RSA is included as Attachment A.

Growth Forecast by Regional Statistical Areas (RSA) – The Growth Forecast for the 2014 RTP was distributed to the aggregated RSAs in 2012 by the RPAC and TMC. The latest growth forecast shows a slight slowing in growth compared to the previous forecast. Kern COG staff has applied the new growth numbers to the percentage of growth each sub-region was allocated in the 2014 RTP to generate new county sub-region growth forecast estimates. See table in Attachment B.

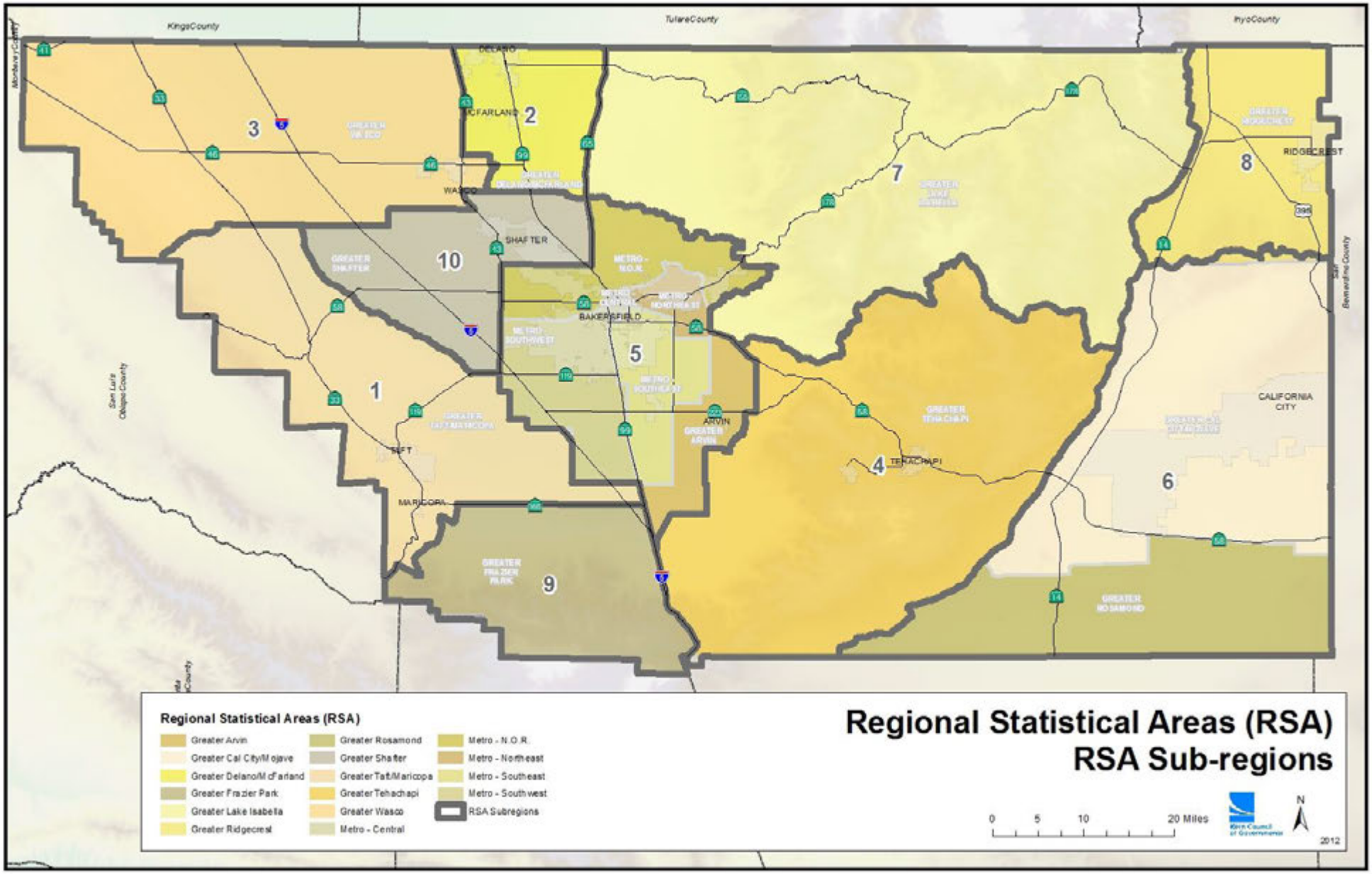
The RPAC and TMC are charged with overseeing changes to the growth forecast distributions based on latest planning assumptions; requested changes may be made up to 4 times per year.

Kern Regional Growth Forecast 2015-2050			
	Total Number of Households	Total Population	Total Number of Jobs
2010	255,000	840,000	274,000
2015	263,000	874,000	322,000
2020	289,000	978,000	347,000
2025	318,000	1,084,000	374,000
2030	350,000	1,192,000	402,000
2035	385,000	1,302,000	433,000
2040	423,000	1,413,000	466,000
2045	465,000	1,526,000	502,000
2050	512,000	1,641,000	540,000
2015 to 2035			
- Increase	122,000	428,000	111,000
- Annual Growth Rate	1.9%	2.0%	1.5%
2015 to 2050			
- Increase	249,000	767,000	218,000
- Annual Growth Rate	1.9%	1.8%	1.5%

ACTION: Approve Kern COG staff's distribution of 2015-2050 Regional Growth Forecast for 10 county sub-regions.

Attachments:
ATTACHMENT A – RSA and RSA Sub-region Map
ATTACHMENT B – Growth Forecast by RSA Sub-region

ATTACHMENT A



ATTACHMENT B

		2014 RTP							
2014 RTP		2010		2020		2035		2040	
RSA	Subregion	Households	Employment	Households	Employment	Households	Employment	Households	Employment
Greater Delano/McFarland	2	13,712	22,721	15,900	25,000	16,800	29,300	17,400	32,900
Greater Frazier Park	9	3,484	3,419	6,000	5,900	8,100	6,400	9,700	6,600
Greater Lake Isabella	7	7,634	3,091	10,700	4,000	11,300	5,600	13,300	5,800
Greater Ridgecrest	8	13,775	13,841	16,200	16,700	17,400	22,700	18,700	24,900
Greater East Kern	6	21,082	19,450	23,800	25,200	28,000	37,000	37,300	41,300
Greater Shafter	10	6,212	19,183	10,100	27,600	16,100	36,600	17,600	36,800
Greater Taft/Maricopa	1	6,189	10,866	7,600	12,300	9,100	14,900	9,700	16,500
Greater Tehachapi	4	11,614	10,499	15,700	16,700	27,400	23,000	29,400	24,500
Greater Wasco	3	6,087	13,563	7,300	15,400	10,700	18,000	11,300	19,200
Greater Metro Bakersfield	5	172,969	187,427	211,000	213,400	275,500	267,000	291,200	292,200
Total		256,300	308,199	319,100	365,200	417,900	460,600	456,700	500,600

		2018 RTP (Working Draft 01/25/16)							
2018 RTP (Working Draft 01/25/16)		2010		2020		2035		2040	
RSA	Subregion	Households	Employment	Households	Employment	Households	Employment	Households	Employment
Greater Delano/McFarland	2	13,712	22,721	14,900	24,300	15,800	28,200	16,400	31,200
Greater Frazier Park	9	3,484	3,419	4,800	5,100	6,800	5,600	8,400	5,800
Greater Lake Isabella	7	7,634	3,091	9,200	3,700	9,800	5,100	11,800	5,300
Greater Ridgecrest	8	13,775	13,841	15,000	15,800	16,200	21,200	17,500	23,000
Greater East Kern	6	21,082	19,450	22,500	23,400	26,600	34,000	35,800	37,500
Greater Shafter	10	6,212	19,183	8,200	24,900	14,000	33,000	15,500	33,200
Greater Taft/Maricopa	1	6,189	10,866	6,900	11,800	8,300	14,100	8,900	15,400
Greater Tehachapi	4	11,614	10,499	13,800	14,700	25,100	20,400	27,100	21,600
Greater Wasco	3	6,087	13,563	6,700	14,800	10,000	17,100	10,600	18,100
Greater Metro Bakersfield	5	172,969	187,427	192,900	205,100	255,300	253,400	270,800	274,300
Total		256,300	308,199	289,200	347,000	384,700	432,900	423,100	466,000

Kern Council of Governments

VII.
RPAC

February 3, 2016

TO: Regional Planning Advisory Committee

FROM: Ahron Hakimi,
Executive Director

BY: Michael Heimer,
Regional Planner

SUBJECT: RPAC AGENDA ITEM: VII
MODEL INPUT ASSUMPTIONS: DRAFT AVERAGE LAND USE DENSITY ANALYSIS YIELD RATES

DESCRIPTION:

To update land use model assumptions, average residential land use density rates, derived from the developed areas of local general and specific plans for all jurisdictions in Kern County, are being circulated for review and comment.

DISCUSSION:

In an effort to more accurately reflect future residential growth in the land use model, Kern COG performed a density analysis on the developed residential areas of general and specific plans in Kern County. The analysis was made using current Land Use Element maps from each jurisdiction and parcels from the Assessor's Office.

Current land use maps were requested from each jurisdiction and were loaded into GIS. Missing areas in the land use layer, such as street right-of-ways, were filled to create a gross land use layer. The gross land use layer was then divided into developed and undeveloped areas based upon parcels using Assessor's use code information and acreages were calculated. Households were then calculated in the gross developed areas using parcel use code data or address points in the case of City of Bakersfield. All data was entered into a spreadsheets and average densities were calculated.

Kern COG plans to use the average densities of developed residential areas as a starting density for use in the update to the UPlan land use model. Land use categories from multiple jurisdictions will be aggregated into the four to ten land use categories used by UPlan based upon density. These densities will only be used to allocate future growth and do not have to match the densities calculated in this analysis.

The average jurisdiction-wide density rates of existing developed residential may differ from what is expected in future development for your community. Please review your jurisdiction's rates and provide comments to Michael Heimer at mheimer@kerncog.org by March 2, 2016.

ACTION:

Information. Provide comments to staff by March 2, 2016.

Arvin				Gross - Developed					Net - Developed					
8/21/2012			DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Estate Residential - max density 1 unit per 1.25 acre		ER	19	240.39	0.00	0.80	0.40	0.08	237.28	0.00	0.81	0.41	0.08	1.01
Residential Reserve - max density 6 units per acre					0.00	6.00	3.00	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Low Density Residential - max density 6 units per acre		LR	3156	882.15	0.00	6.00	3.00	3.58	647.60	0.00	8.17	4.09	4.87	1.36
Medium Density Residential - 7 to 15 units per acre		MR	171	24.37	7.00	15.00	11.00	7.02	17.03	10.02	21.46	15.74	10.04	1.43
High Density Residential - 16 to 24 units per acre		HR	690	105.00	16.00	24.00	20.00	6.57	83.19	20.19	30.29	25.24	8.29	1.26

derived values from formulas
calculated values from GIS
values from landuse element

DISCLAIMER: The data used for this GIS Land Use analysis was obtained from local general plans and specific plans and are for the development of land use modeling for the RTP. The RTP is updated every 4 years. Local general plans and other data can be updated more frequently. For more detailed information on the latest planning assumptions, please refer to the latest locally adopted general plan for each community or other latest data source. Local general plans and other data updates will be incorporated into the next RTP update every 4 years.

Bakersfield				Gross - Developed					Net - Developed					
4/2/2015			DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Rural Residential		RR	1868	5724.82	0.40	0.40	0.40	0.33	5159.46	0.44	0.44	0.44	0.36	1.11
Estate Residential		ER	950	1812.97	0.86	1.71	1.28	0.52	1554.91	1.00	1.99	1.50	0.61	1.17
Urban Estate Residential		UER	1980	1491.51	1.64	1.64	1.64	1.33	1220.62	2.00	2.00	2.00	1.62	1.22
Suburban Residential		SR	11709	6121.13	1.57	3.12	2.35	1.91	4779.58	2.01	4.00	3.01	2.45	1.28
Suburban/Low Density Residential	County	SR/LR	1474	900.64	1.62	3.21	2.42	1.64	723.86	2.01	4.00	3.01	2.04	1.24
Suburban/Low Density Residential	City	SR/LR	0	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00	2.01	7.26	4.64	#DIV/0!	#DIV/0!
Low Density Residential		LR	75587	24660.35	2.85	5.16	4.01	3.07	17536.79	4.01	7.26	5.64	4.31	1.41
Low Medium/Low Density Residential	County	LMR/LR	10658	3056.93	5.43	7.47	6.45	3.49	2282.10	7.27	10.00	8.64	4.67	1.34
Low Medium/Low Density Residential	City	LMR/LR	0	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00	4.01	7.26	5.64	#DIV/0!	#DIV/0!
Low Medium Density Residential	County	LMR	12478	3301.01	2.97	7.40	5.18	3.78	2442.15	4.01	10.00	7.01	5.11	1.35
Low Medium Density Residential	City	LMR	6105	1695.39	2.78	6.94	4.86	3.60	1177.19	4.01	10.00	7.01	5.19	1.44
High Medium/Low Medium Density	County	HMR/LMR	0	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00	10.01	17.42	13.72	#DIV/0!	#DIV/0!
High Medium/Low Medium Density	City	HMR/LMR	0	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00	4.01	10.00	7.01	#DIV/0!	#DIV/0!
High Medium Density Residential	County	HMR	13196	2417.68	7.64	13.29	10.46	5.46	1844.55	10.01	17.42	13.72	7.15	1.31
High Medium Density Residential	City	HMR	20069	3129.97	5.45	13.07	9.26	6.41	2348.00	7.27	17.42	12.35	8.55	1.33
High Density Residential		HR	15861	1907.15	12.67	52.76	32.71	8.32	1385.91	17.43	72.60	45.02	11.44	1.38
Low Density Residential	West Ming	WM-LR	0	5.22	#DIV/0!	#DIV/0!	#DIV/0!	0.00	4.13	0.01	7.26	3.64	0.00	#DIV/0!
Low Medium Density Residential	West Ming	WM-LMR	0	51.17	#DIV/0!	#DIV/0!	#DIV/0!	0.00	25.02	7.27	10.00	8.64	0.00	#DIV/0!
High Medium Density Residential	West Ming	WM-HMR	1	38.42	8.59	14.94	11.77	0.03	32.96	10.01	17.42	13.72	0.03	1.17
High Density Residential	West Ming	WM-HR	0	1.99	#DIV/0!	#DIV/0!	#DIV/0!	0.00	1.82	17.43	72.60	45.02	0.00	#DIV/0!

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California City				Gross - Developed					Net - Developed					
10/6/2009			DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Estate Residential		R4	64	2075.47		0.50	0.25	0.03	285.57	0.00	3.63	1.82	0.22	7.27
Estate Residential	Wonder Acres	R5	1	8.92		0.20	0.10	0.11	7.55	0.00	0.24	0.12	0.13	1.18
Rural Residential		RA	31	80.55	0.51	1.00	0.76	0.38	78.74	0.52	1.02	0.77	0.39	1.02
Low Density Residential		R3	0	0.00	1.01	2.00	1.51	#DIV/0!	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Medium Low Density Residential	sewered	R2	69	51.39	2.01	4.00	3.01	1.34	28.05	3.68	7.33	5.51	2.46	1.83
Medium Low Density Residential	unsewerd	R2				2.00	1.00	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Medium Density Residential	sewered	R1	3989	3542.10	4.01	6.00	5.01	1.13	1199.41	11.84	17.72	14.78	3.33	2.95
Medium Density Residential	unsewerd	R1				2.00	1.00	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
High Density Residential		RM1	1029	1200.27	2.00	20.00	11.00	0.86	325.93	7.37	73.65	40.51	3.16	3.68

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Delano				Gross - Developed					Net - Developed					
12/6/2005			DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Estate Residential		ER	149	365.81	0.40	2.75	1.58	0.41	317.97	0.46	3.16	1.81	0.47	1.15
Rural Residential					0.51	1.00	0.76	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Low Density Residential		LR	7125	1825.61	1.01	5.00	3.01	3.90	1244.79	1.48	7.33	4.41	5.72	1.47
Medium Density Residential		MR	1126	205.65	5.01	14.00	9.51	5.48	143.66	7.17	20.04	13.61	7.84	1.43
High Density Residential		HR	1060	168.40	2.00	24.00	13.00	6.29	121.13	2.78	33.37	18.07	8.75	1.39

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Maricopa				Gross - Developed					Net - Developed					
12/9/2009			DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Residential Rural		RR	2	32.21	0.00	0.00	0.00	0.06	32.21	0.00	0.00	0.00	0.06	1.00
Residential Low Density		RLD	279	118.21	0.00	10.00	5.00	2.36	75.71	0.00	15.61	7.81	3.69	1.56
Residential Medium Density		RMD	36	13.82	11.00	20.00	15.50	2.60	8.06	18.86	34.29	26.58	4.47	1.71
High Density			0	0.00	21.00	30.00	25.50	#DIV/0!	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

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McFarland				Gross - Developed					Net - Developed					
9/12/1991			DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Reserve Residential		RR	786	678.96	0.00	0.20	0.10	1.16	587.55	0.00	0.23	0.12	1.34	1.16
Low Density Residential		LD	985	235.38	0.00	6.00	3.00	4.18	151.64	0.00	9.31	4.66	6.50	1.55
Medium Density Residential		MD	724	127.47	0.00	12.00	6.00	5.68	91.31	0.00	16.75	8.38	7.93	1.40
High Density Residential		HD	40	9.97	0.00	20.00	10.00	4.01	8.59	0.00	23.21	11.61	4.66	1.16

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Ridgecrest				Gross - Developed					Net - Developed					
6/1/2010			DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Residential Large Lot		RX	550	1879.01	0.00	0.40	0.20	0.29	1698.08	0.00	0.44	0.22	0.32	1.11
Residential Rural Density		RR	519	1493.64	0.00	1.00	0.50	0.35	1381.54	0.00	1.08	0.54	0.38	1.08
Residential Estate Density		RE	5	7.95	1.10	2.00	1.55	0.63	1.34	6.54	11.90	9.22	3.74	5.95
Residential Low Density		RL	7073	1891.63	2.10	5.00	3.55	3.74	1307.80	3.04	7.23	5.13	5.41	1.45
Residential Medium Density		RM	4291	630.56	5.10	14.00	9.55	6.81	494.62	6.50	17.85	12.17	8.68	1.27
Residential High Density		RH	0	0.00	14.10	29.00	21.55	#DIV/0!	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

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Shafter				Gross - Developed					Net - Developed					
			DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Rural Residential			157	203.29	0.00	0.40	0.20	0.77	217.30	0.00	0.37	0.19	0.72	0.94
Rural Community			227	149.67	0.00	1.00	0.50	1.52	135.33	0.00	1.11	0.55	1.68	1.11
Estate Residential			0	0.00	0.00	2.00	1.00	#DIV/0!	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Very Low Density Residential			219	163.67	0.00	3.50	1.75	1.34	138.11	0.00	4.15	2.07	1.59	1.19
Low Density Residential			2941	664.87	0.00	5.00	2.50	4.42	588.17	0.00	5.65	2.83	5.00	1.13
Medium Density Residential			920	106.58	0.00	10.00	5.00	8.63	101.33	0.00	10.52	5.26	9.08	1.05
Medium-High Density Residential			226	23.87	0.00	20.00	10.00	9.47	22.60	0.00	21.12	10.56	10.00	1.06
Estate Residential	Gossamer Grove S	ER	0	3.95	#DIV/0!	#DIV/0!	3.20	0.00	0.00	2.40	4.00	3.20	#DIV/0!	#DIV/0!
Low Density Residential	Gossamer Grove S	LDR	0	57.57	#DIV/0!	#DIV/0!	5.75	0.00	2.57	4.00	7.50	5.75	0.00	#DIV/0!
Medium Density Residential	Gossamer Grove S	MDR	0	6.08	#DIV/0!	#DIV/0!	8.25	0.00	0.00	7.50	9.00	8.25	#DIV/0!	#DIV/0!
Low Density Residential	Heritage Ranch		0	37.61	#DIV/0!	#DIV/0!	2.13	0.00	39.74	0.00	4.25	2.13	0.00	#DIV/0!
Low Density Residential	Mission Lakes	LDR	0	7.11	#DIV/0!	#DIV/0!	5.75	0.00	0.00	4.00	7.50	5.75	#DIV/0!	#DIV/0!
Medium Density Residential	Mission Lakes	MDR	0	0.00	#DIV/0!	#DIV/0!	10.75	#DIV/0!	0.00	7.50	14.00	10.75	#DIV/0!	#DIV/0!
Medium-High Density Residential	Mission Lakes	MHDR	0	0.03	#DIV/0!	#DIV/0!	21.00	0.00	0.00	18.00	24.00	21.00	#DIV/0!	#DIV/0!
Detached Residential - single family	Orchard Park		0	0.02	0	3.5	#DIV/0!	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

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Taft				Gross - Developed					Net - Developed					
7/1/2009			DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Rural Residential		RR	0	0.00	0.00	1.00	0.50	#DIV/0!	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Estate Residential		RE	18	124.29	0.00	2.50	1.25	0.14	125.76	0.00	2.47	1.24	0.14	0.99
Low Density Residential		LDR	4305	1765.70	0.00	7.00	3.50	2.44	1376.50	0.00	8.98	4.49	3.13	1.28
Medium Density Residential		MDR	158	178.73	4.00	15.00	9.50	0.88	146.92	4.87	18.25	11.56	1.08	1.22
High Density Residential		HDR	631	77.94	8.00	29.00	18.50	8.10	58.31	10.69	38.76	24.73	10.82	1.34
Mixed Use		MU	439	297.54	0.00	29.00	14.50	1.48	212.24	0.00	40.66	20.33	2.07	1.40

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Tehachapi				Gross - Developed					Net - Developed					
1/1/2012			DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Civic/School	1B	C/S_1B	1	31.27			0.00	0.03	26.73			0.00	0.04	1.17
Civic/School	3A	C/S_3A	19	4.77			0.00	3.98	3.36			0.00	5.65	1.42
Civic/School	3B	C/S_3B		33.94			0.00	0.00	30.93			0.00	0.00	#DIV/0!
Civic/School	4B	C/S_4B		89.30			0.00	0.00	110.00			0.00	0.00	#DIV/0!
Downtown	1A	D_1A	16	28.85			0.00	0.55	11.25			0.00	1.42	2.57
Downtown	1B	D_1B	53	42.89			0.00	1.24	30.95			0.00	1.71	1.39
Downtown	5A	D_5A	25	18.94			0.00	1.32	7.54			0.00	3.31	2.51
Neighborhood Center	1A	NC_1A	21	15.93			0.00	1.32	10.69			0.00	1.97	1.49
Neighborhood Center	1B	NC_1B	191	38.02			0.00	5.02	31.98			0.00	5.97	1.19
Neighborhood Center	2	NC_2	164	14.34			0.00	11.43	90.60			0.00	1.81	0.16
Neighborhood Center	3A	NC_3A	169	39.87			0.00	4.24	27.90			0.00	6.06	1.43
Neighborhood Center	3B	NC_3B	132	35.61			0.00	3.71	22.88			0.00	5.77	1.56
Neighborhood Center	4A	NC_4A	115	30.55			0.00	3.76	30.30			0.00	3.79	1.01
Neighborhood Center	4B	NC_4B	1	5.63			0.00	0.18	2.53			0.00	0.40	2.23
Neighborhood Center	5A	NC_5A	93	17.53			0.00	5.30	13.81			0.00	6.73	1.27
Neighborhood Center	5B	NC_5B		8.83			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Neighborhood Center	U-1	NC_U-1					0.00	#DIV/0!				0.00	#DIV/0!	#DIV/0!
Neighborhood Center	U-2	NC_U-2		3.84			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Neighborhood Edge	4A	NE_4A	29	47.04			0.00	0.62	40.01			0.00	0.72	1.18
Neighborhood Edge	4B	NE_4B	2	5.54			0.00	0.36	14.36			0.00	0.14	0.39
Neighborhood Edge	5B	NE_5B		0.82			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Neighborhood Edge	U-1	NE_U-1					0.00	#DIV/0!				0.00	#DIV/0!	#DIV/0!
Neighborhood General	1B	NG_1B		4.17			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Neighborhood General	2	NG_2	38	16.52			0.00	2.30	12.47			0.00	3.05	1.32
Neighborhood General	3A	NG_3A	350	110.27			0.00	3.17	82.33			0.00	4.25	1.34
Neighborhood General	3B	NG_3B	158	65.72			0.00	2.40	47.82			0.00	3.30	1.37
Neighborhood General	4B	NG_4B	804	268.27			0.00	3.00	170.54			0.00	4.71	1.57
Neighborhood General	5A	NG_5A	245	60.99			0.00	4.02	38.73			0.00	6.33	1.58
Neighborhood General	5B	NG_5B		12.81			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Neighborhood General	U-1	NG_U-1					0.00	#DIV/0!				0.00	#DIV/0!	#DIV/0!
Neighborhood General	U-2	NG_U-2	5	4.55			0.00	1.10	10.21			0.00	0.49	0.45
Neighborhood General	U-3	NG_U-3		0.05			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Natural	5B	N_5B		1.08			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Natural	U-1	N_U-1		42.02			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Natural	U-4	N_U-4		62.40			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Open Space	1A	OS_1A		16.95			0.00	0.00	9.49			0.00	0.00	#DIV/0!
Open Space	3A	OS_3A	2	5.36			0.00	0.37	4.77			0.00	0.42	1.12
Open Space	3B	OS_3B		4.46			0.00	0.00	3.64			0.00	0.00	#DIV/0!
Open Space	4A	OS_4A	2	23.65			0.00	0.08	20.88			0.00	0.10	1.13
Open Space	4B	OS_4B		8.61			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Open Space	5A	OS_5A		17.25			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Open Space	5B	OS_5B	1	62.48			0.00	0.02	4.06			0.00	0.25	15.39
Open Space	U-1	OS_U-1		22.81			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Open Space	U-2	OS_U-2		2.62			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Open Space	U-3	OS_U-3		57.93			0.00	0.00	39.61			0.00	0.00	#DIV/0!
Open Space	U-4	OS_U-4		4.46			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Open Space	U-5	OS_U-5		5.40			0.00	0.00	0.84			0.00	0.00	#DIV/0!
Rural General	2	RG_2	1	10.19			0.00	0.10	5.09			0.00	0.20	2.00
Rural General	5B	RG_5B	49	80.41			0.00	0.61	73.75			0.00	0.66	1.09
Rural General	U-1	RG_U-1					0.00	#DIV/0!				0.00	#DIV/0!	#DIV/0!
Rural General	U-2	RG_U-2	56	157.91			0.00	0.35	147.99			0.00	0.38	1.07
Rural General	U-3	RG_U-3	4	38.63			0.00	0.10	26.98			0.00	0.15	1.43
Rural General	U-5	RG_U-5	80	346.16			0.00	0.23	205.46			0.00	0.39	1.68
Rural		R		9.95			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Rural	U-2	R_U-2	24	412.72			0.00	0.06	377.23			0.00	0.06	1.09
Rural	U-3	R_U-3	14	492.86			0.00	0.03	448.91			0.00	0.03	1.10
Rural	U-4	R_U-4	85	59.61			0.00	1.43	38.62			0.00	2.20	1.54
Special District 1		SD-1		16.34			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Special District 1	1A	SD-1_1A		32.79			0.00	0.00	41.50			0.00	0.00	#DIV/0!
Special District 1	2	SD-1_2		10.05			0.00	0.00	5.10			0.00	0.00	#DIV/0!
Special District 1	5A	SD-1_5A	45	664.90			0.00	0.07	549.47			0.00	0.08	1.21
Special District 1	U-2	SD-1_U-2		4.17			0.00	0.00				0.00	#DIV/0!	#DIV/0!
Special District 1	U-3	SD-1_U-3		99.15			0.00	0.00	26.45			0.00	0.00	#DIV/0!
Special District 2	1A	SD-2_1A		10.14			0.00	0.00	8.86			0.00	0.00	#DIV/0!
Special District 2	2	SD-2_2	5	55.24			0.00	0.09	40.85			0.00	0.12	1.35
Special District 3	5B	SD-3_5B		28.47			0.00	0.00	4.20			0.00	0.00	#DIV/0!
Special District 3	U-1	SD-3_U-1					0.00	#DIV/0!				0.00	#DIV/0!	#DIV/0!

derived values from formulas
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Wasco				Gross - Developed					Net - Developed					
6/1/2010			DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Rural Residential		RR	11	34.01	0.00	2.00	1.00	0.32	15.38	0.00	4.42	2.21	0.72	2.21
Estate Residential		ER	136	60.98	2.00	4.50	3.25	2.23	39.85	3.06	6.89	4.97	3.41	1.53
Low Density Residential		LDR	3668	986.75	3.50	7.50	5.50	3.72	680.07	5.08	10.88	7.98	5.39	1.45
Medium Density Residential		MDR	977	159.13	7.60	15.00	11.30	6.14	116.03	10.42	20.57	15.50	8.42	1.37
High Density Residential		HDR	185	20.26	15.10	24.00	19.55	9.13	13.82	22.14	35.19	28.67	13.39	1.47

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Kern			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
29 Dwelling Units/Net Acre Maximum	5.1	144	12.49	11.28	20.43	15.86	11.53	8.80	16.01	29.00	22.51	16.36	1.42
16 Dwelling Units/Net Acre Maximum	5.2	136	43.66	9.43	15.07	12.25	3.11	41.11	10.01	16.00	13.01	3.31	1.06
10 Dwelling Units/Net Acre Maximum	5.3	1772	585.15	3.05	7.60	5.32	3.03	444.62	4.01	10.00	7.01	3.99	1.32
4 Dwelling Units/Net Acre Maximum	5.4	2643	1449.73	0.82	3.23	2.02	1.82	1171.83	1.01	4.00	2.51	2.26	1.24
2 Dwelling Units/Net Acre Maximum	5.45	0	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00	1.01	2.00	1.51	#DIV/0!	#DIV/0!
1 Dwelling Unit/Net Acre Maximum	5.5	419	1098.69	0.37	0.91	0.64	0.38	1004.70	0.41	1.00	0.71	0.42	1.09
Residential - Minimum 2.5 Gross Acres/Unit	5.6	1832	8896.48	0.21	0.40	0.31	0.21	7648.54	0.24	0.47	0.35	0.24	1.16
5.0 Gross Acres/Dwelling Unit Maximum	5.7	384	3117.61	0.06	0.20	0.13	0.12	2527.44	0.07	0.25	0.16	0.15	1.23
10.0 Gross Acres/DU Maximum	5.75	0	0.00	0.06	0.10	0.08	#DIV/0!	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20+ Gross Acres/DU Maximum	5.8	70	2066.58	0.00	0.05	0.03	0.03	1677.31	0.00	0.06	0.03	0.04	1.23

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Actis			Gross - Developed					Net - Developed					
		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
29 Dwelling Units/Net Acre Maximum	5.1	0	9.00	#DIV/0!	#DIV/0!	#DIV/0!	0.00	8.94	16.01	29.00	22.51	0.00	#DIV/0!
Residential - Minimum 2.5 Gross Acres/Unit	5.6	66	1258.00	0.21	0.40	0.31	0.05	1190.13	0.22	0.42	0.32	0.06	1.06

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Boron			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
16 Dwelling Units/Net Acre Maximum	5.2	41	112.92	9.04	14.44	11.74	0.36	101.93	10.01	16.00	13.01	0.40	1.11
10 Dwelling Units/Net Acre Maximum	5.3	32	105.29	3.34	8.34	5.84	0.30	87.81	4.01	10.00	7.01	0.36	1.20
4 Dwelling Units/Net Acre Maximum	5.4	17	88.53	0.72	2.84	1.78	0.19	62.86	1.01	4.00	2.51	0.27	1.41
1 Dwelling Unit/Net Acre Maximum	5.5	195	147.35	0.24	0.59	0.42	1.32	87.50	0.41	1.00	0.71	2.23	1.68
Residential - Minimum 2.5 Gross Acres/Unit	5.6	1	49.23	0.21	0.40	0.31	0.02	43.36	0.24	0.45	0.35	0.02	1.14

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Blackwell's Corner			Gross - Developed					Net - Developed					
Jun-74		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Suburban Residential		0	64.31	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00	1.33	1.33	1.33	#DIV/0!	#DIV/0!
Low-Density Residential		25	41.82	2.24	6.73	4.49	0.60	46.90	2.00	6.00	4.00	0.53	0.89
Medium Density Residential		0	7.61	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00	10.00	16.00	13.00	#DIV/0!	#DIV/0!
High Density		0	5.71	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00	16.01	29.00	22.51	#DIV/0!	#DIV/0!
Low-Density Mobilehome Subdivision		0	12.06	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00	0.17	6.00	3.08	#DIV/0!	#DIV/0!
Mobilehomes Park		0	12.06	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00	10.00	10.00	10.00	#DIV/0!	#DIV/0!

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Buttonwillow			Gross - Developed					Net - Developed					
Apr-74		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Two Family		148	41.39	4.17	6.95	5.56	3.58	28.77	6.00	10.00	8.00	5.14	1.44
Single Family		267	121.48	0.66	0.66	0.66	2.20	80.77	1.00	1.00	1.00	3.31	1.50

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Cache Creek			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
1 Dwelling Unit/Net Acre Maximum	5.5	16	419	0.00	0.01	0.01	0.04	87.93	0.41	1.00	0.71	4.77	124.79
Residential - Minimum 2.5 Gross Acres/Unit	5.6	29	1097	0.21	0.40	0.31	0.03	938.41	9.29	17.69	13.49	1.17	44.23
20+ Gross Acres/DU Maximum	5.8	0	642	0.00	0.05	0.03	0.00	1278.33	#DIV/0!	#DIV/0!	#DIV/0!	0.50	#DIV/0!

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Caliente			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
10 Dwelling Units/Net Acre Maximum	5.3	16	32.79	1.04	2.59	1.81	0.49	17.41	4.01	10.00	7.01	1.88	3.86

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Cameron Canyon			Gross - Developed					Net - Developed					
Jun-86		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
5.0 Gross Acres/Dwelling Unit Maximum	5.7	13	371.51	0.06	0.20	0.13	0.03	284.60	0.08	0.26	0.17	0.05	1.31
20+ Gross Acres/DU Maximum	5.8	11	794.20	0.00	0.05	0.03	0.01	865.14	0.00	0.05	0.02	0.01	0.92

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Cantil			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Residential - Minimum 2.5 Gross Acres/Unit	5.6	47	1724.01	0.21	0.40	0.31	0.03	1788.81	0.20	0.39	0.29	0.03	0.96
20+ Gross Acres/DU Maximum	5.8	0	478.29	0.00	0.05	0.03	0.00	392.33	#DIV/0!	#DIV/0!	#DIV/0!	0.00	#DIV/0!

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Casa Loma			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
16 Dwelling Units/Net Acre Maximum	5.2	194	52.34	7.08	11.32	9.20	3.71	37.04	10.01	16.00	13.01	5.24	1.41
10 Dwelling Units/Net Acre Maximum	5.3	590	184.31	3.68	9.17	6.42	3.20	169.03	4.01	10.00	7.01	3.49	1.09
4 Dwelling Units/Net Acre Maximum	5.4	310	178.31	0.92	3.65	2.29	1.74	162.77	1.01	4.00	2.51	1.90	1.10

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Cuddy Valley			Gross - Developed					Net - Developed					
May-87		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Rural Residential -1 DU/5 acres gross		67	633.88	0.00	0.20	0.10	0.11	588.17	0.00	0.22	0.11	0.11	1.08
Medium Density Residential - 1 DU/5 acres gross		247	228.44	0.00	0.20	0.10	1.08	226.33	0.00	0.20	0.10	1.09	1.01

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Fellows			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
16 Dwelling Units/Net Acre Maximum	5.2	0	1.93	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00	10.01	16.00	13.01	#DIV/0!	#DIV/0!
10 Dwelling Units/Net Acre Maximum	5.3	8	73.16	6.68	16.65	11.67	0.11	121.83	4.01	10.00	7.01	0.07	0.60
Residential - Minimum 2.5 Gross Acres/Unit	5.6	0	364.27	0.21	0.40	0.31	0.00	356.94	#DIV/0!	#DIV/0!	#DIV/0!	0.00	#DIV/0!

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Frazier Park/Lebec			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
16 Dwelling Units/Net Acre Maximum	5.2	85	19.50	9.78	15.63	12.70	4.36	19.04	10.01	16.00	13.01	4.46	1.02
10 Dwelling Units/Net Acre Maximum	5.3	1352	490.71	2.96	7.39	5.18	2.76	362.55	4.01	10.00	7.01	3.73	1.35
4 Dwelling Units/Net Acre Maximum	5.4	3	67.27	0.89	3.53	2.21	0.04	59.32	1.01	4.00	2.51	0.05	1.13
1 Dwelling Unit/Net Acre Maximum	5.5	2	14.73	0.30	0.72	0.51	0.14	10.66	0.41	1.00	0.71	0.19	1.38
Residential - Minimum 2.5 Gross Acres/Unit	5.6	57	198.64	0.21	0.40	0.31	0.29	314.48	0.13	0.25	0.19	0.18	0.63
5.0 Gross Acres/Dwelling Unit Maximum	5.7	27	260.50	0.06	0.20	0.13	0.10	281.54	0.06	0.19	0.12	0.10	0.93
20+ Gross Acres/DU Maximum	5.8	9	239.74	0.00	0.05	0.03	0.04	262.81	0.00	0.05	0.02	0.03	0.91

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Fremont			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
4 Dwelling Units/Net Acre Maximum	5.4	90	162.75	0.79	3.14	1.97	0.55	127.71	1.01	4.00	2.51	0.70	1.27
Residential - Minimum 2.5 Gross Acres/Unit	5.6	0	1450.85	0.21	0.40	0.31	0.00	1343.88	#DIV/0!	#DIV/0!	#DIV/0!	0.00	#DIV/0!
20+ Gross Acres/DU Maximum	5.8	1	80.78	0.00	0.05	0.03	0.01	81.49	0.00	0.05	0.02	0.01	0.99

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Greater Tehachapi Area			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
29 Dwelling Units/Net Acre Maximum	5.1	685	285.43	21.77	39.44	30.61	2.40	388.18	16.01	29.00	22.51	1.76	0.74
16 Dwelling Units/Net Acre Maximum	5.2	146	79.41	6.61	10.56	8.58	1.84	52.41	10.01	16.00	13.01	2.79	1.52
10 Dwelling Units/Net Acre Maximum	5.3	720	399.65	7.77	19.38	13.58	1.80	774.70	4.01	10.00	7.01	0.93	0.52
Maximum 10 Units/Net Acre - Cluster Option	5.3.1	0	65.95	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00	4.01	10.00	7.01	#DIV/0!	#DIV/0!
4 Dwelling Units/Net Acre Maximum	5.4	2144	1911.99	1.03	4.06	2.54	1.12	1940.74	1.01	4.00	2.51	1.10	0.99
Maximum 4 Units/Net Acre - Cluster Option	5.4.1	0	157.11	#DIV/0!	#DIV/0!	#DIV/0!	0.00	313.62	1.01	4.00	2.51	0.00	#DIV/0!
2 Dwelling Units/Net Acre Maximum	5.45	871	839.88	0.91	1.81	1.36	1.04	759.73	1.01	2.00	1.51	1.15	1.11
1 Dwelling Unit/Net Acre Maximum	5.5	2304	6049.26	0.39	0.94	0.67	0.38	5710.92	0.41	1.00	0.71	0.40	1.06
Maximum 1 Unit/Net Acre - Cluster Requirement	5.5.1	9	24.25	0.35	0.84	0.59	0.37	20.46	0.41	1.00	0.71	0.44	1.19
Residential - Minimum 2.5 Gross Acres/Unit	5.6	1431	11925.23	0.21	0.40	0.31	0.12	11827.01	0.21	0.40	0.31	0.12	1.01
Minimum 2.5 Gross Acres/Unit - Cluster Option	5.6.1	0	618.22	0.21	0.40	0.31	0.00	403.39	#DIV/0!	#DIV/0!	#DIV/0!	0.00	#DIV/0!
5.0 Gross Acres/Dwelling Unit Maximum	5.7	275	3996.53	0.06	0.20	0.13	0.07	4144.43	0.06	0.19	0.13	0.07	0.96
10.0 Gross Acres/DU Maximum	5.75	77	2009.44	0.06	0.10	0.08	0.04	1996.87	0.06	0.10	0.08	0.04	1.01
20+ Gross Acres/DU Maximum	5.8	127	8077.17	0.00	0.05	0.03	0.02	8451.99	0.00	0.05	0.02	0.02	0.96

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Inyokern			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
16 Dwelling Units/Net Acre Maximum	5.2	230	237.79	8.96	14.32	11.64	0.97	212.86	10.01	16.00	13.01	1.08	1.12
10 Dwelling Units/Net Acre Maximum	5.3	49	336.40	4.05	10.09	7.07	0.15	339.43	4.01	10.00	7.01	0.14	0.99
1 Dwelling Unit/Net Acre Maximum	5.5	46	601.48	0.37	0.89	0.63	0.08	535.53	0.41	1.00	0.71	0.09	1.12
Residential - Minimum 2.5 Gross Acres/Unit	5.6	92	1072.82	0.21	0.40	0.31	0.09	1040.01	0.22	0.41	0.31	0.09	1.03

derived values from formulas
calculated values from GIS
values from landuse element

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Jawbone Canyon			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Residential - Minimum 2.5 Gross Acres/Unit	5.6	0	392.93	0.21	0.40	0.31	0.00	354.13	#DIV/0!	#DIV/0!	#DIV/0!	0.00	#DIV/0!
5.0 Gross Acres/Dwelling Unit Maximum	5.7	0	159.03	0.06	0.20	0.13	0.00	147.95	#DIV/0!	#DIV/0!	#DIV/0!	0.00	#DIV/0!
20+ Gross Acres/DU Maximum	5.8		1859.77	0.00	0.05	0.03	0.00	2038.47	#DIV/0!	#DIV/0!	#DIV/0!	0.00	#DIV/0!

derived values from formulas
calculated values from GIS
values from landuse element

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Keene Ranch			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Maximum 7 Units/Net Acre	5.35	0	130.54	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00	1.01	7.00	4.01	#DIV/0!	#DIV/0!
4 Dwelling Units/Net Acre Maximum	5.4	0	303.97	#DIV/0!	#DIV/0!	#DIV/0!	0.00	38.44	1.01	4.00	2.51	0.00	#DIV/0!
2 Dwelling Units/Net Acre Maximum	5.45	0	54.03	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00	1.01	2.00	1.51	#DIV/0!	#DIV/0!
1 Dwelling Unit/Net Acre Maximum	5.5	0	151.83	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00	0.41	1.00	0.71	#DIV/0!	#DIV/0!
Residential - Minimum 2.5 Gross Acres/Unit	5.6	0	194.67	0.21	0.40	0.31	0.00	60.65	#DIV/0!	#DIV/0!	#DIV/0!	0.00	#DIV/0!
5.0 Gross Acres/Dwelling Unit Maximum	5.7	59	1865.89	0.06	0.20	0.13	0.03	880.81	0.13	0.42	0.28	0.07	2.12

derived values from formulas
calculated values from GIS
values from landuse element

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Kelso Creek at Rocky Point			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Residential - Minimum 2.5 Gross Acres/Unit	5.6	21	5233.55	0.21	0.40	0.31	0.00	4917.16	0.22	0.43	0.32	0.00	1.06
5.0 Gross Acres/Dwelling Unit Maximum	5.7	2	19.99	0.06	0.20	0.13	0.10	18.48	0.06	0.22	0.14	0.11	1.08
20+ Gross Acres/DU Maximum	5.8	12	894.94	0.00	0.05	0.03	0.01	874.12	0.00	0.05	0.03	0.01	1.02

derived values from formulas
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values from landuse element

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Kern River Valley			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
29 Dwelling Units/Net Acre Maximum	5.1	208	64.21	9.75	17.67	13.71	3.24	39.12	16.01	29.00	22.51	5.32	1.64
16 Dwelling Units/Net Acre Maximum	5.2	378	135.03	9.94	15.90	12.92	2.80	134.15	10.01	16.00	13.01	2.82	1.01
10 Dwelling Units/Net Acre Maximum	5.3	3615	1180.69	3.21	7.99	5.60	3.06	943.96	4.01	10.00	7.01	3.83	1.25
4 Dwelling Units/Net Acre Maximum	5.4	3796	2920.52	0.93	3.69	2.31	1.30	2692.55	1.01	4.00	2.51	1.41	1.08
2 Dwelling Units/Net Acre Maximum	5.45	461	1211.56	0.97	1.91	1.44	0.38	1158.37	1.01	2.00	1.51	0.40	1.05
1 Dwelling Unit/Net Acre Maximum	5.5	131	270.70	0.36	0.89	0.63	0.48	240.47	0.41	1.00	0.71	0.54	1.13
Residential - Minimum 2.5 Gross Acres/Unit	5.6	337	1099.46	0.21	0.40	0.31	0.31	1158.64	0.20	0.38	0.29	0.29	0.95
5.0 Gross Acres/Dwelling Unit Maximum	5.7	67	637.49	0.06	0.20	0.13	0.11	524.80	0.07	0.24	0.16	0.13	1.21
20+ Gross Acres/DU Maximum	5.8	9	232.10	0.00	0.05	0.03	0.04	287.60	0.00	0.04	0.02	0.03	0.81

derived values from formulas
calculated values from GIS
values from landuse element

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Lost Hills			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Low Density Residential - 7 D.U./Acre Max		335	313.77	0.75	5.18	2.96	1.07	232.10	1.01	7.00	4.01	1.44	1.35
Medium Density Residential - 14 D.U./Acre Max		35	20.98	4.02	8.02	6.02	1.67	12.02	7.01	14.00	10.51	2.91	1.75
High Density Residential - 29 D.U./Acre Max		46	30.67	7.53	15.58	11.55	1.50	16.47	14.01	29.00	21.51	2.79	1.86

derived values from formulas
calculated values from GIS
values from landuse element

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Mettler			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
10 Dwelling Units/Net Acre Maximum	5.3	30	26.04	2.58	6.44	4.51	1.15	16.78	4.01	10.00	7.01	1.79	1.55

	derived values from formulas
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	values from landuse element

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Mexican Colony - Cherokee Strip			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
10 Dwelling Units/Net Acre Maximum	5.3	86	20.03	3.18	7.92	5.55	4.29	15.86	4.01	10.00	7.01	5.42	1.26
4 Dwelling Units/Net Acre Maximum	5.4	42	15.55	0.87	3.46	2.17	2.70	13.46	1.01	4.00	2.51	3.12	1.15
Residential - Minimum 2.5 Gross Acres/Unit	5.6	6	45.21	0.21	0.40	0.31	0.13	43.44	0.22	0.42	0.32	0.14	1.04

derived values from formulas
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values from landuse element

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Mojave			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
29 Dwelling Units/Net Acre Maximum	5.1	91	66.75	13.90	25.17	19.54	1.36	57.94	16.01	29.00	22.51	1.57	1.15
16 Dwelling Units/Net Acre Maximum	5.2	136	596.94	8.46	13.53	10.99	0.23	504.62	10.01	16.00	13.01	0.27	1.18
10 Dwelling Units/Net Acre Maximum	5.3	1112	1580.18	3.04	7.58	5.31	0.70	1197.68	4.01	10.00	7.01	0.93	1.32
4 Dwelling Units/Net Acre Maximum	5.4	3	1659.22	0.81	3.20	2.00	0.00	1327.02	1.01	4.00	2.51	0.00	1.25
1 Dwelling Unit/Net Acre Maximum	5.5	0	75.67	#DIV/0!	#DIV/0!	#DIV/0!	0.00	83.63	0.41	1.00	0.71	0.00	#DIV/0!
Residential - Minimum 2.5 Gross Acres/Unit	5.6	8	814.67	0.21	0.40	0.31	0.01	759.27	0.23	0.43	0.33	0.01	1.07

derived values from formulas
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values from landuse element

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North Edwards			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
16 Dwelling Units/Net Acre Maximum	5.2	6	158.29	9.45	15.11	12.28	0.04	149.47	10.01	16.00	13.01	0.04	1.06
10 Dwelling Units/Net Acre Maximum	5.3	299	958.36	3.82	9.52	6.67	0.31	912.82	4.01	10.00	7.01	0.33	1.05
4 Dwelling Units/Net Acre Maximum	5.4	146	1161.23	0.98	3.90	2.44	0.13	1131.11	1.01	4.00	2.51	0.13	1.03
Residential - Minimum 2.5 Gross Acres/Unit	5.6	20	856.08	0.21	0.40	0.31	0.02	735.77	0.24	0.47	0.35	0.03	1.16

derived values from formulas
calculated values from GIS
values from landuse element

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O'Neil Canyon			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
4 Dwelling Units/Net Acre Maximum	5.4	158	95.49	15.96	3.49	9.73	1.65	83.37	18.29	4.00	11.14	1.90	1.15
2 Dwelling Units/Net Acre Maximum	5.45	3	3.16	0.26	0.52	0.39	0.95	0.82	1.01	2.00	1.51	3.64	3.84
1 Dwelling Unit/Net Acre Maximum	5.5	4	30.21	0.30	0.73	0.51	0.13	21.96	0.41	1.00	0.71	0.18	1.38
Residential - Minimum 2.5 Gross Acres/Unit	5.6	34	126.33	0.21	0.40	0.31	0.27	108.60	0.24	0.47	0.35	0.31	1.16
10.0 Gross Acres/DU Maximum	5.75	1	18.12	0.06	0.10	0.08	0.06	8.76	0.12	0.21	0.17	0.11	2.07

derived values from formulas
calculated values from GIS
values from landuse element

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Paris Loraine			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
5.0 Gross Acres/Dwelling Unit Maximum	5.7	20	52.14	0.06	0.20	0.13	0.38	48.52	0.06	0.21	0.14	0.41	1.07

derived values from formulas
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Pond			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
16 Dwelling Units/Net Acre Maximum	5.2	18	9.07	6.29	10.05	8.17	1.98	5.70	10.01	16.00	13.01	3.16	1.59
10 Dwelling Units/Net Acre Maximum	5.3	0	11.42	#DIV/0!	#DIV/0!	#DIV/0!	0.00	1.98	4.01	10.00	7.01	0.00	#DIV/0!
20+ Gross Acres/DU Maximum	5.8	0	17.98	0.00	0.05	0.03	0.00	25.02	#DIV/0!	#DIV/0!	#DIV/0!	0.00	#DIV/0!

derived values from formulas
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Randsburg/Johannesburg			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
16 Dwelling Units/Net Acre Maximum	5.2	21	13.17	4.86	7.77	6.32	1.59	6.40	10.01	16.00	13.01	3.28	2.06
10 Dwelling Units/Net Acre Maximum	5.3	172	257.12	2.75	6.86	4.81	0.67	176.43	4.01	10.00	7.01	0.97	1.46

derived values from formulas
calculated values from GIS
values from landuse element

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Ridgecrest Ranchos			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
1 Dwelling Unit/Net Acre Maximum	5.5	76	628.76	0.40	0.98	0.69	0.12	616.77	0.41	1.00	0.71	0.12	1.02

derived values from formulas
calculated values from GIS
values from landuse element

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Rosamond			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
29 Dwelling Units/Net Acre Maximum	5.1	1308	486.14	12.98	23.51	18.24	2.69	394.05	16.01	29.00	22.51	3.32	1.23
16 Dwelling Units/Net Acre Maximum	5.2	1	94.59	15.91	25.43	20.67	0.01	150.32	10.01	16.00	13.01	0.01	0.63
10 Dwelling Units/Net Acre Maximum	5.3	3968	6573.96	3.88	9.68	6.78	0.60	6365.95	4.01	10.00	7.01	0.62	1.03
4 Dwelling Units/Net Acre Maximum	5.4	86	432.41	0.96	3.80	2.38	0.20	410.74	1.01	4.00	2.51	0.21	1.05
2 Dwelling Units/Net Acre Maximum	5.45	121	509.95	1.01	2.00	1.50	0.24	509.73	1.01	2.00	1.51	0.24	1.00
1 Dwelling Unit/Net Acre Maximum	5.5	5	194.88	0.37	0.90	0.64	0.03	175.59	0.41	1.00	0.71	0.03	1.11
Residential - Minimum 2.5 Gross Acres/Unit	5.6	205	5847.74	0.21	0.40	0.31	0.04	5690.91	0.22	0.41	0.31	0.04	1.03

derived values from formulas
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San Emidio			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
29 Dwelling Units/Net Acre Maximum	5.1	0	25.09	#DIV/0!	#DIV/0!	#DIV/0!	0.00	90.61	16.01	29.00	22.51	0.00	#DIV/0!
16 Dwelling Units/Net Acre Maximum	5.2	0	337.64	#DIV/0!	#DIV/0!	#DIV/0!	0.00	863.81	10.01	16.00	13.01	0.00	#DIV/0!
10 Dwelling Units/Net Acre Maximum	5.3	0	3088.26	#DIV/0!	#DIV/0!	#DIV/0!	0.00	3842.10	4.01	10.00	7.01	0.00	#DIV/0!

derived values from formulas
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Smith's Corner			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
10 Dwelling Units/Net Acre Maximum	5.3	94	28.14	3.60	8.97	6.28	3.34	25.24	4.01	10.00	7.01	3.72	1.11
4 Dwelling Units/Net Acre Maximum	5.4	10	7.33	0.57	2.26	1.42	1.36	4.15	1.01	4.00	2.51	2.41	1.77
Residential - Minimum 2.5 Gross Acres/Unit	5.6	44	62.56	0.21	0.40	0.31	0.70	58.01	0.23	0.43	0.33	0.76	1.08

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South Inyokern			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Low Density Residential - Minimum 2.5 Gross Acr	5.6	8	6548.58	0.21	0.40	0.31	0.00	6069.62	0.23	0.43	0.33	0.00	1.08

	derived values from formulas
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	values from landuse element

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Soledad Mtn/Elephant Butte			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Low Density Residential - Minimum 2.5 Gross Acr	5.6	618	7222.17	0.21	0.40	0.31	0.09	6999.03	0.22	0.41	0.31	0.09	1.03

derived values from formulas
calculated values from GIS
values from landuse element

DISCLAIMER: The data used for this GIS Land Use analysis was obtained from local general plans and specific plans and are for the development of land use modeling for the RTP. The RTP is updated every 4 years. Local general plans and other data can be updated more frequently. For more detailed information on the latest planning assumptions, please refer to the latest locally adopted general plan for each community or other latest data source. Local general plans and other data updates will be incorporated into the next RTP update every 4 years.

Tejon Mountain Village			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
29 Dwelling Units/Net Acre Maximum	5.1	0	279.17	#DIV/0!	#DIV/0!	#DIV/0!	0.00	50.99	16.01	29.00	22.51	0.00	#DIV/0!
10 Dwelling Units/Net Acre Maximum	5.3	3	2763.78	4.85	12.10	8.48	0.00	3345.15	4.01	10.00	7.01	0.00	0.83
4 Dwelling Units/Net Acre Maximum	5.4	0	2602.72	#DIV/0!	#DIV/0!	#DIV/0!	0.00	2579.47	1.01	4.00	2.51	0.00	#DIV/0!
2 Dwelling Units/Net Acre Maximum	5.45	0	42.90	#DIV/0!	#DIV/0!	#DIV/0!	0.00	0.00	1.01	2.00	1.51	#DIV/0!	#DIV/0!
1 Dwelling Unit/Net Acre Maximum	5.5	0	2801.49	#DIV/0!	#DIV/0!	#DIV/0!	0.00	2895.67	0.41	1.00	0.71	0.00	#DIV/0!
Residential - Minimum 2.5 Gross Acres/Unit	5.6	0	2046.16	0.21	0.40	0.31	0.00	1634.06	#DIV/0!	#DIV/0!	#DIV/0!	0.00	#DIV/0!

derived values from formulas
calculated values from GIS
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Twin Oaks			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Residential - Minimum 2.5 Gross Acres/Unit	5.6	3	97.56	0.21	0.40	0.31	0.03	91.51	0.22	0.43	0.33	0.03	1.07

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West Edwards Road Settlement			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
Residential - Minimum 2.5 Gross Acres/Unit	5.6	145	2283.16	0.21	0.40	0.31	0.06	2284.38	0.21	0.40	0.30	0.06	1.00

derived values from formulas
calculated values from GIS
values from landuse element

DISCLAIMER: The data used for this GIS Land Use analysis was obtained from local general plans and specific plans and are for the development of land use modeling for the RTP. The RTP is updated every 4 years. Local general plans and other data can be updated more frequently. For more detailed information on the latest planning assumptions, please refer to the latest locally adopted general plan for each community or other latest data source. Local general plans and other data updates will be incorporated into the next RTP update every 4 years.

Willow Springs			Gross - Developed					Net - Developed					
May-15		DU	acres	Min DU	Max DU	Median DU	Average DU/acre	acres	Min DU	Max DU	Median DU	Average DU/acre	Gross-Net Conversion
29 Dwelling Units/Net Acre Maximum	5.1	1	15.47	15.75	28.52	22.13	0.06	15.21	16.01	29.00	22.51	0.07	1.02
10 Dwelling Units/Net Acre Maximum	5.3	118	8378.05	3.73	9.30	6.52	0.01	7793.53	4.01	10.00	7.01	0.02	1.08
4 Dwelling Units/Net Acre Maximum	5.4	238	2203.93	0.99	3.90	2.44	0.11	2149.98	1.01	4.00	2.51	0.11	1.03
2 Dwelling Units/Net Acre Maximum	5.45	4	26.54	0.98	1.95	1.47	0.15	25.87	1.01	2.00	1.51	0.15	1.03
1 Dwelling Unit/Net Acre Maximum	5.5	12	1215.75	0.43	1.06	0.75	0.01	1289.82	0.41	1.00	0.71	0.01	0.94
Residential - Minimum 2.5 Gross Acres/Unit	5.6	449	13164.12	0.21	0.40	0.31	0.03	13969.35	0.20	0.38	0.29	0.03	0.94
5.0 Gross Acres/Dwelling Unit Maximum	5.7	41	4596.79	0.06	0.20	0.13	0.01	4402.33	0.06	0.21	0.14	0.01	1.04
10.0 Gross Acres/DU Maximum	5.75	1	1608.65	0.06	0.10	0.08	0.00	1544.00	0.06	0.10	0.08	0.00	1.04
20+ Gross Acres/DU Maximum	5.8	4	5042.71	0.00	0.05	0.03	0.00	5071.45	0.00	0.05	0.02	0.00	0.99

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Kern Council of Governments

VIII.
RPAC

January 6, 2016

TO: Regional Planning Advisory Committee

FROM: Ahron Hakimi
Executive Director

By: Ed Flickinger, Regional Planner

SUBJECT: RPAC AGENDA ITEM: VIII
DRAFT REGIONAL TRANSPORTATION MONITORING SYSTEM PROGRAM UPDATE

DESCRIPTION:

Kern COG is updating the Regional Traffic Count Program to include bicycle and pedestrian counts locations.

DISCUSSION:

Background – Traffic monitoring and pavement management are mandated under Federal Title 23 Part 500 Management and Monitoring Systems. In addition to traffic monitoring, traffic volume data obtained by traffic counters is used to validate the regional transportation model and used for engineering and planning purposes by member agencies. Traffic counts are used in the annual pavement management report that provides technical data on road samples throughout Kern County. From 2006 through the Fiscal Year ending June 2015, over 9,100 daily counts, 4,600 classification counts, and 96 control station counts have been acquired and are available online on the Kern COG website.

In January 2004, A Memorandum of Understanding (MOU) between Caltrans, the County of Kern, the City of Bakersfield and Kern COG, representing the outlying communities, established the Kern Regional Traffic Count program.

In 2008, with the assistance of a consultant and input from member agencies, a transportation monitoring system program was completed. The program provides more consistent and frequent traffic count, vehicle mix, and other transportation monitoring data. The regional program eliminates potential duplication of effort in counting programs between Kern COG member agencies and Caltrans. The program includes a provision for periodic review.

Regional Traffic Count Program Update – Staff is in the process of developing an update to the Regional Transportation Monitoring Improvement Program (RTMIP). The focus of the update is the addition of a regional bicycle and pedestrian traffic count program. The goal of this program is to provide consistent, comprehensive data on bicycle and pedestrian activity for analysis of the need/benefit of investment in these modes. Recent changes in federal and state law have created the need for this program and are putting a greater emphasis on measuring performance. Providing bike and pedestrian data should make our region more competitive for state resources, while ensuring that limited resources are focused on areas with the greatest need.

Phase I – Bicycle and Pedestrian Count Pilot Study - To inform the development of the new program Kern COG, in coordination with Golden Empire Transit and Kern Transit, selected bicycle and pedestrian count locations in metropolitan Bakersfield to be a part of a pilot study. The pilot study is currently in process and the highest total of bicycles and pedestrians was 1,155, the lowest was 83 and the average was 540. The data was provided as 24 hour. With the allowance of a maximum of 20% 2016-2017 traffic count budget or $14,393 to go toward Bicycle and pedestrian counts, 40 locations would get 24 hour counts. If a 4 hour period were taken instead, 243 locations could get counted. (The number of locations discussed are assuming that current contracted amount of $354/day or $14.75/hour would be the same as the bid in the next contract.)

Phase II – Regional Bicycle and Pedestrian Count Program – Chapter 3 of the RTMIP will be amended to include provisions for a bicycle and pedestrian count program.

Phase III – Request for Proposals for the Regional Traffic Count Program – The program is re-bid every 5 years and subject to annual renewal. The current consultant contract with Pacific

Data Services is scheduled expire on June 30, 2016.

Proposed Number of Counts/Commitment of Resources for Bike and Ped Program – Resources allocated to the Bike and Ped portion of the regional traffic count program is proposed to be roughly proportional to the trips made by each transportation mode. Bike and pedestrian travel accounts for approximately 10% of the trips made in Kern County. Staff recommends a minimum of 10% of the regional count program funding ($8,000) to go toward counting bicycle and pedestrian activity. This amount could be increased if the consultant bid results in savings that could then be applied to the bike and ped count program. For that savings to be realized, 100% of vehicle counts would need to be collected annually in rapidly developing areas and a minimum of once every 3 years in slow and no growth areas (see Regional Traffic Count Plan).

Assuming the same per count cost is proposed as provided in the Phase I Bike & Ped Pilot Study, existing funding could provide 22 bike/ped count locations with annual 24 hour surveys. If a 4 hour peak period count were taken instead, 135 locations could be counted. (The number of locations assumes the pilot study contracted amount of $354/day or $14.75/hour would be the same as the bid in the next contract.) The plan has identified 630 potential bike and ped count locations.

In order to increase the number of bike and ped counts, the following strategies are to be applied to the decision of which counts to make.

1) Count locations will be prioritized using the GIS analysis maps in the in the Plan with input from member agencies.
2) A minimum of half of the bike and ped funding should be used for 24 hour “station” count locations. If counts are inexpensive enough, all 600+ locations should be counted as 24 hour counts.
3) A minimum of one station location shall be provided for each jurisdiction (11 locations).
4) Staggering count locations every 2-3 years to get as many locations as possible should be used in slow growth areas.
5) Limit no station counts to 12 hour and 4 hour counts to get as many locations as possible. Counts with limited hours should be focused on the peak period for that location. For example, at a K-12 school the AM peak should be counted.

This program is for regular periodic counts 1-3 years apart to provide an important indicator on the success and need of regional bike and ped related infrastructure and programs. This program is not to be used for, one time count locations.

Attachments – Sample data from the Bicycle and Pedestrian Pilot Study, Draft Regional Transportation Monitoring Improvement Plan

ACTION: Provide feedback on the sample data from the Bicycle and Pedestrian Pilot. Accept Phase II amendment of Chapter 3 of the RTMIP as discussed at November 4, 2015 RPAC and have Kern COG choose at least one location per community based on budget and on the criteria in the amendment of Chapter 3 unless the member agency has chosen a location(s). Decide if bike and pedestrian counts should be 24 hour, 4 hour, or a combination of both.

Kern Council of Governments

Regional Transportation Monitoring Improvement Plan (RTMIP)

Draft Final Report

January 2008 (Revised January 2016)

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1.0 Introduction

This report presents the findings and recommendations of an effort undertaken by the Kern Council of Governments (Kern COG) and its member agencies to develop a Regional Transportation Monitoring Improvement Plan (RTMIP). The purpose of the RTMIP is to increase consistency, cooperation, and efficiency across transportation data collection and distribution efforts within Kern County. To that end, the RTMIP described here consists of a unified system of traffic data collection and a methodology to maintain and utilize that system for transportation planning purposes. Included as part of the RTMIP is an electronic database of transportation data that will be maintained by Kern COG and made available to its member agencies, as well as a web-based interface for viewing the data.

The first step in developing the RTMIP was to understand the existing transportation data collection activities taking place in the County. Therefore, the process began with the distribution of a survey to Kern COG's member agencies, in addition to other transportation agencies serving Kern County. The survey instrument asked about current transportation data collection efforts by the agencies, as well as perceived needs for improved or additional data collection and management. The survey results are summarized in the first section of this report.

The results of the survey were used to formulate a Needs Assessment for data collection within the County. This Needs Assessment evaluated the availability of various types of transportation data, the uses to which different types of data are put, and the merits of making such data more widely available. The results of the Needs Assessment were recommendations concerning priorities for incorporating various types of transportation data into the RTMIP. The Needs Assessment also included the creation of a set of criteria for establishing locations to be included in an ongoing traffic volume data collection effort, as well as the application of those criteria to identify 1,043 count locations throughout the County. The Needs Assessment is presented in the second section of this report.

Also included in the development of the RTMIP was an assessment of the feasibility and desirability of integrating traffic data collection with the County's Motorist Aid Call Boxes using "smart call boxes." This assessment evaluated the status of the Kern County motorist aid call box system, including existing and potential future capabilities. The assessment was based on a review of existing system capabilities, historical usage patterns, and discussions with Kern Motorist Aid Authority (KMAA) staff. The assessment also included a review of the experiences of other jurisdictions with smart call boxes. The assessment of smart call boxes is presented in the third section of this report.

After review and discussion by Kern COG and the jurisdictions within the County of the Needs Assessment and the call box integration analysis, a draft Action Plan was developed to address the identified priorities related to transportation data collection and distribution. The draft Action Plan was again reviewed, including a revisiting of the traffic data collection program. The resulting Action Plan is presented in the final section of this report.

2.0 Survey of Existing Transportation Data Collection

One of the main goals of the RTMIP is to coordinate, centralize and effectively manage traffic data across Kern County. A vast body of traffic data has been collected since the 1970s, and it has been stored in various formats and media in diverse databases at Kern COG and/or its member jurisdictions. An inventory of traffic count/survey methods and reporting formats currently utilized in Kern County was necessary to assess the County's data collection needs. The inventory was conducted through a written questionnaire sent to each of the Kern COG jurisdictions.

2.1 Methodology

A total of 13 written questionnaires was distributed: one to each of the appropriate staff of all local jurisdictions, as identified by Kern GOG staff; one to the Kern County Department of Roads; and one to Caltrans District 6. The questionnaire consisted of twenty questions intended to elicit information regarding each jurisdiction's traffic count methods and reporting capabilities. A sample of the questionnaire can be found in **Appendix A**. A total of eight questionnaires were completed and returned (response rate of 62.8%).

The following jurisdictions returned completed questionnaires:

- City Of Bakersfield
- City Of California City
- City Of Ridgecrest
- City Of Shafter
- City Of Taft
- City Of Tehachapi
- City Of Wasco
- Kern County

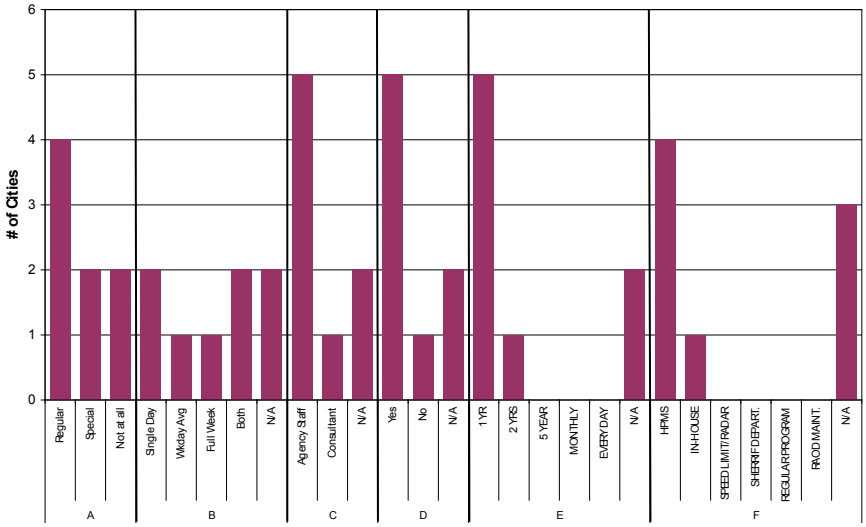
2.2 Summary of Findings

2.2.1 Types of Data Collected

The first section of the questionnaire dealt with the types of traffic data currently being collected by each jurisdiction. The purpose of this section was to determine what types of data are available within the County, the regularity with which it is collected, and whether it is available in an electronic format.

Figure 2.1 presents a tabulation of the survey responses concerning **Average Daily Link/Segment Volume Counts**. These data are the most common type of traffic volume data collected on a regular basis by the jurisdictions. Key points related to daily link/segment volume counts are as follows:

Figure 2.1: Average Daily Link/Segment Volume Counts



Question Key
(A) Is the data collection done on a regular basis, for special studies, or no collected at all?
(B) Are the counts, single day, average of 5-day, weekdays or full 7-day weekdays, or both?
(C) Are the data collected by agency staff, or consultants?
(D) Are the data maintained in electronic format?
(E) On average, what is the cycle time between counts?
(F) Is the data collected to satisfy external reporting needs, which one?

Regularity of Collection. Half of the jurisdictions perform these counts on a regular basis; two of them do not perform them at all (Ridgecrest and Wasco), and another two perform them only for special studies.

Duration. Tehachapi and California City do week-based counts; Bakersfield and Shafter do single-day counts; Taft and Kern County do both week-based and single-day counts.

Staff Employed. The counts are done by in-house staff in five out of the six jurisdictions that do these counts.

Electronic Availability. Tehachapi is the only jurisdiction that does not have its counts in electronic format.

Count Cycle. All jurisdictions except for Taft do these counts annually. Taft does them every two years.

External Reporting Capability. Four out of the six jurisdictions that collect this data have it in HPMS format.

Figure 2.2 presents a tabulation of the survey responses concerning **Peak Hour Segment Volume Counts.** These data are collected by the greatest number of jurisdictions, but they are not collected as regularly as daily volume counts. Key points related to peak hour segment volume counts are as follows:

Regularity of Collection. All but one (Wasco) of the jurisdictions perform these counts, but only two jurisdictions perform them on a regular basis (Shafter and Taft).

Duration. Three jurisdictions conduct single-day counts; California City conducts full-week counts. Taft is the only jurisdiction that conducts both types of counts.

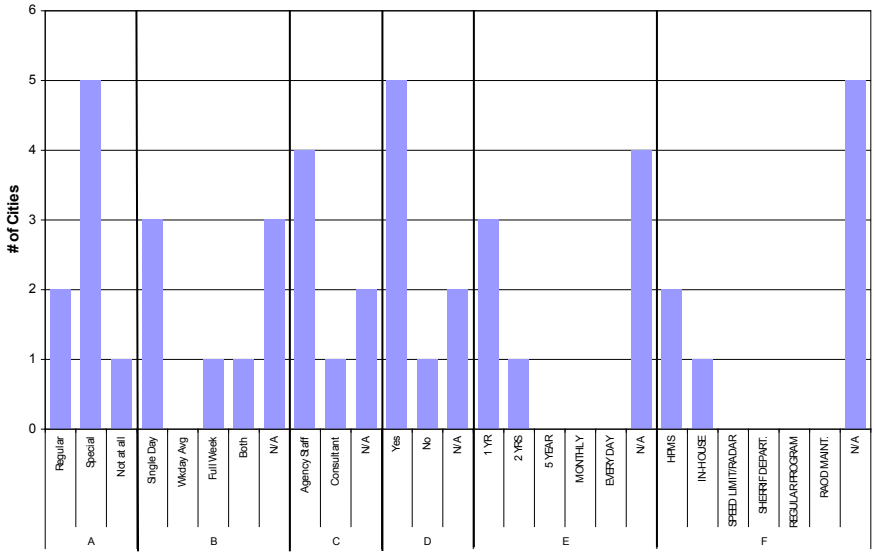
Staff Employed. Half of the jurisdictions have in-house staff conduct the counts.

Electronic Availability. Kern County is the only jurisdiction that does not have these counts in electronic format.

Count Cycle. Three jurisdictions perform these counts annually, and one does so every two years.

External Reporting Capability. Ridgecrest and Shafter have these counts in HPMS format.

Figure 2.2: Peak Hour Segment Volumes



Question Key
(A) Is the data collection done on a regular basis, for special studies, or no collected at all?
(B) Are the counts, single day, average of 5-day, weekdays or full 7-day weekdays, or both?
(C) Are the data collected by agency staff, or consultants?
(D) Are the data maintained in electronic format?
(E) On average, what is the cycle time between counts?
(F) Is the data collected to satisfy external reporting needs, which one?

Figure 2.3 presents a tabulation of the survey responses concerning **Peak Hour Intersection Turning Movements Counts**. None of the jurisdictions collect this type of data on a regular basis, and only three jurisdictions report collecting intersection turning movement counts at all. Key points related to peak hour turning movement counts are as follows:

Regularity of Collection. Only Kern County, Bakersfield, and California City conduct these counts and they all do them for special studies only.

Duration. Bakersfield performs these counts for a single day; California City gathers full-week counts.

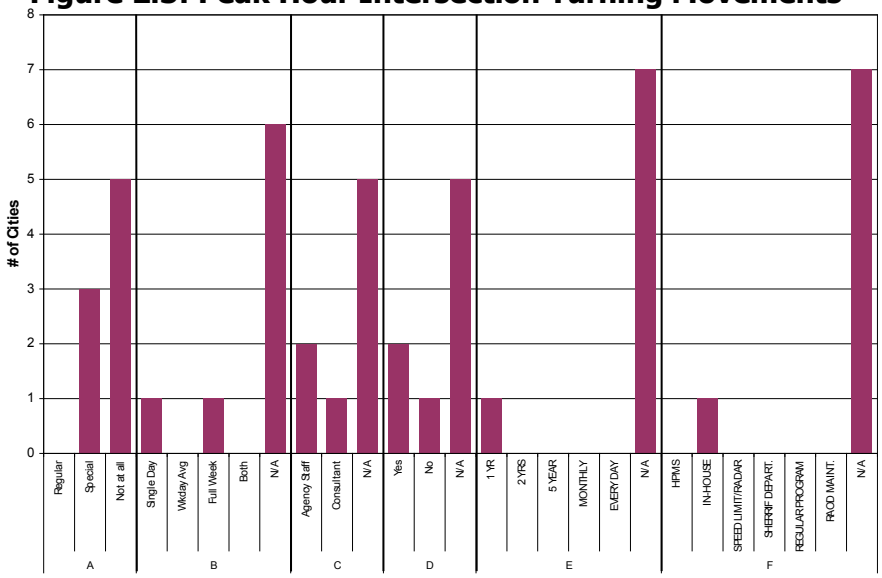
Staff Employed. Kern County uses consultants to do these counts; the other jurisdictions use in-house staff.

Electronic Availability. Kern County does not have these counts in electronic format. The other two do have them in electronic format.

Count Cycle. Only California City reported doing these counts once a year.

External Reporting Capability. None of the jurisdictions has the counts in an external reporting format.

Figure 2.3: Peak Hour Intersection Turning Movements



Question Key
(A) Is the data collection done on a regular basis, for special studies, or no collected at all?
(B) Are the counts, single day, average of 5-day, weekdays or full 7-day weekdays, or both?
(C) Are the data collected by agency staff, or consultants?
(D) Are the data maintained in electronic format?
(E) On average, what is the cycle time between counts?
(F) Is the data collected to satisfy external reporting needs, which one?

Figure 2.4 presents a tabulation of the survey responses concerning **Vehicle Class Data.** Only one jurisdiction collects this type of data on a regular basis. Key points related to vehicle class counts are as follows:

Regularity of Collection. Only Taft performs these counts on a regular basis. Half of the jurisdictions do them for special studies only.

Duration. Most jurisdictions did not report the duration of their vehicle class counts.

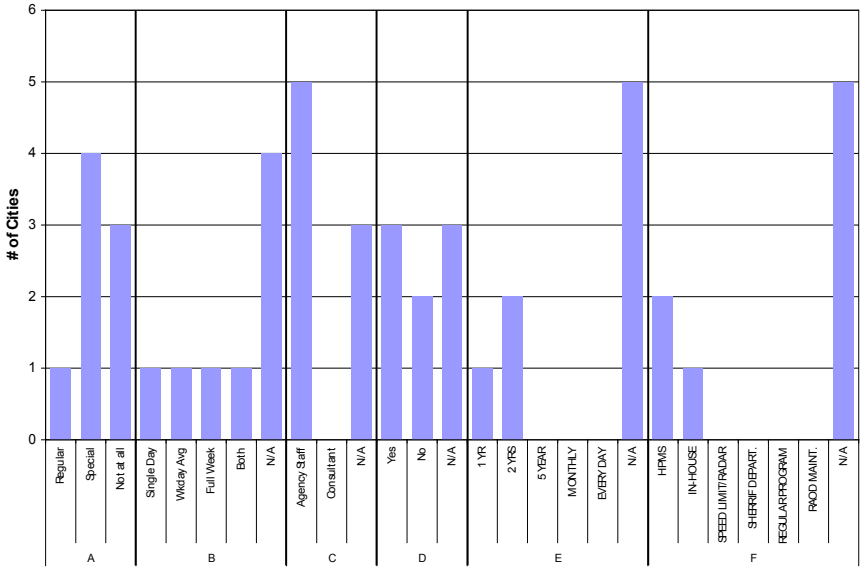
Staff Employed. All the jurisdictions that reported the type of staff use to conduct these counts indicated that they used in-house staff.

Electronic Availability. Three of the five jurisdictions that conduct these counts have them in electronic format.

Count Cycle. Tehachapi conducts these counts every year; California City and Taft conduct them every two years.

External Reporting Capability. Only Ridgecrest and Tehachapi have these counts in HPMS format.

Figure 2.4: Vehicle Classification Data



Question Key
(A) Is the data collection done on a regular basis, for special studies, or no collected at all?
(B) Are the counts, single day, average of 5-day, weekdays or full 7-day weekdays, or both?
(C) Are the data collected by agency staff, or consultants?
(D) Are the data maintained in electronic format?
(E) On average, what is the cycle time between counts?
(F) Is the data collected to satisfy external reporting needs, which one?

Figure 2.5 presents a tabulation of the survey responses concerning **Speed Survey/Travel Time Data.** The survey found that these data are generally collected only for special studies. Key points related to speed survey data are as follows:

Regularity of Collection. Half of the jurisdictions conduct these surveys only for special studies. Only two of the jurisdictions conduct the surveys on a regular basis.

Duration. Three jurisdictions conduct these surveys for a single day; California City conducts them for a full-week. Taft is the only jurisdiction that conducts both types of surveys.

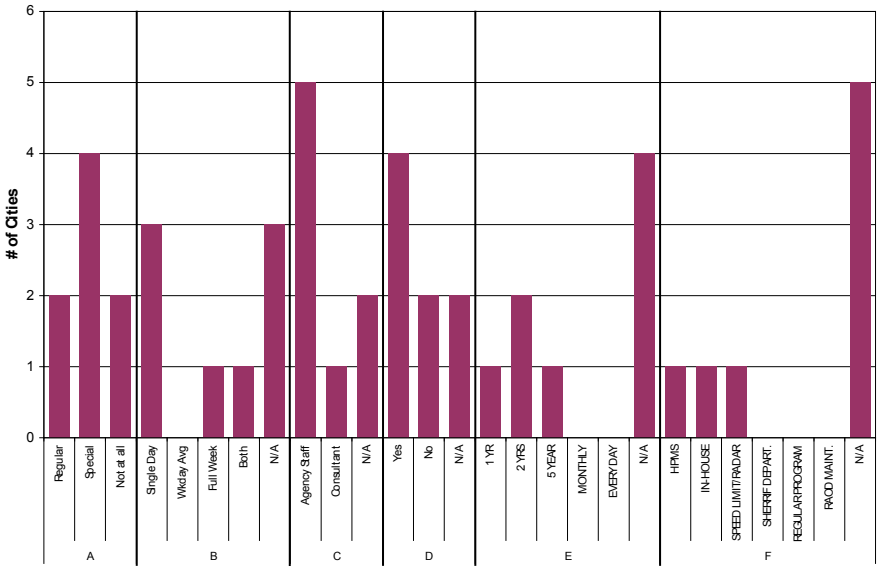
Staff Employed. Only Shafter uses consultants to conduct these surveys. The rest of the jurisdictions use their own staff.

Electronic Availability. Half of the jurisdictions have the survey results in electronic format.

Count Cycle. Ridgecrest conducts these surveys every year, California City and Taft every two years, and Bakersfield every five years.

External Reporting Capability. Only Ridgecrest keeps the information in HPMS format.

Figure 2.5: Speed Surveys/Travel Time Data



Question Key
(A) Is the data collection done on a regular basis, for special studies, or no collected at all?
(B) Are the counts, single day, average of 5-day, weekdays or full 7-day weekdays, or both?
(C) Are the data collected by agency staff, or consultants?
(D) Are the data maintained in electronic format?
(E) On average, what is the cycle time between counts?
(F) Is the data collected to satisfy external reporting needs, which one?

None of the jurisdictions reported collecting data concerning **Vehicle Occupancy**.

Figure 2.6 presents a tabulation of the survey responses concerning **Vehicle Delay.** The survey found that these data are collected only for special studies. Key points related to vehicle delay data are as follows:

Regularity of Collection. Half of the jurisdictions have this type of data, but it is collected only for special studies.

Duration. California City has full-week data; the others have single-day data.

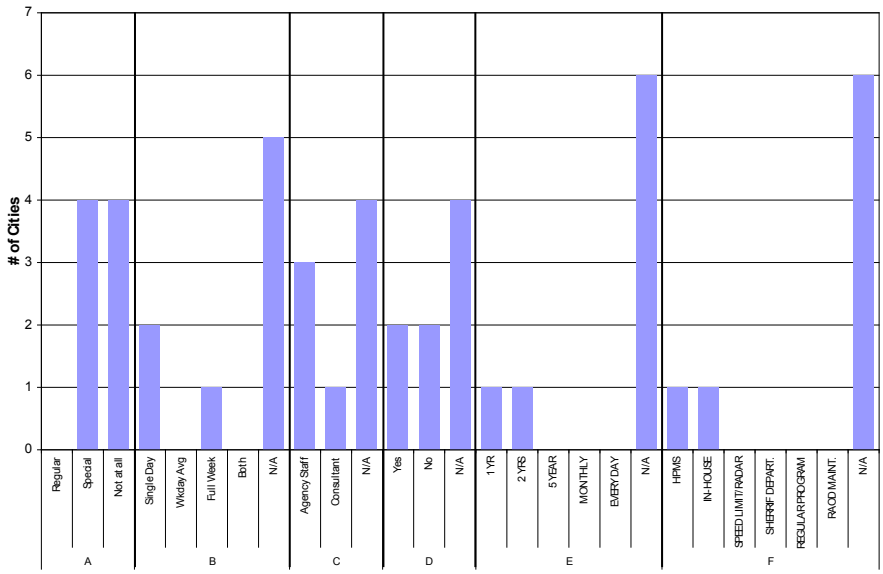
Staff Employed. Only Kern County uses consultants to collect this type of data, the other three jurisdictions that have these data use their own staff to collect it.

Electronic Availability. Only Bakersfield and California City have this type of data in electronic format.

Count Cycle. California City collects this type of data every two years and Ridgecrest does so every year.

External Reporting Capability. Only Ridgecrest has the data in HPMS format.

Figure 2.6: Vehicle Delay



Question Key
(A) Is the data collection done on a regular basis, for special studies, or no collected at all?
(B) Are the counts, single day, average of 5-day, weekdays or full 7-day weekdays, or both?
(C) Are the data collected by agency staff, or consultants?
(D) Are the data maintained in electronic format?
(E) On average, what is the cycle time between counts?
(F) Is the data collected to satisfy external reporting needs, which one?

Figure 2.7 presents a tabulation of the survey responses concerning **Queue Length**. The survey found that most jurisdictions do not collect this type of data, and those that do collect it only for special studies. Key points related to queue length data are as follows:

Regularity of Collection. Only Ridgecrest and California City have this type of data, and it is collected only for special studies.

Duration. Ridgecrest has this type of data in single-day format, and California City has it in full-week format.

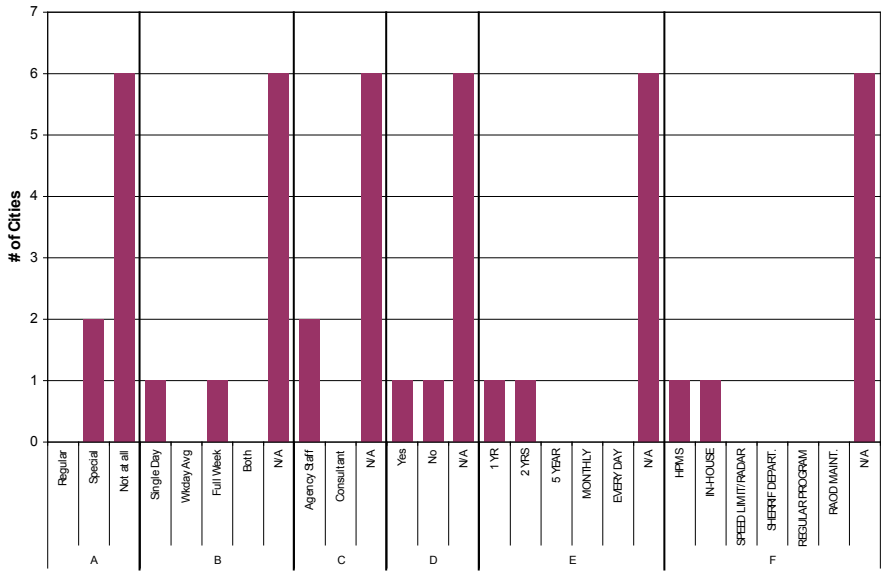
Staff Employed. The type of data is collected by in-house staff in all cases.

Electronic Availability. Only California City has this type of data in electronic format.

Count Cycle. California City collects this type of data every two years; Ridgecrest does so every year.

External Reporting Capability. Only Ridgecrest has the data available in HPMS format.

Figure 2.7: Queue Length



Question Key
(A) Is the data collection done on a regular basis, for special studies, or no collected at all?
(B) Are the counts, single day, average of 5-day, weekdays or full 7-day weekdays, or both?
(C) Are the data collected by agency staff, or consultants?
(D) Are the data maintained in electronic format?
(E) On average, what is the cycle time between counts?
(F) Is the data collected to satisfy external reporting needs, which one?

Figure 2.8 presents a tabulation of the survey responses concerning **Accident Data**. The survey found that most jurisdictions collect this type of data regularly. Key points related to accident data are as follows:

Regularity of Collection. Six of the eight jurisdictions collect accident data on a regular basis.

Duration. Two of the jurisdictions reported having this type of data in full-week format. Most jurisdictions did not indicate a reporting period.

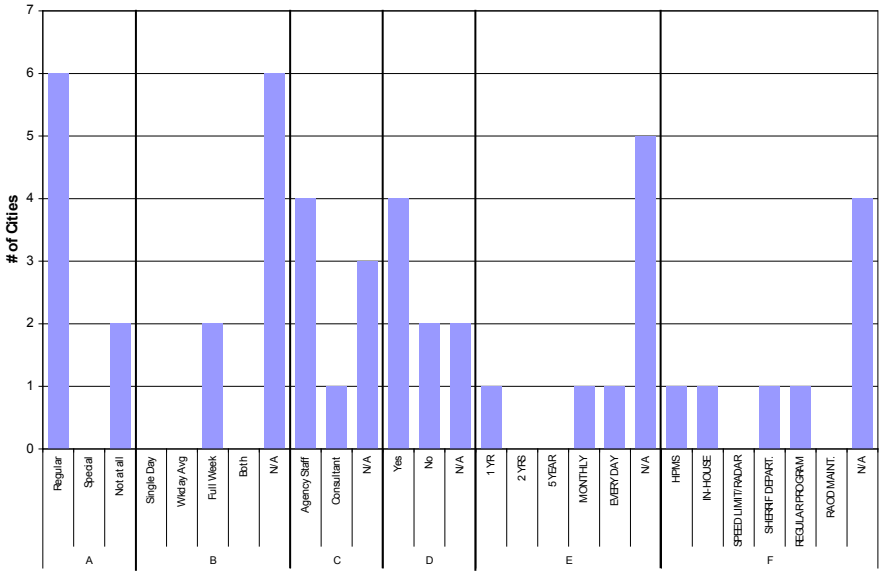
Staff Employed. Only Tehachapi uses consultants to collect this type of data. The rest of the jurisdictions use in-house staff.

Electronic Availability. Only Ridgecrest and Shafter do not have this type of data in electronic format; the rest of the jurisdictions do.

Count Cycle. Bakersfield collects this data daily; Tehachapi collects it monthly; and California City annually.

External Reporting Capability. Only Ridgecrest has this data available in HPMS format.

Figure 2.8: Accident Data



Question Key
(A) Is the data collection done on a regular basis, for special studies, or no collected at all?
(B) Are the counts, single day, average of 5-day, weekdays or full 7-day weekdays, or both?
(C) Are the data collected by agency staff, or consultants?
(D) Are the data maintained in electronic format?
(E) On average, what is the cycle time between counts?
(F) Is the data collected to satisfy external reporting needs, which one?

Figure 2.9 presents a tabulation of the survey responses concerning **Pavement Conditions**. The survey found that most jurisdictions collect this type of data regularly. Key points related to pavement condition data are as follows:

Regularity of Collection. Five of the eight jurisdictions collect this type of data on a regular basis. Ridgecrest and Taft collect it only for special studies.

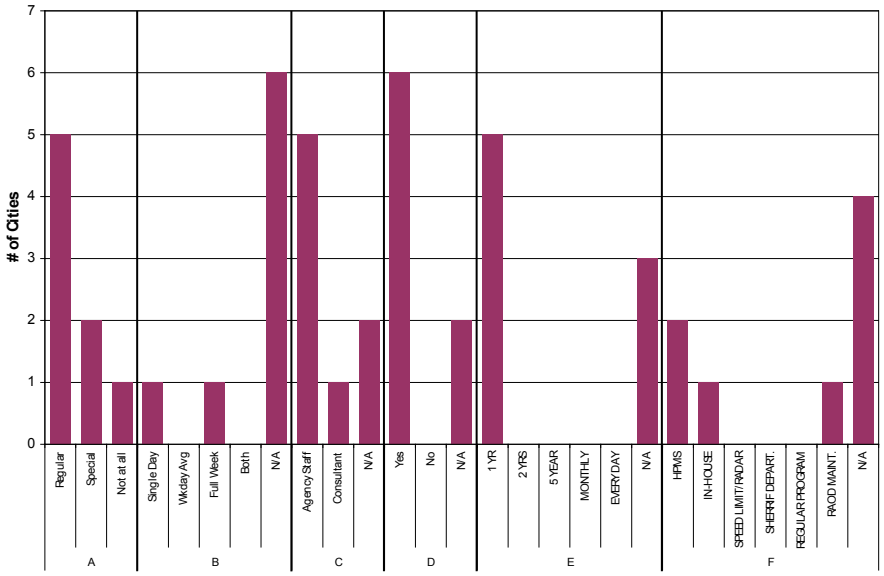
Staff Employed. Only Wasco uses consultants to collect this type of data. The rest of the jurisdictions use in-house staff.

Electronic Availability. All jurisdictions that have this type of data have it in electronic format.

Count Cycle. All jurisdictions that have this type of data collect it on an annual basis.

External Reporting Capability. Only Ridgecrest keeps this type of data in HPMS format. The rest maintain it in various other formats.

Figure 2.9: Pavement Conditions



Question Key
(A) Is the data collection done on a regular basis, for special studies, or no collected at all?
(B) Are the counts, single day, average of 5-day, weekdays or full 7-day weekdays, or both?
(C) Are the data collected by agency staff, or consultants?
(D) Are the data maintained in electronic format?
(E) On average, what is the cycle time between counts?
(F) Is the data collected to satisfy external reporting needs, which one?

2.2.2 Data Coverage and Reporting

On average, the Kern COG jurisdictions cover about 33% of their arterials with Daily Traffic Counts that are 3 years old or less. Bakersfield and Kern County have the highest coverage both with 90%. Tehachapi covers only 2%. **Table 1** summarizes the data coverage for each jurisdiction.

Table 2.1
Data Coverage and Reporting

Jurisdiction	% of Arterials covered with Counts 3 years old or less		
	ADT Counts	Peak Hour Volume Counts	Class Counts
City Of Bakersfield	90%	90%	1%
City Of California City	50%	25%	25%
City Of Ridgecrest	10%	10%	0%
City Of Shafter	20%	20%	0%
City Of Taft	0%	0%	0%
City Of Tehachapi	2%	2%	0%
City Of Wasco	0%	0%	0%
Kern County Roads Dept.	90%	5%	2%

On average, the Kern COG jurisdictions cover about 19% of their arterials with Peak Hour Counts that are 3 years old or less. Bakersfield has the highest coverage with 90%. California City has the highest coverage of Class Counts, with 25% of its arterials covered. Only two other jurisdictions have class counts, and their coverage is minimal.

Identification of Count Locations
Six of the jurisdictions identify the location of their collected traffic volume information with the main street name and nearest cross street name. Bakersfield uses a unique Link ID number. California City uses the distance from the nearest intersection.

Publication of Data
Only Bakersfield and Kern County publish a periodic traffic volume map. Bakersfield has its volumes available in GIS format; Kern County publishes its data in table format only.

Availability of Data
Six of the eight jurisdictions make collected data available to the public (only Shafter and Wasco do not have it publicly available). All but one (Wasco) of the jurisdictions has the data available for other jurisdictions upon their request. Only Bakersfield and Kern County have counts available on the Internet. Both Bakersfield and California City have their counts available by e-mail. Five of the eight jurisdictions have the counts available in person at their premises.

2.3 Inventory Methods and Equipment

Count Stations

Only Ridgecrest and Bakersfield have established permanent count stations. Bakersfield indicated the specific locations of their existing permanent stations. Three other jurisdictions indicated the location of their desired permanent count stations. **Table 2.2** describes each of the jurisdiction's existing or desired count station locations.

Table 2.2
Permanent Count Stations (Existing and Desired)

Jurisdiction	Status	Roadway Segment
Bakersfield	Existing	Gosford n/o Westwood Dr. H St. n/o Wilson Rd. H St. n/o 14th St. California Ave. e/o King St. Columbus St. sw/o Auburn St. Calloway n/o Meacham
Shafter	Desired	Lerdo Hwy Santa Fe Wy. Seventh Standard Rd. Shafter Ave. Zerker Rd. Poplar Ave. Beech Ave. Los Angeles Ave.
Taft	Desired	10th St. n/o Kern St. 10th St. s/o Kern St. Main St. 4th St. s/o of Kern St. Gardenfield Rd. e/o 119 Airport Rd. near E. Woodrow Center St. e/o 6th St. Cadet Rd. e/o Petroleum Club Rd. Church St. n/o Pilgrim Ave. Hillard St. s/o Kern St.
California City	Desired	3 miles w/o Baron Blvd. on California City Blvd.. California City Blvd. s/o the city boundary Neuralia Rd. at Neuralia Rd. and Lindbergh

Seasonal Variation Control Counts

Only Bakersfield and Kern County perform control counts to adjust for seasonal variations in traffic volumes. California City and Tehachapi do counts to measure long-weekend travel.

Traffic Counting Equipment Availability
Half the jurisdictions have traffic counting equipment. Bakersfield has Jamar pneumatic tube equipment. California City uses Jamar Trax 1 Counters. Shafter uses Numetrics Model Series 90. Kern County uses Jamar/Timemark.

Data Collection Costs
The average annual cost to the jurisdictions to collect traffic data is $30,000. Most jurisdictions use their general fund to collect routine traffic data. **Table 2.3** summarizes the cost to each jurisdiction.

Table 2.3
Traffic Data Collection Costs and Funding Sources

Jurisdiction	Average Annual Cost	Source of Funding for Routine Data Collection	Source of Funding for Special Data Collection
City Of Bakersfield	$25,000	General Fund	General Fund
City Of California City	$60,000	State Funds	State Funds
City Of Ridgecrest	$10,000	General Fund	Private Sector
City Of Shafter	$5,000	General Fund	Development Fees
City Of Taft	$500	Street Dept. Budget	N/A
City Of Tehachapi	$4,000	General Fund	General Fund
City Of Wasco	N/A	N/A	N/A
Kern County Roads Dept.	$100,000	Road Fund	Road Fund

2.4 Computer Based/Electronic Data Collection

Signal System
Only Bakersfield and Kern County have a computer-controlled signal system (BITRANS). Neither jurisdiction can capture and store traffic volume data from their systems, but they both have plans to develop the capability do so in the future.

Traffic Management
Only Bakersfield has a traffic management center, and only Tehachapi has a Variable Message Sign system (two movable pieces of equipment).

No other technologies are being used to assist in traffic data collection in the County.

2.5 Traffic Monitoring and Performance Measures

Performance Measure Utilization
California City, Shafter, and Taft utilize performance measures to monitor traffic conditions or trends on a regular basis. All three jurisdictions use Peak Hour V/C ratios, Daily V/C ratios, and Average Speed. California City also uses Level of Service.

Radar Speed Surveys
Bakersfield, Shafter and Kern County perform periodic radar speed surveys for setting speed limits.

Accident Record Reporting
Five of the eight jurisdictions have their local police accident records periodically reported to the State. Shafter reports them every week, and Ridgecrest does so annually.

2.6 Data Needs

Six of the jurisdictions described what their most pressing data needs were. **Table 2.4** contains each of the jurisdictions' responses.

Table 2.4
Kern COG Jurisdictions' Traffic Data Needs

Jurisdiction	Jurisdictions most pressing Data needs
City Of Bakersfield	Volume data
City Of California City	Main road, volume, speed counts
City Of Ridgecrest	N/A
City Of Shafter	Pavement conditions, number of lanes, AADT, road classification
City Of Taft	N/A
City Of Tehachapi	Circulation
City Of Wasco	N/A
Kern County Roads	Integrate our counts into the Kern County model more easily

2.7 Conclusions

Jurisdictions in Kern County have varying degrees of traffic data collection capabilities. Therefore, the amount, quantity and quality of traffic data they posses and can produce vary significantly. Also, there are no county-wide traffic data collection standards that they can follow. For the purpose of the RTMIP, traffic data should be available in electronic formats. Only 35-40% of the data is currently available in electronic format. Standardization and digitalization of traffic data are the two most pressing needs in the County.

3.0 Needs Assessment

The results of the surveys of current data collection practices provided a perspective on what level of data collection activities were currently being conducted by the County's local jurisdictions and to what extent this process could be used for a potential countywide traffic monitoring system. The lack of county-wide traffic data collection standards for the jurisdictions to follow was one of the most striking results of the survey. Based on the results of the survey and discussions with agency staff, it became clear that the most immediate data collection need in the County was for a thorough and consistent program to gather and distribute traffic volume data, including vehicle classification data, for a geographically dispersed set of locations throughout the County.

Kern COG and its member agencies emphasized that consistency with and incorporation of historical count locations was important for the count program to be developed. As a result, a traffic count program consisting of 14 control stations and 598 total count locations, was outlined in the Draft Needs Assessment report of February 2007. Based on further discussions with Kern COG and the local jurisdictions, the count program was refined to a system with 22 control stations and 1,043 total count locations. As the basis of this program, a GIS database was created that included approximately 1,600 historical traffic counts collected by Kern County, the City of Bakersfield, and other agencies.

This section describes the development of the Uniform Traffic Count program to meet the needs identified within the County. A later section, the Action Plan, describes in detail the implementation of the program.

3.1 Uniform Traffic Count Program

3.1.1 Need for the Program

Currently, traffic counts are conducted by or on behalf of each of the jurisdictions with the County. Coverage varies widely throughout the County and depends on the resources of each jurisdiction. Many counts are conducted on a one-time basis for special studies, so it is difficult to discern historical patterns. In addition, the data have been collected by different agencies and/or consultants, and are generally not available in a digital format. Kern COG has recently compiled an electronic "count book" of approximately 1,600 count locations throughout the County. For each count location, the count book includes only bidirectional total daily traffic volume. Peak hour, vehicle classification, or other types of data are not available electronically.

A uniform count program will accomplish the following goals:

- Improve coverage throughout the County
- Conserve resources by eliminating redundant count locations
- Facilitate analysis of historical trends

- Provide data on goods movement
- Allow for regional extrapolation through the establishment of control stations
- Create an understanding of seasonal variation

3.1.2 Scope of the Program

Kern County and the local jurisdictions within the County are responsible for collecting traffic data on roadways within their jurisdiction. Caltrans is responsible for collecting traffic data on State highways, and does so on a schedule and under procedures set at the State level. Traffic counts on State highways conducted by the County or a city would require encroachment permits from Caltrans. Therefore, based on discussions with Kern COG staff, it was determined that this Count program should be limited to roadways under local jurisdiction. Nonetheless, it is recommended that efforts be made to make Caltrans traffic count data available in conjunction with data collected under this program.

3.1.3 Development of Count Location Selection Criteria

A set of criteria for proposed, count locations as part of a uniform, on-going count program to accomplish the goals listed above was established. The criteria are summarized in **Table 3.1**. The criteria are intended to achieve coverage throughout the County, satisfy Federal reporting requirements, assist in travel demand model development and refinement, and provide data to assist local agencies, while avoiding redundancy.

Table 3.1. Count Location Selection Criteria

	Criteria	Data Source	Discussion/Example	# Added
1	HPMS Sample Segments	Caltrans	Federal requirement	249
2	Model Screenlines	Kern COG		91
3	County Entry Points	County Limits	"Cordon"	52
4	Community Entry Points	City/Built Area/ SOI Limits	"Cordon"; entry points includes freeway ramps	130
5	Regional Significance	GIS-Roadway Network		12
6	Local Significance	GIS-Roadway Network Needs Assessment Survey	Includes high growth areas	39
7	Goods Movements	GIS-Industrial Uses		25

Descriptions of the criteria and the role each plays in the proposed count program are as follows:

HPMS Sample Segments. Traffic volume data on these segments are required as part of the Federal Highway Performance Monitoring System. Counts at these locations are used by Federal agencies to estimate systemwide travel characteristics, such as total vehicle miles traveled.

Model Screenlines. Traffic volume data from these locations are used in the calibration of the Kern COG regional travel demand model. The model is used to forecast future traffic volumes throughout the County. The screenlines are a set of hypothetical lines drawn across the roadway network; the total volume of traffic crossing these lines in the model is compared to the actual volume data.

County Entry Points. County entry point locations occur wherever roadways enter the County from neighboring Counties. Traffic volume data from these locations are useful in assessing growth in traffic volumes generated outside of the Kern COG region, as well as in determining the general source of the growth. They can also be useful in calibrating the travel demand model with regard to external generators.

Community Entry Points. Community entry point locations are intended to create a rough "cordon" around each of the major communities within the County. Because of the greater interconnectedness within the County, it is not feasible to identify every roadway that a vehicle might use to enter a community. The intent of the community entry point locations is to capture the significant entry points. Because of the rapid geographic growth of many of the communities, the "entry points" have often been set at a considerable distance from the existing developed area, so that the points will continue to represent the geographical extents of the community into the future.

Regional Significance. Roadway segments of regional significance were identified as segments that connect two or more areas within the County, but that do not constitute an entry point to a particular community. In practice, this category is limited because most regionally significant roadways also create entry points to one or more communities.

Local Significance. Roadway segments of local significance represent locations that are important to the circulation within one community, but that generally do not play a large role in regional circulation. Together with community entry points, these locations collectively provide coverage of an individual community. Locations of local significance also include areas currently experience a high rate of growth.

Goods Movement. Roadway segments significant for goods movement provide access to industrial and warehousing hubs within the County. Traffic volume data at these locations are useful because they represent activity within an important and growing section of the County's economy.

An additional criterion of **Mountain Locations** was initially developed to represent both entry points to the mountain areas of the County, similar to community entry points, as well as destinations within the mountains. Traffic volume data at these locations are useful because they represent tourist and recreational activity. However, in the processing of implementing the criteria, it was determined that all of the identified mountain locations were included within the other criteria. Therefore, this criterion is not included in the final list of selection criteria.

3.1.4 Identification of Count Locations

Before identifying proposed count locations, the approximately 1,600 count locations in the Kern COG count book were geocoded and incorporated into a GIS database. The geocoding of the "historical" count locations allows them to be used to the greatest extent possible in the proposed count program. Using historical count locations as the basis for the count program will provide the greatest degree of continuity and facilitate analysis of trends over the longest time periods possible.

The criteria listed in Table 3.1 were applied in a sequential process, with all locations satisfying each criterion being identified before moving onto the next criterion. For example, all HPMS sample segments were identified in the first step. After HMPS count locations were identified, model screenline count locations were identified. If an HPMS sample segment was also a model screenline, the previously identified count location for the HPMS segment was also used for the model screenline. It should be emphasized that due to the "additive" nature of the analysis, at each step a substantial portion of the proposed locations that met each criterion was already selected through the previous criteria.

The application of the criteria resulted in a total of 598 proposed count locations. The final column of Table 3.1 shows the number of count locations added to the initial recommendations by the application of each criterion.

The recommended count locations were distributed to Kern COG and the local jurisdictions. Based on feedback from these agencies, additional count locations of particular concern to the jurisdictions were added to the recommended count locations, and some potentially duplicative locations were consolidated. The resulting recommend count program included a total of 1,043 count locations.

3.1.5 Vehicle Classification Count Locations

Vehicle classification counts provided additional data beyond total vehicle counts. These data are useful for identifying locations where traffic operations and/or pavement conditions may be affected by high levels of truck traffic. They are also useful for planning purposes as a measure of changes in industrial and warehousing activity. However, vehicle classification counts are more expensive to conduct than simple vehicle counts, so in the interest of economy, their application should be limited to locations at which the data they provide will be most useful.

The proposed count locations were reviewed to determine appropriate locations for vehicle classification counts. All locations satisfying criteria 1, 2, and 8 (HPMS, model screenline, and goods movement) were designated as locations for conducting vehicle classification counts. Additional locations for classification counts were selected from the remaining count locations to ensure coverage throughout all regions of the County.

Figures 3.1 shows the locations of the proposed count locations and program changes within the County. These figures indicate which locations are proposed for vehicle classification counts. **Appendix B** includes detailed information on each proposed count location in a tabular format.

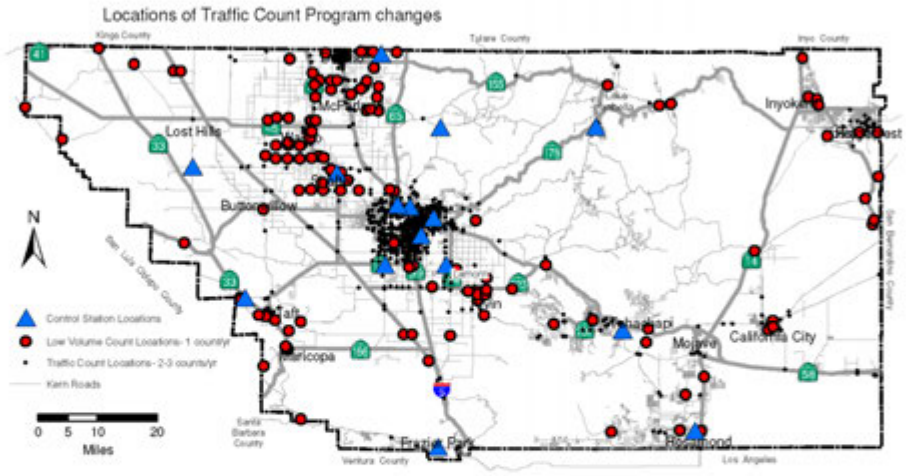
3.1.6 Control Station Locations

Control station locations are locations whose traffic volume characteristics are taken to be indicative of a larger region within the County. Data will be collected on a more frequent basis at these locations in order to understand day-of-week, seasonal, or holiday traffic patterns. Factors expressing these variation patterns will be derived from the counts at these locations and applied to typical weekday counts at other locations in order to derive traffic volumes at times other than the typical weekday. The draft Needs Assessment included 14 proposed control station locations. Based on discussion with agency staff, these proposed control station locations have been replaced with the existing 6 control stations within the City of Bakersfield and 16 existing control stations elsewhere in the County. **Figure 3.1** shows the locations of these control station locations. Descriptions of the locations are provided in **Table 3.2**.

Table 3.2. Control Station Locations

	Roadway		Cross Street	Community
1	Gosford Road	North of	Westwold Drive	Bakersfield
2	H Street	North of	Wilson Road	Bakersfield
3	H Street	North of	14th Street	Bakersfield
4	California Avenue	East of	King Street	Bakersfield
5	Columbus Street	South of	Auburn Street	Bakersfield
6	Calloway Drive	North of	Meacham	Bakersfield
7	Granite Road	South of	Woody Road	Kern County
8	Lerdo Highway	East of	Lost Hills Road	Kern County
9	Cecil Avenue	West of	Famoso Porterville Highway	Kern County
10	Elizabeth Norris Road	West of	Lake Isabella Blvd.	Kern County
11	Santa Fe Way	South of	S.R. 43	Kern County
12	Panama Road	East of	Fairfax Road	Kern County
13	Frazier Mtn. Park Road	East of	Monteray Trail	Kern County
14	Old River Road.	South of	S.R. 119	Kern County
15	Rosamond Blvd.	West of	Eagle Way	Kern County
16	Highline Road	West of	Tehachapi Willow Springs Road	Kern County
17	Midway Road	East of	S.R. 43	Kern County
18	South Union Avenue	South of	Ming Avenue	Kern County
19	North Chester Avenue	South of	Roberts Lane	Kern County
20	Mt. Vernon Avenue	South of	College Avenue	Kern County
21	Airport Drive	North of	Roberts Lane	Kern County
22	Olive Drive	West of	Fruitvale Avenue	Kern County

Figure 3.1


Locations of Traffic Count Program changes
Kings County
Tulare County
Inyo County
Lost Hills
McFarland
Buttonwillow
Inyokern
Mojave
California City
Maricopa
Frazier Park
Ventura County
Los Angeles
Santa Barbara County
San Luis Obispo County
N
Control Station Locations
Low Volume Count Locations- 1 count/yr
Traffic Count Locations- 2-3 counts/yr
Kern Roads
0 5 10 20
Miles

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3.2 Additional Transportation Data

In addition to traffic volume data, the jurisdictions in Kern County collect a variety of other transportation data. The needs assessment survey also asked about these data collection efforts in order to develop an understanding of what programs may be useful to the Kern COG jurisdictions. The following sections summarize the findings and conclusions regarding these additional types of data.

3.2.1 Speed Survey Data

Most of the jurisdictions in the County collect speed data, and most use their own staff to do so. Follow-up discussions revealed that speed data are generally collected for the purposes of establishing speed limits under State law. Since the legislative body of each jurisdiction must make findings to establish speed limits, it is appropriate that the responsibility for collecting the relevant data remain at the local level. Therefore, it is not recommended that speed survey data be incorporated into the RTMIP.

3.2.2 Pavement Conditions

Most of the jurisdictions in the County collect pavement condition data. However, the data are stored in a variety of formats and are not generally readily available for inclusion in the HPMS reporting system. One jurisdiction (Shafter) stated that pavement condition data was one of their most pressing needs. With the ongoing urbanization of the County, traffic volumes are increasing on what were formerly rural roads. In addition, the growth of the warehousing industry in the County will likely result in a continued increase in heavy truck traffic throughout the region. Therefore, pavement condition data will become increasingly important for jurisdictions as they plan their capital improvement budgets.

In addition, reliable, quantitative pavement condition data are best collected by means of specialized equipment. This equipment is expensive and will not typically be cost-effective for small or even medium-sized jurisdictions to own. Therefore, the collection of pavement condition data is a logical effort to centralize through the RTMIP. It is of region-wide importance, and often not easily collected at the local level. Therefore, it is recommended that the RTMIP incorporate a program for the collection of these data.

3.2.3 Accident Data

Accident data are collected throughout the County by local police departments, the County Sheriff, and the California Highway Patrol (CHP). However, the tabulation and reporting of such data vary from jurisdiction to jurisdiction. Most of the jurisdictions in the County report the data on a regular basis, although some do not.

A statewide reporting system for accident data, the Statewide Integrated Traffic Records System (SWITRS), has been established and is maintained by the CHP. In order to ensure the most complete and accurate data at the statewide level, it is important to encourage jurisdictions to report data to SWITRS. Once data have been reported to SWITRS, county-wide data can be extracted and incorporated into Kern COG's GIS system for local use. Therefore, to avoid duplicative reporting requirements, it is recommended that the RTMIP itself not include reporting of accident data, but that Kern COG work with the local jurisdictions to improve reporting of accident data to SWITRS. These data will then ultimately be available for use by Kern COG and its member agencies.

Addendum to Chapter 3 of the Regional Transportation Monitoring Improvement Program (RTMIP)

Annual Bicycle and Pedestrian Count Program Goal

Bicycle and pedestrian evaluation programs measure and evaluate the impact of projects, policies and promotional programs. Typical evaluation programs range from a simple year-over-year comparison of US Census Journey to Work data, to bicycle counts and community surveys. Bicycle counts and community surveys act as methods to evaluate not only the impacts of specific bicycle improvement projects, but can also function as a way to measure progress towards reaching regional goals such as increased bicycle and pedestrian travel for trips. The goal of this program is to provide a consistent, comprehensive data on bicycle and pedestrian activity for analysis of the need/benefit of investment in these modes for consideration by local decision makers.

Bicycle and Pedestrian Count Program Development

A systematic approach is beneficial in developing an efficient and useful pedestrian and bicycle count program. Although it is possible to relatively quickly collect manual counts or to purchase and install automated counting technologies, this course of action may not produce useful, long-term data. Planning a count program typically involves the following steps:

- Specifying the general data collection purpose,
- Identifying data collection resources,
- Selecting count locations and determining the count timeframe, and
- Considering available counting methods.

The following sections present each of these steps, but they are often used iteratively. For example, count managers may reconsider the resources needed for data collection after they realize that they would like to count additional locations. Similarly, managers

may revisit the number of count locations after recognizing that they would like to gather continuous counts over a long time period (which may require purchasing additional counting devices for more locations, or rotating existing devices among locations).

Organizations planning a pedestrian and bicycle count program for the first time should expect that their program will be modified in the future. Although most programs benefit from having some core data that have been collected consistently from start, many programs revisit their stated purposes, reassess resources, consider new or different count locations and time periods, and integrate new counting methods. Successful count programs result from experimenting and refining the approach over time. Like the vehicle traffic count program, this program will be revisited every 5 years as necessary.

Specifying the General Data Collection Purpose

Reasons why transportation agencies and other organizations collect pedestrian and bicycle counts include:

- Measuring changes in pedestrian and bicycle activity relative to baseline levels;
- Documenting changes in activity levels after projects are implemented;
- Informing the general public about pedestrian and bicycle activity and trends;
- Monitoring variations in pedestrian and bicycle activity levels by time of day, day of week, or season of the year, and under different weather conditions;
- Identifying variations in activity in different types of locations (e.g., considering land uses and/or facility types) and calculating context-specific expansion factors;
- Assessing local and system wide activity to prioritize locations for new pedestrian and bicycle facilities;
- Quantifying exposure, as part of an analysis of pedestrian or bicycle crash risk at specific locations; and
- Developing models to predict future pedestrian or bicycle volumes at different locations throughout a community.

All of these purposes can be achieved—at least in part—by collecting continuous pedestrian or bicycle volume data over time. The ability to collect counts over an extended period of time is one of the most important benefits of automated pedestrian and bicycle counting technologies.
In turn, the broad availability of non-motorized count data is an important part of ensuring a multimodal (or "complete streets") approach to transportation issues within a community.

Selecting General Count Locations

Resource limitations often prevent counting at every desired location, so particular locations must be chosen based on the primary purposes of the data collection program. A meeting of stakeholders should be arranged. Four approaches, described in more detail below, have been used for determining count locations:

• **Random locations.** Sites are selected randomly. This approach may not capture strategic locations, nor select sites appropriate for automated counting. Selecting randomly from within categories of desired characteristics (*stratified random sampling*) is an alternative.

• **Representative locations.** This approach balances available resources with spatial coverage. Identified sites, in aggregate, are representative of the community as a whole.

• **Targeted locations.** Sites are selected on the basis of being associated with particular projects, facility types, or locations with particular characteristics (e.g., safety concerns).

• **Control locations.** This approach compares sites affected by a project with unaltered sites (*control locations*) to determine how much of the observed change in demand can be attributed to the project.

Random Locations

Count locations can be selected randomly. For example, an agency can assign unique identification numbers to each of its intersections and use a random number generator to select which intersections to count. However, this *simple random sampling* approach may not capture strategic locations for counting. Additionally, random sampling may not identify locations suitable for automated technologies, because numerous site-specific factors ultimately determine suitability for a count location (e.g., opportunities to install equipment and patterns of pedestrian and bicycle movements). Random sampling can also result in selecting locations with very low volumes, which tend to have higher levels of variation over time than higher volume locations. High variability produces more error when estimating long-term (e.g., annual) volumes from short-duration counts.

There are alternatives to simple random sampling. Potential count locations can be stratified into categories according to particular characteristics, such as commuting versus recreational route, land use type, income category, or proximity to attractors (e.g., schools, parks, and transit stops). Analysts consider each category separately and select locations within each category randomly. This process, called *stratified random sampling*, can be used to ensure that there are at least a few count locations with each key characteristic of interest. This strategy has been used to select count locations when developing predictive pedestrian and bicycle volume models and safety performance functions.

Representative Locations

Most communities would like to measure how pedestrian and bicycle activity changes over time in the community as a whole. This objective requires counting at representative sites throughout the community. Representative locations could be identified using a random sampling process. However, it is more common to select

representative sites using a systematic approach guided by a count manager or advisory group.

In order to be representative, count locations should be

• Located in different geographic parts of the community;
• Surrounded by different types of land uses;
• Found on different types of facilities (e.g., multi-use trails, bicycle lanes, sidewalks); and
• Reflective of the range of socioeconomic characteristics in the community as a whole.

Limiting count sites to locations that are convenient, have the highest pedestrian or bicycle volumes,
or are expected to have the greatest increases in walking and bicycling does not produce a representative sample.

A set of representative sites can be used to compare changes in the number of reported pedestrian and bicycle crashes with changes in overall pedestrian and bicycle activity levels throughout the community. This approach allows analysts to track the relative risk of pedestrian or bicycle crashes (per pedestrian crossing, per trail user, per bicyclist, etc.). In other words, representative counts control for exposure across the community as a whole.

Targeted Locations

Specific locations can be targeted for counting, recognizing that the count locations, in aggregate, will not be representative of the community as a whole. These locations are often related to particular projects, particular facility types, or locations with particular characteristics.
For example, some communities choose to count in specific locations with a high number of crashes (i.e., "hot spots"). If the community is interested in identifying the relative risk of one specific roadway segment versus another specific roadway segment, the agency may target counts at these two locations. After using the counts to control for exposure, the agency can determine which locations have the greatest crash risk and evaluate the roadway design and behavioral characteristics that might be making those sites dangerous.

Communities also target counts at locations where specific projects have been or will be implemented, to document changes in walking and bicycling after project completion. For this purpose, it is important to count at locations at or near the project, and to select *control locations* for comparison, described next.

Finally, "pinch points," or locations where pedestrians and bicyclists must converge to cross a barrier (e.g., river crossings, freeway crossings, railroad crossings), are good locations to document large portions of a community's pedestrians and bicyclists. One sampling strategy is to count at a series of pinch points (e.g., all bridges crossing a river

that bisects a community or all pedestrian and bicycle crossings of a freeway loop around the CBD).

Control Locations

To get a true understanding of the effect of a specific project on pedestrian or bicycle activity or safety, it is also necessary to count at similar locations not directly affected by the project (e.g., at a location with the same number of roadway lanes and a similar surrounding neighborhood on the other side of town). These other locations are called *control sites.* Control sites account for broader influences on walking and bicycling (e.g., an increase in gas prices or a community level pedestrian and bicycle promotion program), making it possible to quantify the change in walking and bicycling activity or safety actually due to the project of interest.

Some of the users of a new or improved pedestrian or bicycle facilities may have shifted from nearby parallel routes. Counts can be taken on these streets and corridors to help distinguish between new (or more frequent) non-motorized travel generated by the project and existing non-motorized travelers who have diverted to the new or improved facility.

The following helps minimize the error in the volume estimates, especially if it is not feasible to conduct counts longer than a few hours at a time,:

- Count at times with high activity levels (e.g., summer).
- Count during good weather.
- Eliminate potholes (Potholes are a big danger to bicyclists)
- Eliminate Puncturevines (a.k.a. Goatheads), as they are the biggest enemy to bicycle tires. This might take an organized volunteer effort within the bicycle community.
- Eliminate other miscellaneous road debris

Kern COG staff uses a 2 step process for development of the Bicycle and Pedestrian County Program. The first step was to develop a draft set of maps based on a blending of the above criteria. The second step was to solicit local input from member agencies on the proposed sites. Critical to the development of the count locations is prioritization. Resources are limited so the factors listed above are used to rank the priority of count locations, should funding be limited.

Bicycle and Pedestrian Count Program Methodology

The following criteria was collected on each proposed site based on the count location attributes listed in the preceding section.

Bicycle and Pedestrian Count Location Data Dictionary

Bike Plan Data Dictionary

Criteria	Data Type	Description
Community	Text	Name of Community; Unincorporated Example "County Lamont"
Pinch Points	Integer	1=Yes 0=No
Schools	Integer	1=Yes 0=No
Transit Stops	Integer	1=Yes 0=No
Class 1 Bike	Integer	1=Yes 0=No
Class 2 Bike	Integer	1=Yes 0=No
Class 3 Bike	Integer	1=Yes 0=No
Commuting Route	Integer	1=Yes 0=No Routes used for commuting
Recreational Route	Integer	1=Yes 0=No
Land Use Type	Text	Residential, Commercial, Industrial, Recreational, Other
Income Category	Text	High, Medium, Low
Parks	Integer	1=Yes 0=No
Sidewalks	Integer	1=Yes 0=No
Pedestrian Crashes	Integer	Number of Incidents
Bicycle crashes	Integer	1=Yes 0=No
Bike/Ped Projects	Integer	1=Yes 0=No
Control Locations	Integer	1=Yes 0=No

In addition, the data and local government member agency input was used to develop the following rankings, weighting each factor equally (locations with multiple attributes receive priority).

Proposed Number of Counts/Commitment of Resources for Bike and Ped Program – Resources allocated to the Bike and Ped portion of the regional traffic count program is proposed to be roughly proportional to the trips made by each transportation mode. Bike and pedestrian travel accounts for approximately 10% of the trips made in Kern County. Staff recommends a minimum of 10% of the regional count program funding ($8,000) to go toward counting bicycle and pedestrian activity. This amount could be increased if the consultant bid results in savings that could then be applied to the bike and ped count program. For that savings to be realized, 100% of vehicle counts would need to be collected annually in rapidly developing areas and a minimum of once every 3 years in slow and no growth areas.

Assuming the same per count cost is proposed as provided in the Phase I Bike & Ped Pilot Study, existing funding could provide 22 bike/ped count locations with annual 24 hour surveys. If a 4 hour peak period count were taken instead, 135 locations could be counted. (The number of locations assumes the pilot study contracted amount of $354/day or $14.75/hour would be the same as the bid in the next contract.) The plan has identified 630 potential bike and ped count locations.

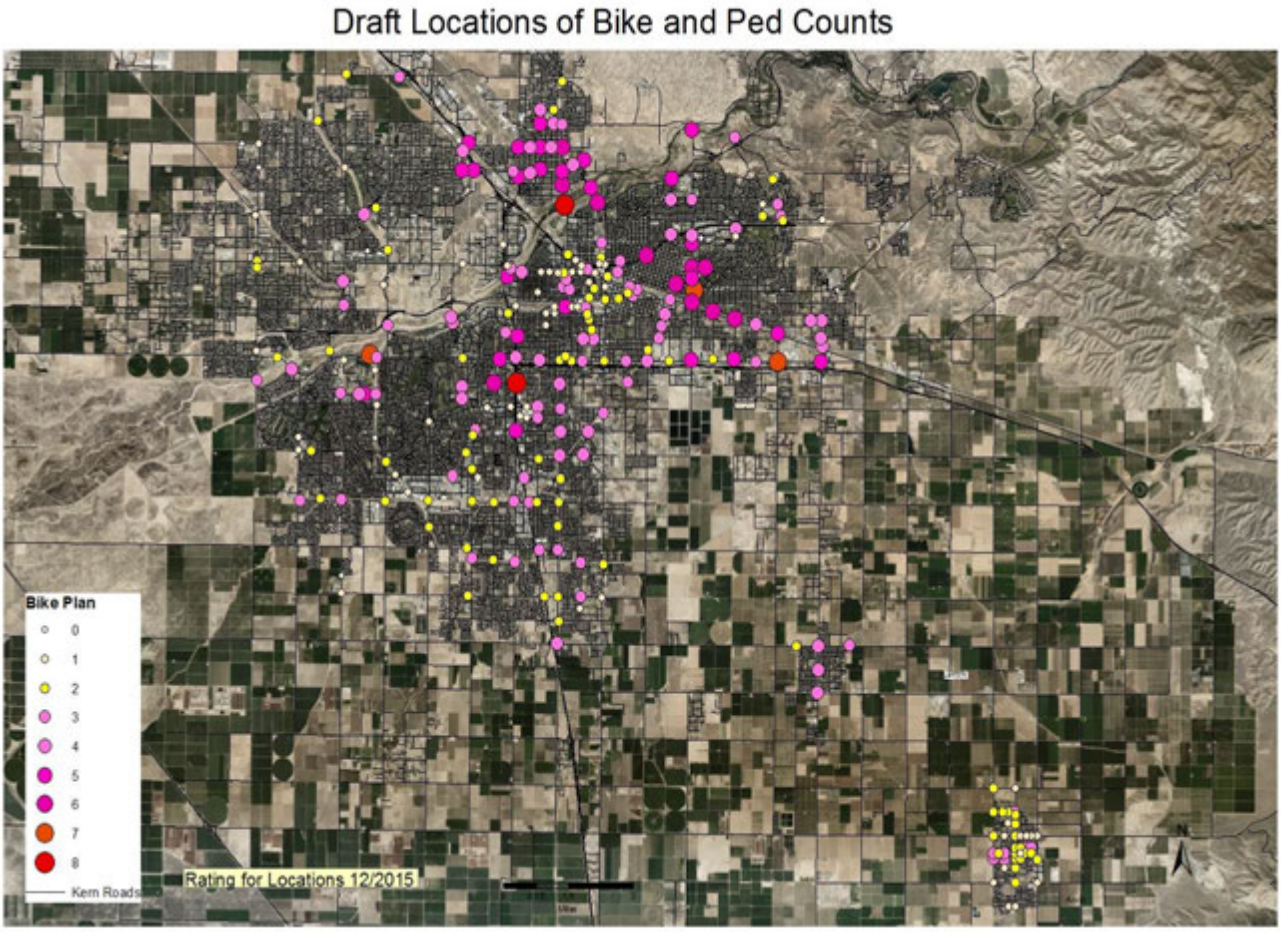
In order to increase the number of bike and ped counts, the following strategies are to be applied to the decision of which counts to make.

1) Count locations will be prioritized using the GIS analysis maps in the in the Plan with input from member agencies.
2) A minimum of half of the bike and ped funding should be used for 24 hour "station" count locations. If counts are inexpensive enough, all 600+ locations should be counted as 24 hour counts.
3) A minimum of one station location shall be provided for each jurisdiction (11 locations).
4) Staggering count locations every 2-3 years to get as many locations as possible should be used in slow growth areas.
5) Limit number of station counts to 12 hour (daylight) and 4 hour counts (peak period) to get as many locations as possible. Counts with limited hours should be focused on the peak period for that location. For example, at a K-12 school the AM peak should be counted.

This program is for regular periodic counts 1-3 years apart to provide an important indicator on the success and need of regional bike and ped related infrastructure and programs. This program is not to be used for, one time count locations.

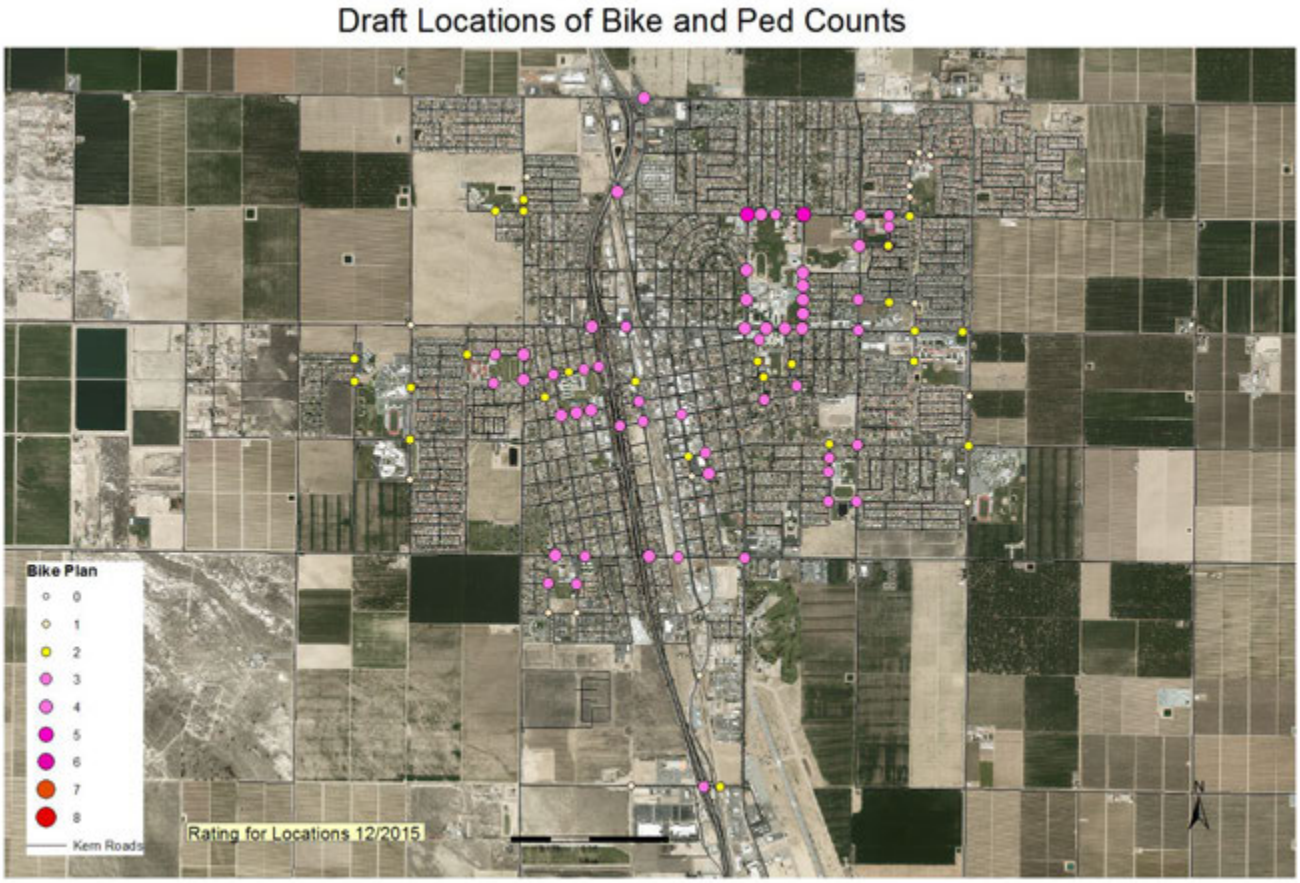
Candidate Bike/Ped Locations – Arvin

Candidate Bike/Ped Locaions – Bakersfield



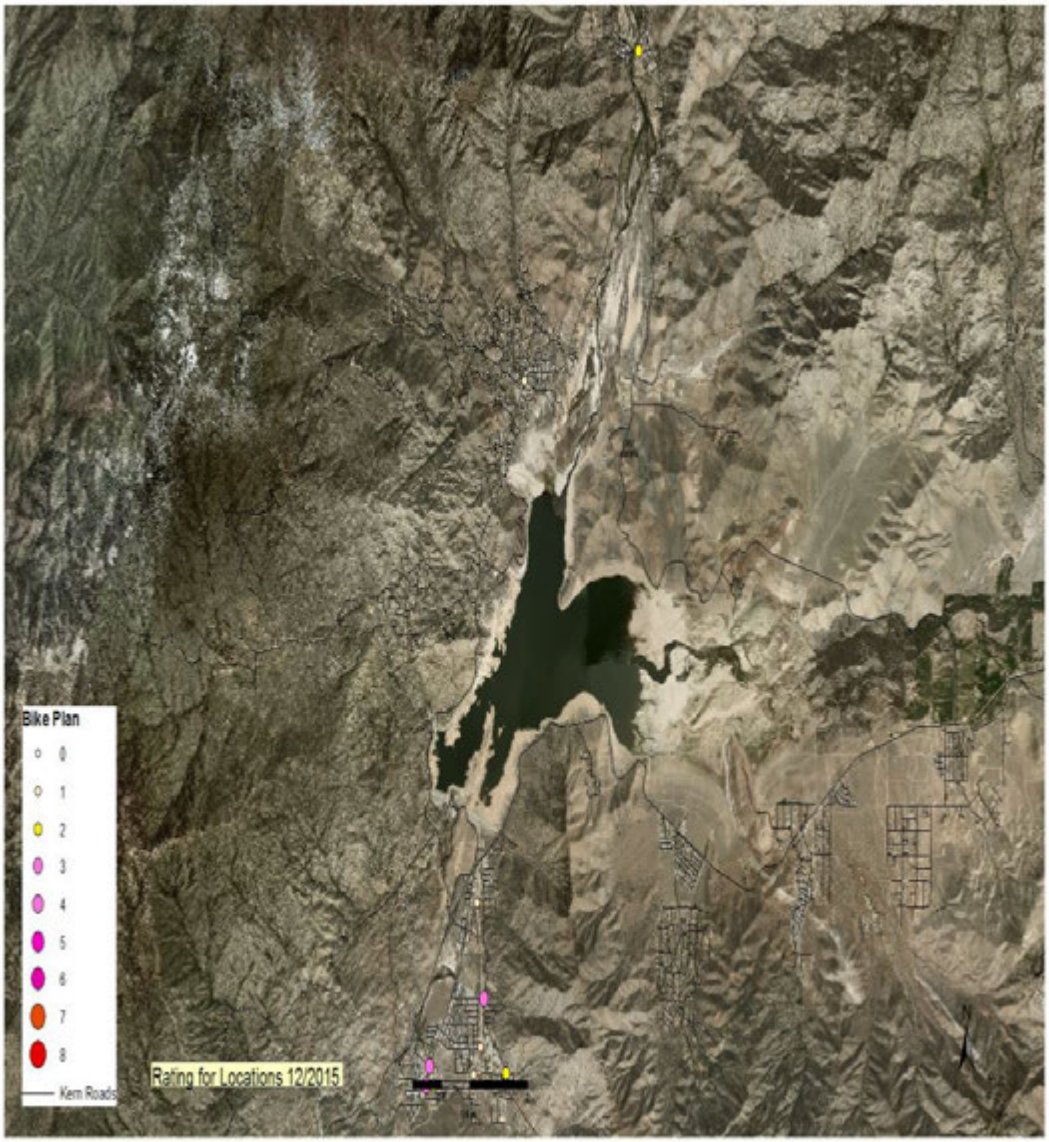
Candidate Bike/Ped Locations – California City

Candidate Bike/Ped Locations – Delano



Candidate Bike/Ped Locations – Lake Isabella Communities

Draft Locations of Bike and Ped Counts

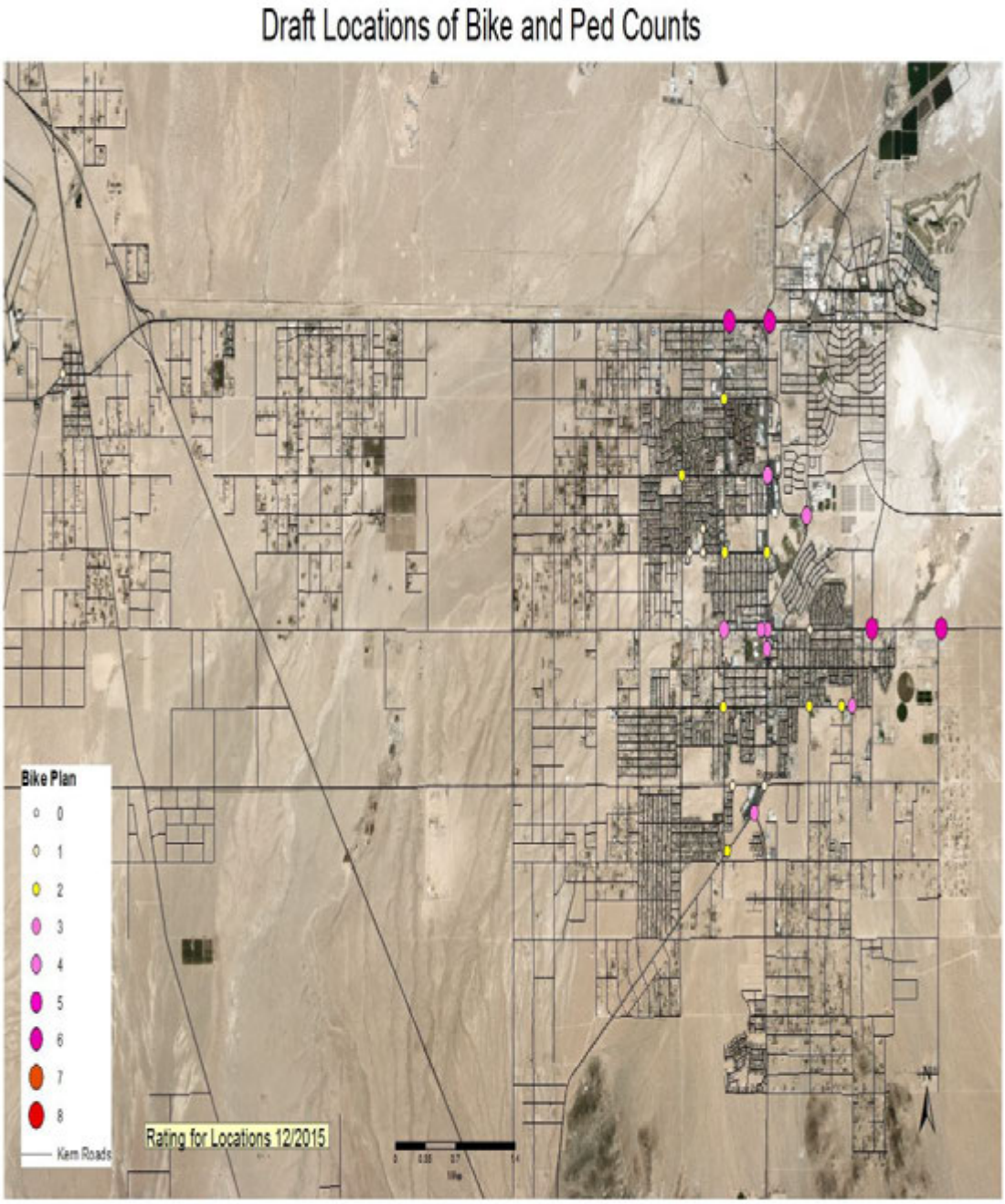


Candidate Bike/Ped Locations – Maricopa

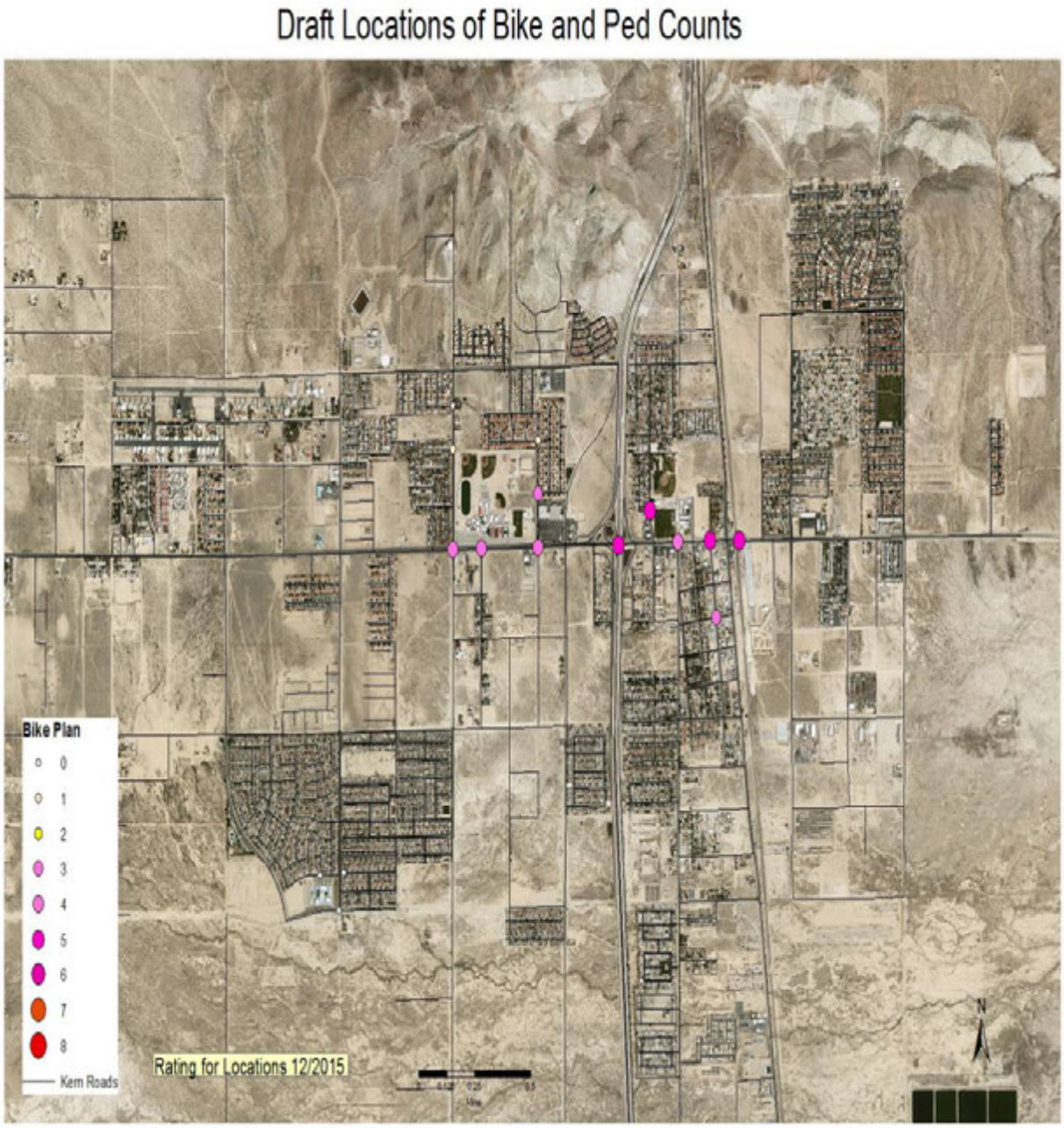
Candidate Bike/Ped Locations – McFarland

Candidate Bike/Ped Locations – Mojave

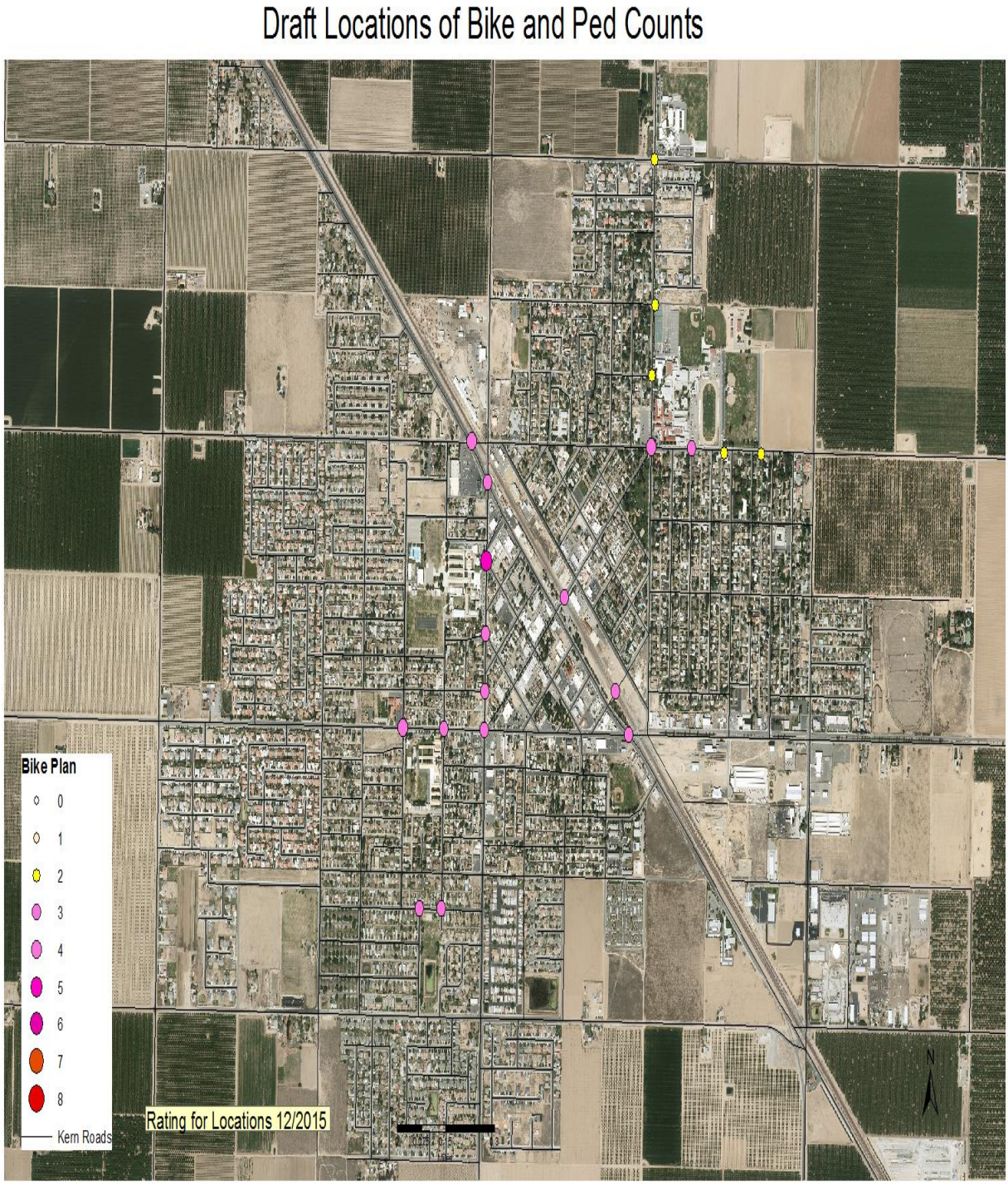
Candidate Bike/Ped Locations – Ridgecrest



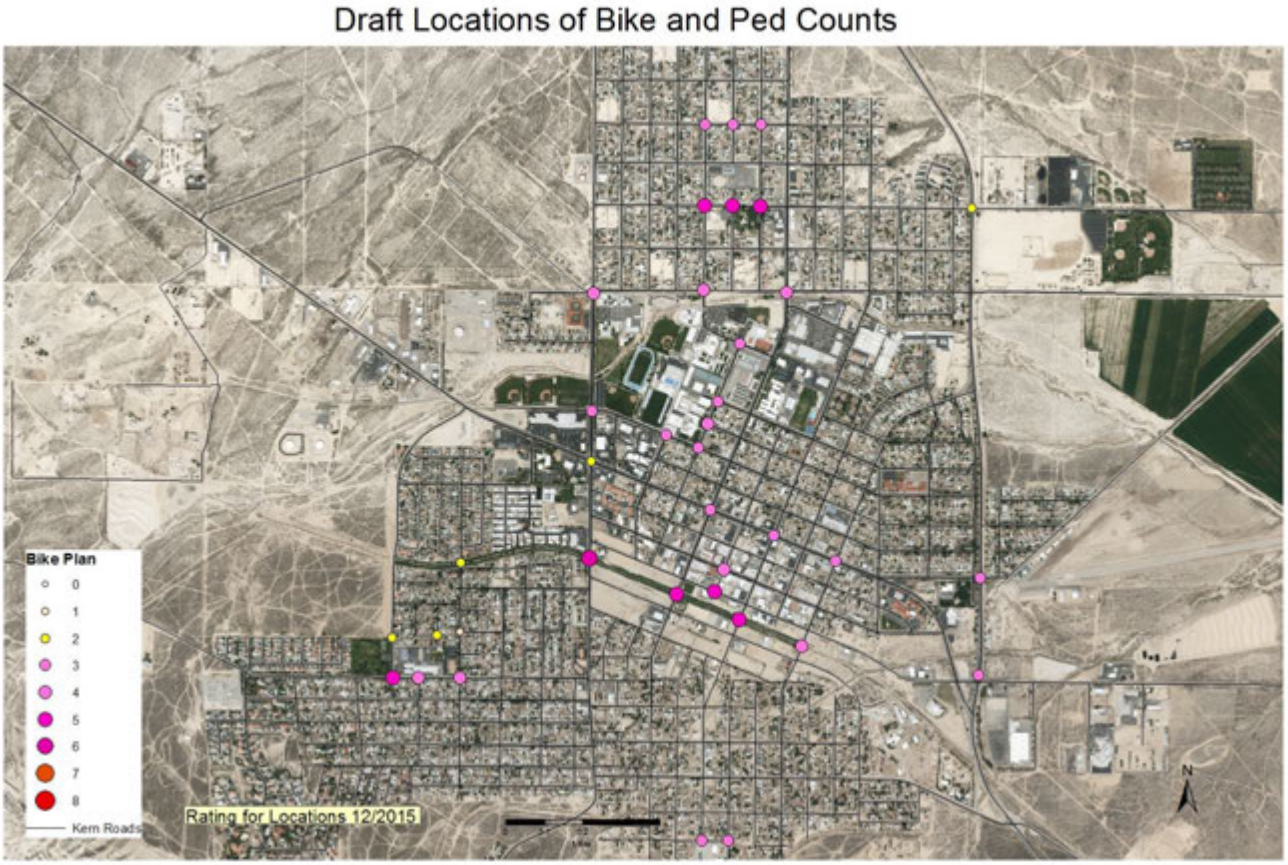
Candidate Bike/Ped Locations – Rosamond



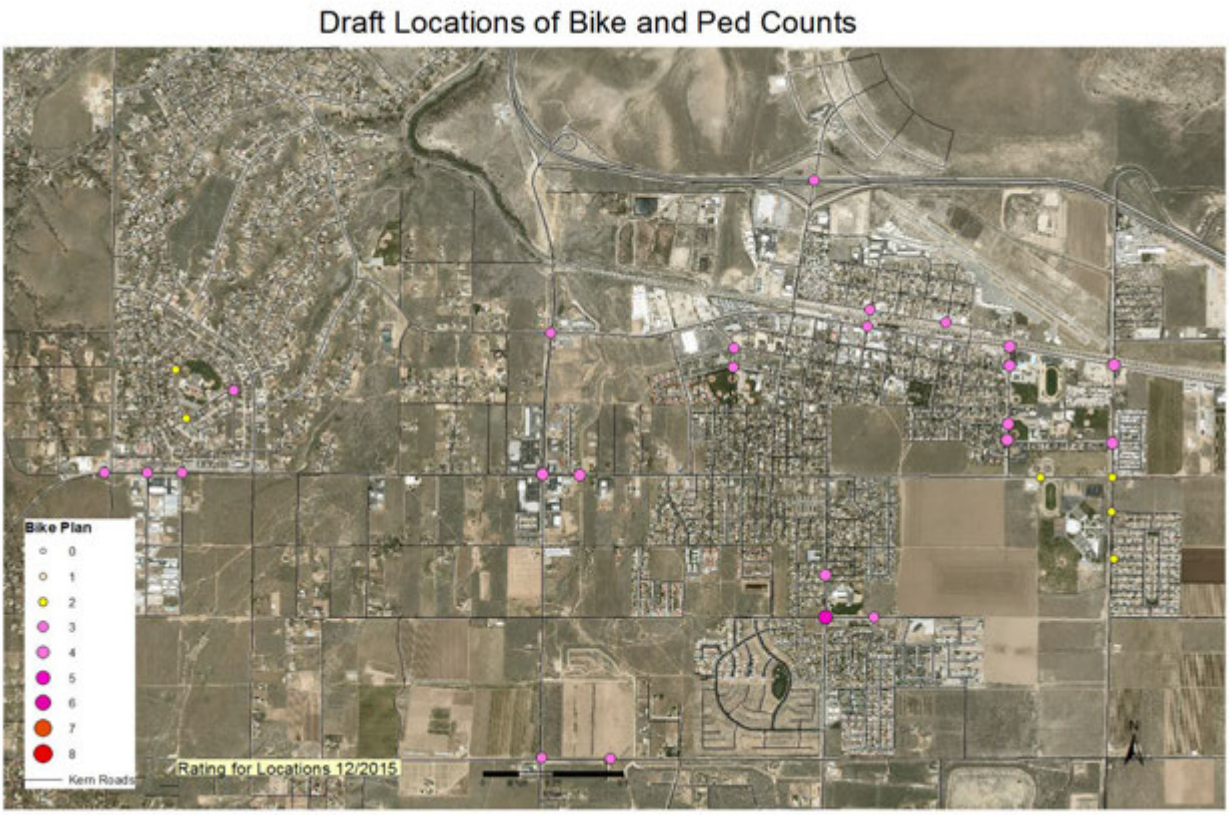
Candidate Bike/Ped Locations – Shafter



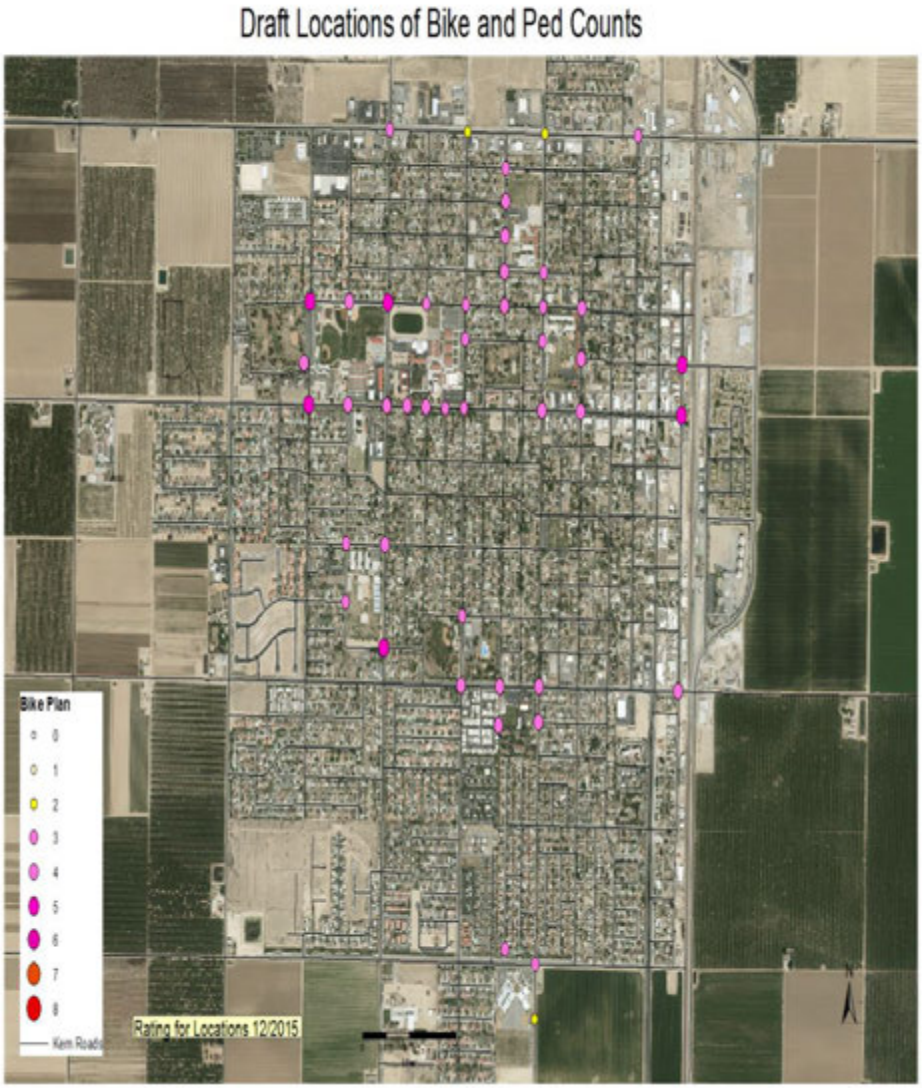
Candidate Bike/Ped Locations – Taft



Candidate Bike/Ped Locations – Tehachapi



Candidate Bike/Ped Locations – Wasco



4.0 Call Box/Motorist Aid Integration Assessment

4.1 The Existing Call Box System

The Kern Motorist Aid Authority (KMAA) is a regional public agency created in 1988 pursuant to California Streets and Highway Code to install, operate, and maintain a motorist aid call box system in Kern County. The KMAA is part of a group of statewide agencies that

are also called Service Authority for Freeway Emergencies (SAFE) which are in charge of approximately 16,000 call boxes in California. These call boxes allow motorists to request roadway assistance in both emergency and non-emergency situations. Call boxes are placed in pairs along highways. When a call is made on a call box, it is directly connected to the California Highway Patrol (CHP).

The following provide a summary of the vital statistics on the Kern County call box system:

- Total number of call boxes: 574
- Coverage: 859 miles of freeways and expressways
- Placement and Installation (see **Figure 4.1**):
    - Installation began in 1991 and was completed in 2000
    - Freeways
    - State Highways
    - Other— only 12 call boxes are on non-state highway County roads
- Average Countywide call box spacing:
    - Urban areas: one mile, a total of 51 boxes (8.9%)
    - Rural areas: two miles, a total of 523 boxes (91.1%)
- Hard-wired or wireless: only one call box in the County is hard-wired the rest are all cellular
- Analog or digital: currently all analog, upcoming contract effort will convert the system to fully digital
- Cellular Carrier: AT&T
- Usage statistics/trends 12-month period FY 05/06 (see **Appendix C**):
    - Total calls—66,533
    - Maintenance calls—61,569
    - Assistance calls—4,964
    - Average calls per month—414
    - Average calls per month, per box—0.72
    - Average calls per day per box—0.03

- [**FIGURE 4.1 Available on CD on request]**

    - High month: July—595
    - Low month: February—256
- Annual maintenance costs: approximately $200,000 or $350/site
- Funding source: through $1 of registration fee from DMV
- Accessibility: the call boxes are currently not equipped with TTY
- Compliance with state minimum guideline of 8' shoulder throughout the system is not known
- The number of 911 calls on the overall emergency system vs. on the call box system: not known
- Freeway Service Patrol (FSP) coverage: there is no FSP program in Kern County
- Availability of #399 Service: none
- Currently there are no other uses of the call box system, including the following:
    - Traffic counts
    - Fog detector
    - CCTV
    - Remote traffic sensors
    - Smart Call Box

4.2 System Needs

- **Desire for inventory**—It is highly desirable to develop and maintain an integrated inventory data base with coordinate system and individual photo logs that can be used for system evaluation.

- **Need or desire for system reduction**—Even with the decline in usage, currently there does not appear to be a need or desire for system reduction. Any more than a 2-mile spacing, which may result from a system reduction, will not provide a "system". However, Countywide call volume has declined from 25,000 to about 5,000 per year and any further significant decline may result in Board decision to discontinue maintenance and begin funding other programs such as FSP or enhanced sheriff/emergency response

- **System accessibility**—The initiation of #399 system (cellular phones act as call box directing call to CHP center) will be discussed as part of integration with possible 511 system in upcoming upgrade efforts and TTY.

- **Integration with other uses**—These strategies have been discussed but no action has been taken. Major effort will be required and need for connections to TMC, adding features/devices to poles may alter crash characteristics—traffic counts and fog detection may be most attractive.

4.3 Experiences of Other Jurisdictions

In order to achieve a better understanding of the potential issues and benefits of implementing traffic count system utilizing Smart Call Boxes in Kern County, a review of similar programs in other jurisdictions was conducted. Three such programs were identified, all of them in Southern California. (It is not surprising that California is the leader in such programs because the state has much more comprehensive Call Box programs than other states.) The three Smart Call Box programs that were identified have been implemented in San Diego, San Bernardino, and Riverside Counties.

4.3.1 San Diego County

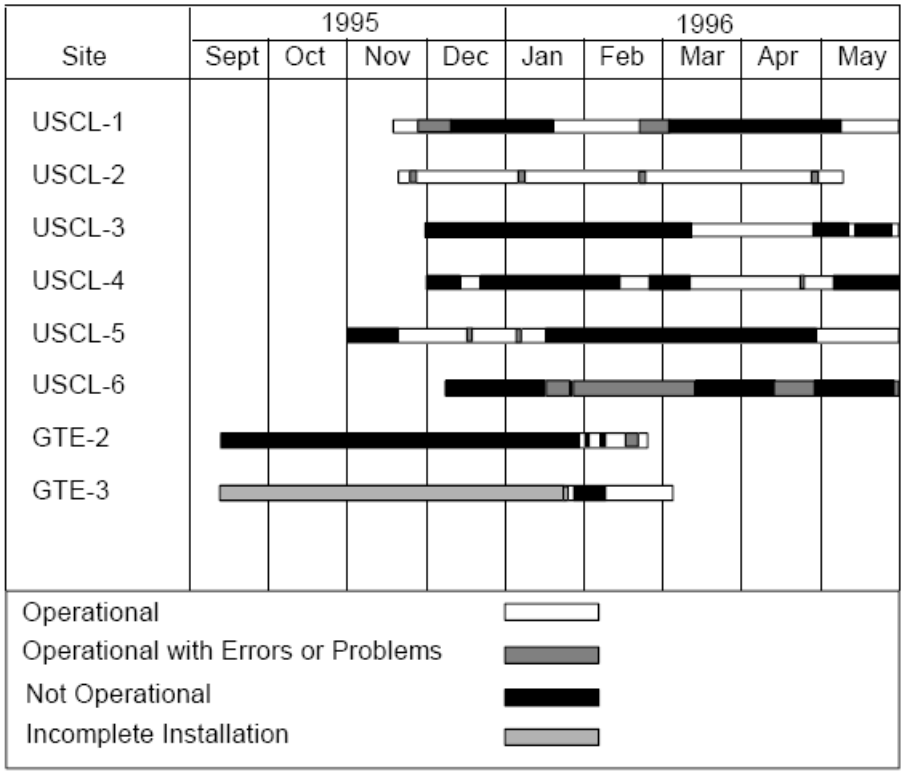
San Diego County began a Field Operational Test (FOT) of a Smart Call Box system in 1992, with implementation and evaluation of the system taking place in 1995-1996. The FOT was carried out by a consortium of Caltrans District 11, the Border Division of the California Highway Patrol (CHP), and the San Diego Service Authority for Freeway Emergencies (SAFE). The FOT was evaluated by San Diego State University (SDSU). Because microprocessor, communication, and solar technologies, as well as ITS protocols, have advanced substantially since 1996, the results of the FOT may be of limited applicability to current circumstances. However, some of the institutional and technical issues are still relevant and instructional.

The traffic census component of the FOT included eight Smart Call Box units developed by two vendor teams. Most of the units employed a standard inductive loop traffic counter external to the call box, using existing induction loops. One vendor's installations involved modification of existing call boxes, while the other vendor's call box units were specially installed.

The Smart Call Box units experienced a variety of technical problems that resulted in very poor reliability. All units except one experienced extended periods of down time. Problems included software problems, disruption of external power supplies, failure of the cellular phone, and failure of the traffic counter. **Figure 4.2** shows the periods during which each unit was operational.

In addition to the clear reliability problems, the Smart Call Box FOT also exposed issues related to system integration. All of the Smart Call Box designs involved integration of external field devices such as traffic counters, weather sensors, or video compression units that were not originally designed to work together. The SDSU evaluation noted that, "Traffic counter manufacturers, in particular, introduce improved products from time to time and naturally want to use the latest version when new systems are developed. 'Upgrades' tended to result in software incompatibilities with equipment that had been compatible with the previous version."

Figure 4.2: Operational Status of San Diego County Smart Call Box Traffic Census Sites



Source: *Smart Call Box Field Operational Test Evaluation Summary Report*, San Diego State University, 1997

In addition, each component of a Smart Call Box must be integrated with equipment and/or software at the data collection center. System integration failures were a major problem in the performance of the test systems. The SDSU evaluation observed that, "A standard communications protocol for traffic counters and similar devices that recognizes the requirements of wireless communications systems is highly desirable. Given the tendency for counter equipment to evolve, such a standard may be the only way to ensure that smart call box systems will not need to be reinvented every time a new model of counter is introduced."

The SDSU evaluation of the Smart Call Box FOT concluded that, "Where possible, tests should focus on solving problems as they are perceived by potential users of the technology being developed, and not on the exploitation of a particular type of technology. In this case, this would have implied a focus on developing wireless data collection systems rather than on exploiting existing call box technology." In particular, the evaluation noted that the traffic count devices made very limited use of the underlying call box technology. Given the relatively low cost of cellular modems, it may be more cost effective to develop stand-alone count stations with cellular modems to reduce the system integration issues.

4.3.2 San Bernardino County

In 1997, Riverside and San Bernardino Counties jointly undertook a pilot program involving the installation of Smart Call Boxes in the two counties. Their experiences and results were strikingly different. San Bernardino County's experience is recounted first. There is no written evaluation of the San Bernardino program; this discussion is based on recent conversations with staff of San Bernardino Associated Governments (SANBAG).

San Bernardino County initially installed 20 Smart Call Boxes. The County experienced maintenance problems with the Smart Call Boxes from the start, and began removing them soon after the program began. Currently, there are 15 remaining Smart Call Boxes in the County. The Smart Call Boxes that were installed use analog cellular telephone technology, and almost as soon as they were installed, carriers started converting to digital transmission technology. Thus, they became obsolete almost upon installation. Reliability was also a major problem.

SANBAG staff also complain that, even with the units that work, the data collected are transmitted directly to Caltrans, so that it is not available for local planning purposes. This highlights the importance of establishing institutional arrangements that best serve the needs of all program participants.

4.3.3 Riverside County

Riverside County installed 20 Smart Call Boxes under two pilot programs in 1997 and 1999. Currently, 17 are still in operation. All are installed on the State highway network. According to a 1999 evaluation of the 1997 pilot program conducted by VRPA technologies, the traffic count data are stored on-site at the Smart Call Box and can be retrieved remotely by an incoming call to the Smart Call Box, using proprietary traffic counting and reporting software. The data retrieved from the Smart Call Boxes are analyzed using another proprietary software program that calculates traffic volume characteristics such as peak hour flows, K and D factors, ADT, and AADT. These data are collected and analyzed by a private contractor on behalf of the Riverside County Transportation Commission (RCTC) and are used for Congestion Management Plan (CMP) reporting purposes, as well as being made available to the County and to local agencies.

Riverside County's experience with the Smart Call Boxes has been sufficiently positive that the 2006 CMP describes a proposed significant expansion of the program. Some of the additional locations will be the traditional Smart Call Boxes, while others will be so-called "black boxes" that are stand-alone data collection devices with wireless transmission capabilities, but no associated Call Box.

4.4 Recommendations

- Based on the results of the Call Box Inventory and Evaluation recently conducted by Kern COG, identify locations that are not compliant with State Guidelines (included in **Appendix D**) or certain undesirable call box type installations. Recommend removal of these call boxes and their "working pairs" or correction of problems. Potentially consider additional installations on certain identified necessary highway locations (system interchanges, steep grades, inclement weather locations, etc.).

- Defer deployment of "Smart Call Boxes" until operational issues can be resolved.

- Consider deployment of the Countywide #399 System and integrate with 511 System and TTY capability.

5.0 Technology and System Integration Options

This section evaluates system integration options related to potential components of the RTMIP. For each option, the feasibility of incorporation into the RTMIP, as well as options for doing so, if appropriate, are considered. Subsequent sections elaborate on and refine the Uniform Traffic Count Program outlined in the previous Needs Assessment report, as well as review possible funding sources for RTMIP components.

5.1 Traffic Count Technology Options

A variety of technological options exist for conducting traffic counts, and innovations continue at a fairly rapid rate as new technologies are developed and existing technologies are improved. The options range from the low-tech methodology of having a person observing a location and recording traffic volumes with a manual counting device to high-tech methodologies involving video or microwave detection of vehicles. In general, the low-tech methodologies require a lower capital investment but higher labor costs, and are more easily adaptable to changing circumstances. The high-tech methodologies require greater capital investments, but lower on-going labor costs, and can be less adaptable to changing circumstances, typically because they are installed at fixed locations and are limited by their initial design parameters.

As noted above, traffic counting technologies continue to evolve. Those that are currently commercially available include the following:

a. Pneumatic tubes
b. Magnetic imaging
c. Inductive loops
d. Video detection
e. Microwave detection

The advantages and disadvantages of each of these technologies are discussed below.

a. Pneumatic tubes. Pneumatic tubes represent an established technology that is in widespread use. They consist of a rubber tube, or set of tubes, that is placed across the roadway and that uses pressure changes to detect the number of axle movements. A counter placed by the side of the road records the axle movements and, using algorithms to detect axle spacing, can convert axle counts and axle spacing into vehicle classification counts. They are typically used for temporary (i.e., one week or less) installations.

Pneumatic tubes have several advantages. First, they are very inexpensive, with contractors providing count services for as little as $50 - $100 per day per location. Second, they can easily be installed and relocated as necessary. They are a familiar technology, and many suppliers are available.

The main disadvantage of pneumatic tubes is that they may become displaced, especially on high-volume roadways or roadways with many heavy vehicles. Although the algorithms used to convert axle counts to vehicle counts are constantly being improved, they are far from perfect, particularly in congested conditions. However, they are generally adequate for measuring passenger car equivalent flows.

b. Magnetic imaging. Magnetic imaging is an alternative to pneumatic tubes. The technology consists of a giant magnetoresistance (GMR) magnetic sensor that is placed in the travel lane that uses changes in the magnetic field to determine vehicle length. The GMR sensor can either be installed permanently in the pavement or placed on top of the pavement as part of a temporary installation. An associated counter converts vehicle length into vehicle classification counts. They can be used for temporary (i.e., one week or less) or permanent installations.

Relocatable magnetic imaging devices are also relatively inexpensive. They can also easily be installed and relocated as necessary. However, relocatable magnetic imaging devices are in relatively limited use, and few suppliers are available. Like pneumatic tubes, they may become displaced, especially on high-volume roadways or roadways with many heavy vehicles. Because of their limited use, their accuracy has not been as thoroughly evaluated as pneumatic tubes. However, they are likely adequate for measuring passenger car equivalent flows.

Permanently installed magnetic imaging devices are more durable but more expensive, with a typical cost being $1,000 per lane, plus approximately $3,000 for a controller cabinet. They must be installed near a power source, or else dedicated power (e.g., solar) must be provided. Optionally, communications infrastructure can also be provided to transmit the data collected to a central location. Otherwise, each location must be visited by a technician on a regular basis to download the data.

c. Inductive Loops. Inductive loops are another established technology that is in widespread use. They consist of a wire loop, or set of loops, that is permanently installed in the pavement of the roadway. An alternating electric current through the loop creates a magnetic field that is disturbed by the presence of a conductive object (e.g., a vehicle). A sensor records the presence of the vehicle and, using algorithms to detect vehicle length and spacing, can convert vehicle length and spacing into vehicle classification counts. As noted above, inductive loops are typically used for permanent installations.

Inductive loops have several advantages. They are an established technology, and their design and maintenance are well understood. Commercially available equipment is available for relatively easy installation. They are far more durable than the technologies intended for temporary installations, although they may still suffer damage on roadways with many heavy vehicles.

The cost of inductive loops is similar to that of permanently installed magnetic imaging devices, with a typical cost being $1,000 per lane, plus approximately

$3,000 for a controller cabinet. They also must be installed near a power source, or else dedicated power (e.g., solar) must be provided. Optionally, communications infrastructure can also be provided to transmit the data collected to a central location. Otherwise, each location must be visited by a technician on a regular basis to download the data.

d. Video detection. Video detection uses a video camera and specialized software to detect the presence of vehicles at fixed locations in the road. A video camera is permanently installed on a pole adjacent to the roadway. A single camera can count several lanes simultaneously. Algorithms convert vehicle length and spacing into vehicle classification counts. Video detection is typically used for permanent installations.

Video detection equipment is commercially available. Installation is relatively easy, although site-specific design plans must be generated for each location. Because they are not installed in or on the roadway surface, the video cameras are not damaged by heavy traffic volumes.

The primary disadvantage of video detection compared to inductive loops is cost. The detectors require substantial design and installation effort. The detectors typically incorporate cellular telephone technology for transmitting data. Thus, they require associated communications infrastructure to receive the data at a central location. A complete installation of a video detection station costs approximately $20,000 to $25,000. Installation costs can be considerably reduced if a mounting pole (e.g., a luminaire pole) is already available at the desired location.

e. Microwave detection. Microwave detection is a relatively new technology that has recently been adopted by Caltrans. A microwave detector is permanently installed on a pole adjacent to the roadway. A microwave frequency is used to detect the presence of an object in the travel lane. A single detector can count several lanes simultaneously. Algorithms convert vehicle length and spacing into vehicle classification counts. Microwave detection is typically used for permanent installations.

Like video detection, microwave detection equipment is commercially available. Installation is relatively easy, although site-specific design plans must be generated for each location. Because they are not installed in or on the roadway surface, the microwave detectors are not damaged by heavy traffic volumes.

Microwave detection is a new technology, and its maintenance needs are not well understood. The primary disadvantage of microwave detection compared to inductive loops is cost. As with video detection, the detectors require substantial design and installation effort. The detectors typically incorporate cellular telephone technology for transmitting data. Thus, they require associated communications infrastructure to receive the data at a central location. A complete installation of a microwave detection station costs approximately $20,000 to $25,000. Installation

costs can be considerably reduced if a mounting pole (e.g., a luminaire pole) is already available at the desired location.

In reviewing and evaluating the traffic count technology options available, it is important to keep in mind that the RTMIP is a *regional* effort covering an area of over 8,000 square miles. The data collected are to be used for regional planning efforts, such as identifying growth rates and developing future traffic forecasts. The Needs Assessment identified a traffic count program with nearly 600 individual count locations and more surely to be added as the region continues to grow.

Based on the large number of count locations, the cost of permanent installations such as inductive loops or microwave detection would be prohibitive. Furthermore, such permanent installations are not appropriate to the needs of the program, which are primarily short-term traffic counts. The short-term nature of the counts does not justify the large capital investment that would be required for these methodologies.

The City of Bakersfield currently uses inductive loops for the six City control stations established as part of its existing traffic count program. These locations are counted continuously, with the data recorded locally. There is no communications with a central location, such as the City's Traffic Operations Center. Instead, a technician visits each location approximately monthly to download the data from the recorders. Kern COG may want to consider a similar procedure for the Master Stations identified in the proposed RTMIP.

Two technologies are best suited for short-term installations: pneumatic tubes and magnetic imaging. As discussed earlier, pneumatic tubes are an established technology available from numerous suppliers. Magnetic imaging is in much less widespread use, and Kern COG's experience with it has been disappointing. A limited number of suppliers results in infrequent and expensive upgrades and maintenance. As the equipment ages, it has become more and more problematic to maintain it.

Taking into consideration the advantages and disadvantages of the available technologies, as well as the needs of the RTMIP traffic count program, it is recommended that Kern COG use pneumatic tube counting technology as the basis for its count program. This technology is inexpensive, flexible, and provided by numerous suppliers. In addition, Kern COG may want to consider using inductive loop technology for master station locations, with or without communications capabilities.

5.2 ITS Strategies and Solutions

Kern COG has undertaken a study to investigate the implementation of Intelligent Transportation Systems (ITS) in Kern County. Kern County is also a participant in the San Joaquin Valley Intelligent Transportation Systems Strategic Deployment Plan (SDP). These studies investigated appropriate ITS technologies for the unique urban/rural mix found in Kern County. The SDP identified the following priority projects in Kern County:

- Smart Call Box System Deployment
- Smart Studs Demo Project
- Incident Management Procedures
- Communication Network, Phase II
- Kern County Regional Communication Links
- RWIS with CCTV System
- Bakersfield TOC Expansion
- GET Fare Equipment Deployment

It is not the purpose of the RTMIP to reexamine the ITS priorities established by the SDP. Rather, the purpose of the current effort is to evaluate means to integrate the ITS strategies with RTMIP activities. The Smart Studs Demo Project and the Roadside Weather Information System (RWIS) are components of a system to detect and alert drivers about hazardous weather conditions. The Incident Management Procedures would comprise a set of interagency agreements concerning use and sharing of resources during major incidents. The GET Fare Equipment Deployment covers the installation of electronic fare collection equipment on transit vehicles. Thus, none of these programs is directly related to the data collection and distribution goals of the RTMIP.

Of the remaining programs, Smart Call Box System Deployment and the communication network programs are discussed below in Section 5.4, "Integration of Permanent Count Locations with Call Boxes." The Bakersfield TOC Expansion is discussed below in Section 5.5, "Integration with Traffic Operations Centers and Traffic Signal Cameras."

5.3 Existing and Future Assets

Kern COG currently has an inventory of magnetic imaging portable traffic analyzers, Nu-Metrics Hi-Star models NC90a and NC97. In the past, these traffic counting devices were lent to member agencies upon request. Currently, the devices have suffered a failure rate of approximately 50 percent, and Kern COG does not have funding to exchange or replace them.

In recent years, Kern COG has contracted with a traffic data collection firm to conduct traffic counts throughout the County. As part of this program, the contracted firm is responsible for providing its own traffic counting equipment. Thus, the capital expense has been transferred to a contractor. Since this program has been in place, the demand by member agencies for the equipment owned by Kern COG has virtually disappeared.

Kern COG is a Metropolitan Planning Organization and a Regional Transportation Planning Agency whose core functions are in policy formulation, data analysis, and regional coordination. Raw traffic data collection is not a core functionality of Kern COG, and it would seem to make little sense for the agency to maintain a substantial capital investment in traffic data collection equipment. This is especially true given that there are numerous

private sector suppliers who are able and willing to provide data collection services at competitive rates.

As described earlier, traffic data collection technologies continue to evolve, both in terms of hardware and software. For the foreseeable future, the technologies employed in the RTMIP count program will involve devices that are physically placed in the roadway, where they are subject to damage from the traffic volumes that they are intended to count. Inevitably, there will be ongoing maintenance and replacement costs associated with such equipment. Given this context, it is recommended that Kern COG no longer seek to maintain its own inventory of traffic counting equipment and instead rely on private sector contractors to provide and operate such equipment. These firms use the equipment on a continuous basis and are in a better position to amortize maintenance and replacement costs, reducing overall costs to the agency.

5.4 Integration of Permanent Count Locations with Call Boxes

Integrating permanent count locations with call boxes can take advantage of the clustering of multiple capabilities at a single field location to reduce program costs. In the case of the RTMIP, the cost of a permanent count location can be substantially reduced and its capabilities can be increased by taking advantage of the infrastructure in place for the call box system. Call box locations can be equipped with traffic detection devices, most likely inductive loops, and utilize the communication capability of the call box to transmit traffic volume data to a central location. In addition, as an ITS communications infrastructure is implemented, data can easily be transmitted throughout the network. Thus, the cost of providing power to the count location is eliminated, and data collection costs are reduced because a technician no longer needs to travel to the field to retrieve the data.

Because of the additional cost associated with a permanent count installation (discussed earlier in Section 5.1), such installations should be limited to only those locations where data collection is needed on a frequent or continuous basis. As the RTMIP is conceived, these would likely be only the Control Station locations. Given a typical cost of $4,000 to add data collection capabilities to a call box versus a conservative estimate of $100 per location for a temporary count installation, the same funds could provide either a single permanent installation or 40 years of annual counts.

The existing call boxes in Kern County use an analog cellular signal. This technology is not suitable for data transmission, so data collection efforts could not be integrated with the existing call box system. However, the Kern Motorist Aid Authority is undertaking an effort to replace the entire call box system with one that uses digital technology. As the system is converted to digital, permanent count locations could be integrated with the call box system.

The possibility of integrating Control Station locations with call boxes raised an important question concerning the siting of Control Stations. The existing Control Stations within the County are located off the State highway system. This simplifies temporary data collection

installations by eliminating the need for local agencies to obtain an encroachment permit from Caltrans for data collection activities. However, the call box system is largely (but not entirely) installed on State highways. Therefore, if Control Station Locations were to be integrated with call boxes, new Control Station locations would need to be identified, and continuity with historical data at the existing Control Stations would be lost. Given the reliability issues with "Smart Call Boxes" and the loss of continuity with historical data, After discussion among Kern COG and its member agencies, it was decided to maintain the Control Stations at their current locations.

5.5 Integration with Traffic Operations Centers and Traffic Signal Cameras

The City of Bakersfield maintains a Traffic Operations Center (TOC) whose purpose is to collect, manage, and distribute traffic operations data for the City. Currently, the TOC has hard-wired connections to traffic signals at approximately 220 intersections throughout the City. Of these, approximately 80 intersections have video detection capabilities. The video detection capabilities at these locations could provide the ability for continuous traffic data collection, although this capability is not currently being utilized.

Because of the large proportion of traffic count locations that are located in the City of Bakersfield, the use of data collected directly by existing equipment in the City could reduce the scope of the ongoing traffic count program. However, several steps would need to take place for this to happen:

a) Video detection would have to be implemented at more locations
b) Vehicle classification abilities would have to be incorporated into the video detection software
c) A format and protocol for transferring data from the TOC to the RTMIP count program would have to be established

Expansion of the Bakersfield TOC is included in the ITS Strategic Deployment Plan. As the TOC is expanded, these additional capabilities could be added. In the short term, however, the Bakersfield TOC is likely to focus on other efforts more directly related to its central mission, such as establishing communication with all City signals for monitoring signal status and updating timing, as well as installing cameras to monitor traffic flow and congestion.

The County of Kern currently operates a TOC on a smaller scale, with dial-up connections to approximately 70 traffic signals. As more traffic signals are tied into the system and detection capabilities are strengthened, similar efforts could be undertaken to provide data collection capabilities.

5.6 Opportunities to Combine Data Collection Efforts

The RTMIP has established a plan for on-going traffic count data collection. This section evaluates opportunities for combining other types of data collection efforts with the traffic count program.

a. Speed Survey Data. As discussed in the Needs Assessment, most of the jurisdictions in the County collect speed data, and most use their own staff to do so. Follow-up discussions revealed that speed data are generally collected for the purposes of establishing speed limits under State law. Since the legislative body of each jurisdiction must make findings to establish speed limits, it is appropriate that the responsibility for collecting the relevant data remain at the local level. Therefore, it is not recommended that speed survey data be incorporated into the RTMIP.

However, the pneumatic tube equipment used to provide traffic counts are also capable of producing speed information at the same time. Since the speed information is derived from the same raw data, there is little additional cost to collecting and reporting speed information. The accuracy of this type of speed information is not sufficient for establishing speed limits. It may, however, be of interest in monitoring congestion on particular roads or for route coordination. Therefore, it is recommended that Kern COG discuss with its member agencies whether such data would be useful.

b. Pavement Condition Data. As discussed in the Needs Assessment, pavement condition data is becoming increasingly important for jurisdictions as they plan their capital improvement budgets. Reliable, quantitative pavement condition data are best collected by means of specialized equipment that is expensive and will not typically be cost-effective for small or even medium-sized jurisdictions to own, such as falling weight deflectometers or video or laser pavement profilers that are connected to computerized data collection systems. Therefore, the collection of pavement condition data is a logical effort to centralize through the RTMIP. It is of region-wide importance, and often not easily collected at the local level. Therefore, it is recommended that Kern COG initiate a program for the collection of these data on the model of the traffic count data program.

c. Freeway Service Patrol. There is currently no Freeway Service Patrol (FSP) in the Kern COG region. However, implementation of an FSP is included in the San Joaquin Valley ITS Strategic Deployment Plan. At such time as an FSP is implemented, it would be logical to incorporate its data collection into that of the Call Box system, since FSP calls are often made through the Call Box system.

d. Accident Reporting. Unlike traffic count data, which are collected on a regular basis at recurring locations, accident data must be collected wherever and whenever accidents occur. Therefore, they are a fundamentally different type of data than traffic counts.

Currently, accident data are collected throughout the County by local police departments, the County Sheriff, and the California Highway Patrol (CHP). The data are supposed to be submitted to the statewide reporting system for accident data, the Statewide Integrated Traffic Records System (SWITRS), which has been established and is maintained by the CHP. However, it has been the experience of local jurisdictions that only fatal and injury accidents, which constitute less than one half of all accidents, are reported in SWITRS.

In response to this situation, the City of Bakersfield maintains its own accident database, in addition to SWITRS. City staff comb Bakersfield Police Department accident reports and enter the accident data into the database, including geocoding to the nearest intersection with linear referencing. Approximately 300-400 accidents within the City of Bakersfield are recorded this way each month.

Accident data are highly sensitive because of the potential for litigation. Therefore, agencies are reluctant to share these data with any external organization. Furthermore, to establish a program similar to Bakersfield's on a County-wide basis would require the dedication of at least one full time equivalent position to the task. Therefore, it is not recommend that the RTMIP include such an effort at this time. Rather, it is recommended that Kern COG work with the local jurisdictions to improve reporting of accident data to SWITRS.

In addition, it is recommended that Kern COG work with the CHP and on-going efforts such as that at the University of California at Berkeley to improve geocoding capabilities of SWITRS data.

e. Transit Boardings. The two largest transit providers in the County, Golden Empire Transit (GET) and Kern Regional Transit, currently collect their own data on transit boardings. GET buses are equipped with infra-red devices to count passenger boardings at each stop. However, these devices are generally not used because of malfunctions and lack of accuracy. Therefore, the only data collected on a regular basis by GET are farebox counts by routes, which reveal only total ridership. These data are summarized monthly in an Excel spreadsheet.

Kern Regional Transit ridership data are collected manually by bus drivers. Total ridership is tabulated monthly and summarized in an Excel spreadsheet.

Thus, at this time, location specific data (i.e., boarding locations) are not collected for the major transit systems in Kern County. Only summary ridership data are collected. While these data are useful to the transit agencies, they do not play a major role in the planning efforts of other member agencies. Therefore, integrating these data collection efforts into the RTMIP does not appear to be a priority.

f. Call Box Usage Data. Call box usage data are currently collected by Kern COG in its capacity as the Kern Motorist Aid Authority. Call boxes are assigned unique identifiers, and their locations have already been geocoded. Therefore, call box

usage data could be added to the RTMIP database should Kern COG and its member agencies choose to do so.

6.0 Uniform Traffic Count Program Implementation Plan

A major component of the RTMIP is to establish a Uniform Traffic Count program that will provide useful and accurate data to jurisdictions within the County in an economical fashion. An additional important function of this program is to comply with state and federal reporting requirements, such as those associated with the Highway Performance Monitoring System (HPMS).

6.1 Traffic Count Schedule

The Draft Needs Assessment described a count program with 14 Control Station locations and an additional 584 count locations. Based on discussions with Kern COG and its member agencies, the program was revised to include 22 Control Station locations and an additional 1,021 count locations, for a total of 1,043 count locations. The Draft Needs Assessment also recommended that:

- Count data be collected at each identified location for a 24-hour period once every year on a weekday (Tuesday, Wednesday, or Thursday) while local schools are in session.
- Each location should be counted at approximately the same time each year in order to facilitate analysis of changes over time.
- Control stations should be counted for a 7-day period four times each year. Monthly or 365 day per year (using a permanent counters) control station counts should be considered as resources are available.

The Federal Highway Administration's *Traffic Monitoring Guide* (TMG) suggests that statistical analyses indicates that increasing the length of each count is more important to improving data reliability than increasing the frequency of the counts. The TMG recommends counting each location at least once every six years, with high growth or other special needs locations counted more frequently. In addition, HPMS sample segments must be counted at least once every three years. Some cost savings could also be achieved by counting some locations on a less than annual basis.

Discussion with Kern COGs member agencies revealed that a high value was placed on having annual counts throughout the larger jurisdictions. Therefore, it was decided that the count schedule should remain as originally proposed, one 24-hour period each year for each location. However, to achieve more reliable AADT volumes, discussed below, it was decided that the following element of the count schedule should be modified as follows:

- Control stations should be counted for a 7-day period each month as a resources are available.

6.2 Traffic Count Standardization

Currently, the primary source of traffic counts in Kern County is Kern COG itself, by means of a contract with a traffic count provider. These counts are provided in a format defined by Kern COG, including latitude and longitude data to facilitate integration into a GIS database. The GIS database created as part of this RTMIP imports and plots these count data.

The City of Bakersfield and the County of Kern still conduct some traffic count activities independent of the Kern COG count program. To date, these counts continue to use software that produces reports in a proprietary format that is not readily incorporated into a larger database. It is possible to continue to investigate means of transferring these data into a format that can be imported into GIS. It is recommended that a better solution would be to establish a limited number of standard formats for traffic count reporting and to conduct all future counts using technology and software that can produce reports in those formats.

Traffic volume data for Caltrans facilities exist in two systems, the Freeway Performance Measurement System (PeMS) and the Transportation System Network (TSN). As its name implies, PeMS only collects data on freeways, not other state highways. At this time, there is no PeMS data collection in Kern County. In the future, it may be possible to make use of PeMS data. TSN data are accessible only to Caltrans personnel, but they can be converted to a spreadsheet format. With appropriate interagency procedures in place, it would be possible for Kern COG to obtain TSN data on a regular basis from Caltrans. However, it will require some effort to incorporate those data into a GIS database because of the difficulty in goecoding the count locations. In TSN, count locations are identified by route number, postmile, and type of roadway segment (e.g., mainline or ramp). It will be necessary to develop a linear referencing system to identify locations along extremely long roadway sections, and then to identify the appropriate ramp or mainline segment.

6.3 Traffic Count Reporting Procedures

On an ongoing basis, traffic count data may be collected by any of Kern COG's member agencies, although it is anticipated that the majority of data collection efforts will be conducted under contract to Kern COG itself. As described above for the RTMIP traffic count program to be successful, it will be necessary for all counts to be reported in a format that is compatible with the RTMIP database, including the provision of latitude/longitude coordinates.

All traffic counts should be submitted to Kern COG in the established electronic format. Kern COG should designate one person to receive and process submitted counts. Counts should be processed and added to the database on a monthly basis. Prior to adding individual counts to the database, Kern COG should perform a reasonableness check on the data, including latitude/longitude coordinates.

Traffic count locations are identified in the database by their latitude/longitude coordinates. **Therefore, it is critical that all future counts are identified by the latitude/longitude of the counts currently in the database, not by an actual GPS reading taken with the new count.** The latitude/longitude coordinates must be specified in decimal form, not degrees/minutes/seconds.

6.4 Performance Monitoring Program Recommended Applications and Procedures

As the traffic data is collected, the information will be used to calculate and develop various performance monitoring relationships and applications. The following describes some key applications and analyses using the collected data as well as typical traffic monitoring and performance measurement methods that may be employed.

- ADT volumes by direction—measures the magnitude of traffic using the roadway segment in 24 hours
- Peak period/hour by direction—shows the magnitude of traffic using the roadway segment in the peak period or hour
- Peaking factors (peak volume/ADT)—shows the sharpness of the peak hours/periods on the roadway segment
- Generalized arterial volumes/capacity (V/C) ratio by direction for ADT or peak hour/periods—shows generalized capacity availability or deficiency
- Vehicle classification data—shows truck volumes and truck percentages in each corridor
- Traffic growth trends and change in travel patterns—by compiling and analyzing the data for several years, traffic growth trends, modal shift and goods movement trend changes and capacity utilization/performance of the system can be established Countywide, by corridor, or by subregion

The RTMIP database includes a module that calculates Average Annual Daily Traffic (AADT) volumes from the raw count data. This module identifies the day of week and the month of each count, and the appropriate control station for each raw count. It then applies appropriate factors based on the control station to calculate an AADT from the raw count. Updated day-of-week and monthly adjustment factors must be entered into the database for each count year.

6.5 System Update Recommendations

The Uniform Traffic Count Program and its monitoring process are intended to be a system which will change over the years based on the County's changing travel patterns and Kern COG and local agency planning needs, requirements and regulations. It is expected that all component of the Uniform Traffic Count Program may be modified in the future based on these changing requirements.

It is recommended that the Uniform Traffic Count Program be evaluated once every two years, and that the count location selection criteria be used to modify the list of count locations. The process to determine potential changes to the count locations or monitoring schedule should be initiated by Kern COG staff sending a change request notice to local jurisdictions. Upon receipt of the notice, local jurisdictions will have an opportunity to recommend additions and/or deletions to the system based on documented and supporting data for the selection criteria.

Upon receipt of the requested changes, Kern COG staff will compile the requests and make recommendations for new count locations to be added, or existing ones to be deleted, to bring the system into compliance with the selection criteria.

In addition, the frequency of counts and the technology used to conduct them should be reviewed as part of the biannual evaluation. In particular, the installation of permanent counting equipment at the master station locations should be considered.

The Control Stations in the count program are located in the City of Bakersfield and unincorporated Kern County. Staff of each of these agencies should provide Kern COG updated day-of-week and monthly adjustment factors for the AADT calculation by March 1 of the following year.

7.0 Funding Sources

Procuring funding for data collection and planning activities is always challenging. Most State and Federal funding sources are intended for capital projects, primarily capacity enhancements of the surface transportation system. A few are intended for transit capital investments or operating activities. There are few funding sources that allow the flexibility to use funds for planning activities. Data collection is mandated by the Federal government as part of the Highway Performance Monitoring System (HPMS), and the HPMS program has recently emphasized the importance of ensuring data quality. However, no funding source exists for the improvement or data collection activities.

The existing Kern COG traffic count program is funded by Regional Surface Transportation Program (RSTP) funds. In addition, Kern COG's member agencies are contributing funds for the program under a Memorandum of Understanding in effect through 2010.

The following potential funding sources were investigated for purposes of this evaluation:

- AB 2766 (Air Quality Vehicle Registration Fee) Funds
- Carl Moyer Memorial Air Quality Standards Attainment Program
- Congestion Mitigation and Air Quality (CMAQ)
- Environmental Enhancement and Mitigation (EEM)
- Federal Statewide Transportation Improvement Program (FSTIP)
- Federal Transportation Improvement Program (FTIP)
- Intelligent Transportation Systems (ITS) Research and Development
- Local Transportation Fund (LTF) of the Transportation Development Act (TDA)
- Motor Vehicle Emission Reduction Program (MVERP)
- Regional Surface Transportation Program (RSTP)
- State Transportation Improvement Program (STIP)
- State Highway Operation and Protection (SHOPP)
- Transportation Enhancement Activities (TEA)

Based on a review of the eligibility criteria for each of the above programs, it appears that the following programs are *potential* funding sources for future projects under the RTMIP:

AB 2766 (Air Quality Vehicle Registration Fee) Funds–Assembly Bill 2766, adopted in 1990, authorizes the Department of Motor Vehicles to collect a registration surcharge of $4 per vehicle to fund programs that reduce air pollution from motor vehicles and for related planning monitoring, enforcement and technical studies. Forty percent of these funds are returned to Cities and Counties to fund transportation-related projects that reduce air pollution. Projects that are funded with AB2766 funds must meet the criteria and guidelines in the California Air Resources Board's (CARB) *Criteria & Guidelines,* which state:

> The primary purpose of the funds is to reduce emissions from the use of motor vehicles. However, state law also recognizes the need to

> develop clean air plans that identify the strategies for meeting air quality standards. Ambient air monitoring and technical studies needed to implement the California Clean Air Act are other eligible uses of the funds.
>
> …
>
> The allocation of motor vehicle fees for district planning and technical work should be detailed in district budgets and approved by governing boards. These technical activities should not be funded entirely by motor vehicle fees; at most, the funding should be proportionate to the relative contribution of mobile source emissions.

Thus, to the extent that reliable and accessible transportation data are necessary for the development of plans to carry out Clean Air Act activities, it would appear that AB 2766 funds could be used for RTMIP activities.

Congestion Mitigation and Air Quality (CMAQ)–The CMAQ program was created under the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, continued under the Transportation Equity Act for the 21st Century (TEA-21), and reauthorized by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The purpose of the CMAQ program is to fund transportation projects or programs that will contribute to attainment or maintenance of the national ambient air quality standards for ozone, carbon monoxide (CO), and particulate matter (PM).

According to the CMAQ program's Interim Program Guidance (October 31, 2006):

> Activities in support of eligible projects also may be appropriate for CMAQ investments. Studies that are part of the project development pipeline (e.g., preliminary engineering) under the National Environmental Policy Act (NEPA) are eligible for CMAQ support, are FTA's Alternatives Analyses. General studies that fall outside specific project development do not qualify for CMAQ funding. Examples of such efforts include major investment studies, commuter preference studies, modal market polls or surveys, transit master plans, and others. These activities are eligible for Federal planning funds.

Thus, to be eligible for CMAQ funding, an RTMIP activity would have to be tied to a specific CMAQ-eligible project, such as regional multi-modal traveler information systems, traffic signal control systems, transit management systems, incident management programs, or transportation demand management programs.

Local Transportation Fund (LTF) of the Transportation Development Act (TDA)–Under the Transportation Development Act (TDA) of 1971, funding is allocated to transit and non-transit related purposes that comply with regional

transportation plans. The TDA provides two funding sources: 1) Local Transportation Fund (LTF), which is derived from a ¼ cent of the general sales tax collected statewide, and 2) State Transit Assistance fund (STA), which is derived from the statewide sales tax on gasoline and diesel fuel. The State Board of Equalization, based on sales tax collected in each county, returns the general sales tax revenues to each county's LTF. According to the TDA regulations, up to 3 percent of annual program revenues can be allocated for the conduct of the transportation planning and programming process.

Thus, to the extent that reliable and accessible transportation data are an important part of Kern COG's planning and programming process, LTF revenues could be used to fund RTMIP activities.

Regional Surface Transportation Program (RSTP)– The Regional Surface Transportation Program (RSTP) was established by California State Statute utilizing Surface Transportation Program Funds apportioned under SAFETEA-LU. Of the Surface Transportation Program funds, 10% are allocated to Transportation Enhancements, 27.5% are retained by the State for its use, and the remaining 62.5% constitutes the RSTP, which is divided among Cities and Counties based on population. Surface transportation planning programs are explicitly identified as an acceptable use of RSTP funds. Thus, to the extent that reliable and accessible transportation data are an important part of Kern COG's planning activities, RSTP revenues can be used to fund RTMIP activities.

8.0 Implementation Matrix

Recommendation	Timeframe	Responsible Agency	Potential Funding Source
Implement Uniform Traffic Count Program			
• Establish count frequencies as described in Action Plan	Immediate	Kern COG & member agencies	RSTP/LTF
• Employ pneumatic tube technology	Immediate	Kern COG	
• Counts provided by private sector contractor	Immediate	Kern COG / contractor	RSTP/LTF
• Counts supplemented by local agencies	Ongoing	Member agencies	Local Agencies
• Establish uniform data reporting format(s)	Immediate	Kern COG	RSTP/LTF
• Investigate permanent installations at Master Station locations	Short-term	Kern COG	RSTP/LTF
• Develop AADT calculation module	Complete	Kern COG / contractor	
• Biannual review of program	Ongoing	Kern COG	RSTP/LTF
Data Integration			
• Determine whether Master Stations will be co-located with Call boxes; relocate Master Stations if necessary	Complete; Re-evaluate as necessary	Kern COG	
• Implement video detection at traffic signals	Long-term	Local agencies	AB2766 CMAQ
• Enable vehicle counting abilities at locations with video detection	Long-term	Local agencies	AB2766 CMAQ
• Develop protocol for transfer of video detection count data to RTMIP count program	Long-term	Kern COG and local agencies	RSTP/LTF
• Include speed data with vehicle count program	Short-term	Kern COG and local agencies	RSTP/LTF
• Initiate a program for collection of pavement condition data	Short-term	Kern COG and local agencies	RSTP/LTF; Local agencies

Recommendation	Timeframe	Responsible Agency	Potential Funding Source
• Improve reporting of accident data to SWITRS	Short-term	Kern COG and local agencies	RSTP/LTF; Local agencies
• Investigate new approaches for geocoding SWITRS data	Long-term	Kern COG	RSTP/LTF; PATH
• Do not include speed surveys for establishing speed limits			
• Do not include accident data in RTMIP count program			
• Investigate future use of PeMS data	Long-term	Kern COG and Caltrans	PATH
• Investigate linear referencing system for TSN data	Long-term	Kern COG and Caltrans	PATH

Appendix A [Available on CD on request]

Survey Instrument

Appendix B

Recommended Count Locations

Available on http://www.kerncog.org/publications

Data Dictionary

JURIS = Jurisdiction of count location
ROADWAY = Roadway on which count is located
DIR = Direction from cross street
CROSS_STRE = Cross street of count location
ADT_ID = City of Bakersfield unique ID
LON = Longitude of count location
LAT = Latitude of count location
HPMS = Whether location is on an HPMS segment
ENTRY = Whether location is a community/county entry point
COMM = If location is an entry point, community to which it is an entry
LOC_SIG = Whether location was selected based on local significance
REG_SIG = Whether location was selected based on regional significance
SCREEN = Whether segment containing count location is a model screenline
CONTROL = Whether location is a proposed control station
GM = Whether location was selected based on goods movement activity
CRIT = Criterion number that resulted in addition of point to list (from Table 3.1)
CLASS = Whether location is recommended for vehicle classification count
ROUTENO = Kern County route number
HPMS_ID = HMPS segment ID

Appendix C [Available on CD on request]

Call Box Usage Statistics

Appendix D

Statewide Call Box Guidelines

Statewide Call Box Guidelines

A set of motorist aid guidelines were originally developed by California Highway Patrol (CHP) and Caltrans to guide statewide consistency of the call box systems, which are developed and operated on a county-by-county basis. Updated guidelines developed by CHP, Caltrans and the various SAFE agencies from around the state are currently contained in the document titled "CHP/Caltrans Call Box and Motorist Aid Guidelines", dated May 2005.

The guidelines outline the roles and responsibilities of the various agencies involved in providing motorist aid services in California. The guidelines also provide guidance on the physical aspects –spacing and design of call box systems and individual call box sites. Several sections pertinent to this analysis are extracted from the Statewide Guideline and are presented below with some key words underlined.

Site Requirement

- Within spacing requirements, call box locations will be selected to have minimal impact on normal highway operation. A call box will not be located where there is less than an eight (8) foot shoulder. Any exceptions shall be reviewed and approved by the local district at Caltrans.

Call Box Spacing

- Within the guidelines, call box spacing should ensure motorist safety by providing the closest feasible spacing to reduce both pedestrian and vehicle exposure time. Closer spacing also contributes to congestion relief by providing faster notification and clearing of disabled vehicles from the roadway.

- Variation in terrain, available revenue, urban/rural characteristics, and proximity for roadside services are factors in the decision of spacing between call boxes. In order to allow flexibility and still maintain consistency in these installations, the county SAFEs should adhere to the following suggested spacing guidelines:

ADT	SUGGESTED SPACING
Lower than 40,000	3.2 km or more (2.00 mi or more)
40,000 to 75,000	1.6 km to 3.2 km (1.00 mi to 2.00 mi)
75,000 to 100,000	0.8 km to 1.6 km (0.50 mi to 1.00 mi)
Higher than 100,000	0.8 km or less (0.50 mi or less)

- A reasonable spacing on rural highways with low ADTs may be based on geometric and economic needs. Other factors may include the cellular coverage area and isolation. Spacing does not constitute a system of call boxes but rather a service.

These call boxes should only be placed in an area where adequate safe clearance from the roadway is available.

- On Caltrans toll bridges, call boxes should be spaced between 600 to 1,200 feet, depending on whether or not adequate shoulders are provided. Special situations and deviations from this should be discussed with the district liaison.

Call Box Removal, Relocation and Repairs

- There may be factors, including, but not limited to, significant decreases in annual call volume, administrative issues, and operational issues, that warrant the need to remove call boxes on a systemwide basis. The SAFE will develop a systemwide call box removal plan that shall include a list of recommended call box sites to be removed, the resulting spacing between remaining adjacent sites, and justification for removal. If call boxes are being removed as a result of low call box usage, call box usage data for each call box shall also be provided. However, it should be noted that a call box may be removed due to systemwide decrease in call volume. The SAFE shall submit the call box removal plan to the CHP and Caltrans for review and approval. With the exception of removals for construction, a removal that is planned or in existence for more than six months is considered a permanent removal and requires an approved removal plan.

- A SAFE does not need to submit a removal plan to the CHP and Caltrans for the removal of individual call boxes. However, removals greater than 10% of the number of installed call boxes on any one corridor does require a removal plan.

- Should a call box be taken out of service for repair or temporarily removed due to roadway construction, its pair shall be bagged or temporarily removed. Any exceptions shall be reviewed and approved by the local district at Caltrans.

- Along freeways, expressways, and divided conventional highways, call boxes shall be removed from both sides of the roadway to maintain call box pairing.

Appendix E

REQUEST FOR PROPOSAL

Kern Regional Traffic Count Study

Kern Council of Governments
1401 19th Street, Suite 300
Bakersfield, CA 93301
(661) 861-2191

Additional background information on this proposal can be found on the Kern COG website:
www.kerncog.org
refer to tab:
"Working with Kern COG"

REQUEST FOR PROPOSAL

Kern Regional Traffic Count Study

Proposals Due Monday, March 28, 2016

INTRODUCTION AND BACKGROUND

The Kern Council of Governments (Kern COG) requests bids from qualified contractors to conduct a traffic count study of Kern County, California.

Established in 2005, this ongoing study monitors traffic counts for approximately 1000 locations on locally maintained roads in Kern County, California. Developed in response to recommendations for the 2000 Kern COG Model Update Contract, Kern COG has established a long-term regional traffic count monitoring program. The goal of the program is to provide more consistent and frequent traffic counts and vehicle mix information while eliminating duplication of effort in counting programs between the Kern COG member agencies and Caltrans. A comprehensive description and complete list of tasks and products are included in this request for bids.

The study is an annual program that is renewable annually up to 5 years.

See the Required Proposal Form for additional details on the anticipated tasks required for this project.

Since the 1970s Kern COG has performed surveys for the Caltrans Highway Performance Monitoring System (HPMS). The system keeps track of a variety of data on federal, state and local routes including traffic volume, vehicle mix, and posted speeds. In 1995, Kern COG began a traffic counter loan program for its member agencies in support of the annual HPMS survey and other traffic count needs. Kern COG formerly maintained an inventory of 42 traffic counters that were loaned to member agencies for performing quarterly and annual counts as well as special counts.

In 2001 at the Transportation Modeling Committee (TMC), a subcommittee of the TTAC Transportation Modeling Subcommittee, attendees discussed and supported the creation of a regional transportation monitoring program. Representatives on the committee were present for the City of Bakersfield Public Works and Planning Departments and the Kern County Roads Department.

In response to these developments Kern COG has developed a Regional Transportation Monitoring Improvement Plan (RTMIP) for the regional traffic count program. Both the Final Report and the associated Traffic Count Location List (Appendix B) and locations maps are posted on the website http://www.kerncog.org/cms/working-with-kern-cog/request-for-proposals. The most recent effort in that program included the update of the regional traffic count website (http://kerncog.ms2soft.com/tcds/tsearch.asp?loc=Kerncog&mod=).

The goal of the program is to provide more consistent and frequent count data and to eliminate duplication of effort in counting programs between the member jurisdictions and Caltrans.

PURPOSE AND OBJECTIVES OF RFP

The proposed program will produce and publish data on the web for the following purposes:

- Calibration of the Kern COG regional transportation model
- Monitor directional splits for calibration of the Kern COG peak hour model
- Predict commodity flow and freight movements
- Monitor speed data for posted speed limit change analysis
- Monitor recurring unsafe speed locations additional speed enforcement activity signalization safety improvement analysis
- Federally mandated Highway Performance Monitoring System
- Planning, design and construction of federal aid projects
- Apportionment or allocation of federal funds
- Air Quality, Environmental impact analysis

The undertaking of pavement maintenance and research and the supporting of Strategic Highway Research Program (SHRP)

SCOPE OF SERVICES – REQUIRED PROPOSAL FORM:

SHEET 1 OF 2

(**Exhibit A**- Description of Work): The Contractor shall furnish all labor, tools, traffic data collection equipment, mapping software, distribution media, and incidentals necessary to collect, process and report traffic counts on arterial and collector road segments. By bidding on this contract, the Contractor certifies his/her ability to perform the following: 1) Collect, process and report 24 and 48 hour short count and vehicle classification control traffic count data as described in this Proposal; 2) Meet all schedules and timelines for contract deliverables; 3) Obtain appropriate permits and licenses from various agencies involved; and 4) Furnish GPS coordinates of each count when needed with the accuracy of 1 meter or better and specify the coordinate system used.

For motorized counts, computerized counters will be setup on the day prior to the day of the count and will be picked up the morning after the count to ensure a full 24-hour or 48-hour count (midnight to midnight). Entering (approach) volume counts will be taken at locations where driveway and other turning movements will not adversely affect counts. Counts will be conducted according to the Kern COGs' protocol on Tuesday, Wednesday, and Thursday. All counts must be reported in MS2 or mutually accepted template formats. A traffic count locations list will be provided, and appropriate data from this list is to be entered into the template for each count. A sample of this list(s) and the template(s) are on http://www.kerncog.org/cms/working-with-kern-cog/request-for-proposals. ***Performance Bond, Insurance and Disadvantaged Business Enterprise (DBE) Goals are required.**

1. The undersigned, as bidder, declares that the only persons or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any other person, firm or corporation; and the bidder has carefully examined the Notice to Bidders, the proposed form of contract, and the special provisions therein referred to, and proposes and agrees, if this proposal is accepted, that the bidder will contract with the Kern Council of Governments to provide all necessary labor, materials, tools or equipment in the time and manner, and in full payment therefore, and at the prices shown below.
2. Kern Council of Governments hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.
3. The bid of any contractor who is currently in default with Kern Council of Governments on a contract already awarded may be accepted; however, bidder understands that any costs associated with default will be paid prior to award or deducted from the proceeds of newly awarded contract.
4. If the bidder is awarded the contract and refuses to sign the contract presented for signature within the time and manner required, the bidder will be liable to Kern Council of Governments for actual damages resulting to the Department therefrom or 10% of the amount bid, whichever is less. Contractor will be placed on a default status. Default is defined as (1) being within a period of liquidated damages on uncompleted work, or (2) under notice to begin or complete a contract where work has not commenced or was suspended without cause, or (3) where contract is terminated for contractor failing to perform services required by the contract in a satisfactory manner.
5. a. After award of contract and execution of the contract, should the contractor fail to commence work within five (5) working days after notification of the starting date, or suspend work for a period of five (5) continuous working days after work has begun, Kern Council of Governments may provide five (5) calendar days written notice, posted at the job site or mailed to the contractor, to timely prosecute and complete the work or the contract may be terminated and liquidated damages of $500.00 may be assessed for administrative costs for rebidding the work or awarding the work to another contractor.
   b. In addition, the Contractor shall be liable to Kern Council of Governments for the difference between the Contractor's bid price and the actual cost of performing the work by the second low bidder or by another contractor.

BUSINESS NAME (PRINT OR TYPE)		DATE
BY (MUST BE SIGNED BY AUTHORIZED PERSON)	TITLE	BUSINESS PHONE
BUSINESS ADDRESS (STREET/P.O. BOX, CITY, STATE, ZIP)		FAX NUMBER

ADDRESS WHERE EQUIPMENT MAY BE INSPECTED (IF APPLICABLE) (STREET, CITY, STATE, ZIP)		
STATE CONTRACTOR'S LICENSE BOARD NO.:	STATE CONTRACTOR'S LICENSE BOARD CLASSIFICATION:	FEDERAL I.D NO./SOCIAL SECURITY NO.:

REQUIRED PROPOSAL FORM (Continued)

SHEET 2 OF 2

TASKS – COUNT TYPE:	COST PER SITE:	NO. OF SITES/ STATIONS	TOTAL COST:
1. Locate, Setup, Collect, Process, and Report 24-hour Traffic Counts (both directions). [700 Sites/1-8 lanes]	$_____ (Per Site)	x 700 Sites	$_____
2. Locate, Setup, Collect, Process, and Report Vehicle Control Station Counts (7 days, 24 hours, both directions). [5 sites/1-8 lanes].	$_____ 7 days/ 24hours per day (4 times/ year- possibly quarterly)	x 16 Sites (140 days/ year) (16 locations x 7 days x 4 times/ year)	$_____
3. Locate, Setup, Collect, Process, and Report 24-hour Vehicle Classification Traffic Counts (both directions). [300 Sites/1-8 lanes]	$_____ (Per Site)	x 300 Sites	$_____
4. Locate, Setup, Collect, Process, and Report 48-hour Traffic Counts (both directions). [5 Sites/1-8 lanes]	$_____ (Per Site)	x 5 Sites	$_____
5. Locate, Setup, Collect, Process, and Report 48-hour Vehicle Classification Traffic Counts. [5 sites]	$_____ (Per Site)	x 5 Sites	$_____

DRAFT

6. **Segment Ped & Bike Count Including:** • Pedestrians • Bikes • Wheel Chairs • Motorized Bikes (if possible to identify or will be classified as a standard bike) • Other Class Type Easily Identified (upon request in advance) • Mid-Block Marked Crosswalk or Illegal street crossing in the area of the segment count • On-Off Bus (upon request if in segment count area) • On-Off Train (upon request in advance if in segment area and with authorization to set up camera(s) in platform area) or **can be done as a separate count (additional charge) in conjunction with a segment ped & bike count(s)** The data will be counted and separated as (1) side of street, (2) travel on sidewalk, (3) travel on street without a bike lane, (4) travel on the street with a bike lane and (5) travel off-street with a designated bike-ped-equestrian path. Also, provide optional costs for direction of travel or study at an intersection and video delivery.	**$____x 24 (Per hour per Site)**	**x 40 Sites**	
		TOTAL BID	**$_____**

(1) THE ABOVE QUANTITIES ARE ESTIMATES ONLY AND ARE GIVEN AS A BASIS FOR COMPARISON OF BIDS. NO GUARANTEE IS MADE OR IMPLIED AS TO THE EXACT QUANTITY THAT WILL BE REQUESTED FOR EACH TYPE OF COUNT.
(2) IN CASE OF DISCREPANCY BETWEEN THE UNIT PRICE AND THE TOTAL SET FORTH FOR A UNIT BASIS ITEM, THE UNIT PRICE SHALL PREVAIL.
(3) ANY BID MAY BE REJECTED IF IT IS UNREASONABLE AS TO PRICE. UNREASONABLENESS OF PRICE INCLUDES NOT ONLY THE TOTAL PRICE OF THE BID, BUT PRICES FOR INDIVIDUAL LINE ITEMS AS WELL.

SUPPLEMENTAL PROVISIONS

A. Contractor shall contact and coordinate with all local jurisdictions in the placement of Automated Traffic Recorders (ATRs) within each traffic count segment. Contractor shall keep himself/herself fully informed of all existing and future State laws, and county and municipal ordinances and regulations, which in any manner affect those engaged or employed in the work to be performed. Contractor shall identify the ATR device type, year and model prior to collecting any count under this contract. In addition, Contractor shall test all traffic counters to document their error rate, and Contractor shall self-certify all equipment in use to be functional and accurate within 30 days of contract execution and prior to the start of traffic counts. Contractor shall be responsible for the daily inspection of ATR devices for proper operations deployment and correct any deficiencies. No part of the 24-hour traffic counts may contain data collected within any weekend, weekday holiday, or

extended weekend formed by a Federal, State or Local holiday; nor can counts be taken during the 24-hour period before or after said holidays.

B. Detailed Traffic Count Schedule

Within 30 calendar days of contract execution, Contractor shall prepare and submit to the Contract Manager for approval a detailed traffic count schedule in either a spreadsheet using the MS Excel 2013 format or other mutually agreed format. The schedule shall contain the following:

Traffic count dates and exact site locations by street name, from and to location, and jurisdiction for each of the segments.

For each count date for all segments, identify the name and mobile phone number of the designated Field Supervisor in charge of the count crews oversight, and inspection of ATRs.

Contractor shall not modify the detailed traffic count schedule without prior written approval from the Contract Manager.

C. Preliminary ATR Equipment Testing

Within 30 calendar days of contract execution, Contractor shall perform the following:

Conduct preliminary testing of all ATRs used on this project prior to the start of conducting traffic counts.

Submit written proof and results of all ATR preliminary equipment testing to the Contract Manager including ATR serial number.

Self-certify all equipment in use for this project to be functional and accurate. Submit self-certification in writing to the Contract Manager.

D. Monthly Progress Reports

Contractor shall submit a monthly progress report due the first working day of each month to the Contract Manager by electronic mail (e-mail) on the status of the contract. The monthly report shall be submitted in the MSWord version 2013 or the MS Excel version 2013 format and contain all of the following items.

1) Number and exact location of counts taken and any scheduled locations for which data was not obtained. A new schedule of count dates will be provided for data that was not obtained per the original schedule. The report must include any changes to the contract schedule, which will require approval by the Contract Manager.

2) Date and time of equipment setout, daily inspection and pick up of equipment.

3) Log sheet identifying field supervisor, date, time and results of inspections and the ATR serial number used.

COORDINATION

Kern COG is solely responsible and will be the sole point of contact for all contractual matters related to this project. The consultant shall take direction only from Kern COG and shall regularly inform Kern COG of project progress, any outstanding issues, and all project related matters.

Participating entities may also offer suggestions and/or recommendations regarding the project or elements of the project. While Kern COG enjoys a close relationship with and has considerable confidence in the capabilities of these other parties, the consultant shall not act on any suggestions, solicited or unsolicited, without obtaining specific direction from Kern COG. Unless otherwise directed, all oral and written communication shall be directed only to Kern COG. Any distribution of project related communication and information will be at the discretion of Kern COG.

The selected consultant will best demonstrate the ability to deliver quality work on schedule and in a cost-effective manner, consistent with the tasks and deliverables in this RFP.

All data, maps and all other materials prepared or collected under this contract will become the property of Kern COG.

SCHEDULE

Activity	**Date**
Request for Proposals Released	Tuesday, February 23, 2016
Last Day to Submit Written Questions	Tuesday, March 8, 2016
Deadline for Proposal Submittal	Monday, March 28, 2016
Selection Process	From March 29 to March 31, 2016
Final Cost Proposal & Scope Due	Friday, April 8, 2016
Kern COG Board Approval	Thursday, April 21, 2016
Notice to Proceed	Friday, July 1, 2016

These dates are subject to change. Schedule updates will be posted on the Kern COG website: www.kerncog.org refer to tab: "Working with Kern COG."

PROPOSAL REQUIREMENTS

A Technical Selection Committee of representatives from Kern COG and Kern County will select the contractor based on the lowest bid, qualifications, references, and the committee's evaluation to ensure the best value for the resources available.

One reproducible, five copies, and one electronic copy of the proposal must be received at Kern Council of Governments Monday, March 28, 2016. Proposals not received by that date and time will not be considered.

Provide contact and email address

Proposers shall provide a contact person and email address to be used in responding to questions and for notification of updated RFP information.

RFP ORGANIZATION

In order to simplify the review process and maximize the degree of comparative analysis, the proposal should be organized in the following manner:

A. Transmittal letter

The transmittal letter should be signed by an official authorized to bind the consultant contractually and will contain a statement to the effect that the proposal is a firm offer for 90 days. The letter accompanying the proposal will also provide the following: name, title, address, and telephone number of individuals with the authority to negotiate and contractually bind the company. The transmittal shall contain a statement of understanding of the RFP.

B. Management Approach

This section should describe the firm's management approach. Designate by name the project manager to be employed who will oversee the project. No substitutions of the identified project manager will be allowed without prior approval of Kern COG Project Manager.

i. Project Budget

Kern COG has budgeted a maximum of $71,967 (Seventy ONE THOUSAND NINE HUNDRED SIXTY SEVEN DOLLARS) in fiscal year 2016-17 for this study.

C. Insurance Requirements

Without limiting Kern COG's right to obtain indemnification from the consultant or any third parties, the consultant, at its sole expense, shall maintain in full force and affect the following insurance policies throughout the term of the contract:

1. Worker's Compensation in the amount required by law.

2. Commercial general liability insurance, including contractual liability coverage, covering all of its actions under this contract with limits of not less than $2,000,000 combined single limit for bodily injury and property damage or $1,000,000 per person and per occurrence for bodily injury and $1,000,000 per each occurrence for property damage and $2,000,000 aggregate.

3. Commercial automobile liability coverage with the same limits as the commercial general liability insurance described above, covering all owned, hired, and non-owned automobiles and any

other vehicle or equipment used by Consultant or its agents in performance of this contract.

4. Worker's compensation insurance as required by law.

All policies of insurance mentioned above shall be placed with insurers admitted to do business in California and with current "Best's Key Rating Guide" rating of no less than an A-, VII. The commercial general liability and automobile liability policies shall contain endorsements naming the Kern Council of Governments, its officers, employees, agents and governing body and each member thereof, as additional insureds and providing for a legal defense, if such is requested, for all such additional insureds. In addition, all policies of insurance mentioned above shall not be canceled or reduced until thirty (30) days after Kern COG receives notice of such cancellation or reduction. A signed copy of a certificate or certificates of insurance evidencing each of the coverages and requirements for the policies of insurance mentioned above, and evidencing each of the endorsements described herein, shall be submitted to Kern COG prior to Consultant performing any work under this contract.

In the event the consultant fails to keep in effect at all times insurance coverage as herein provided, Kern COG may, in addition to other remedies it may have, suspend or terminate the contract upon the occurrence of such event.

D. Disadvantaged Business Enterprise (DBE) Certification

It is the policy of Kern COG, the California State Department of Transportation and the U.S. Department of Transportation, that Disadvantaged Business Enterprises (DBEs), as defined in 49 CFR Part 23, shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with local, state or federal funds.

Consultant shall ensure that DBEs, as defined in 49 CFR Part 23, have the maximum opportunity to participate in the performance of this contract. In this regard, Consultant shall take all necessary and reasonable steps to ensure that DBEs have the maximum opportunity to compete for and to perform subcontracts arising out of this contract. Failure to carry out the requirements of this paragraph shall constitute a breach of contract and may result in termination of this contract or such other remedy Kern COG may deem appropriate.

During the period of this contract, the Consultant shall maintain records of all applicable subcontracts advertised and entered into germane to this contract, documenting the opportunity given to DBEs to participate in this contract, actual DBE participation, and records of materials purchased from DBE suppliers. Such documentation shall show the name and business address of each DBE subcontractor or vendor, and the total dollar amount actually paid each DBE subcontractor or vendor. Upon completion of the contract, a summary of these records shall be prepared

and certified correct by the Consultant, and shall be furnished to Kern COG.

E. Conflicts of Interest

The prospective contractor shall disclose any financial, business, or other relationship with Kern COG, or other entities such as the other MPOs involved in this project, that may have an outcome on the selection.

F. SUMMARY OF QUALIFICATIONS

Proposals shall include a summary of the firm's qualifications, including resumes of assigned staff.

G. Signing of Proposal/Authorization to Negotiate

The proposal shall be signed by an official authorized to bind the proposer and shall contain a statement to the effect that the proposal is a firm offer for a 90-day period. The proposal shall also provide the following: name, title, address, and telephone number of individuals with authority to negotiate and contractually bind the company.

H. Attachments

Attachments to be included at the end of the proposal are as follows (as attached herein):

- Attachment A: Title VI Assurance
- Attachment B: Required Proposal Form

PROPOSAL SUBMITTAL

1. Preparation of Proposal

The proposal shall be formatted in accordance with the requirements specified on **Page 5** in the Section titled "Proposal Requirements" of this RFP. Proposal forms shall be executed by an authorized signatory as described herein. All proposals shall be prepared by and at the expense of the proposer.

2. Examination of RFP Document

The proposer shall be solely responsible for examining, with appropriate care, the RFP, including Required Proposal Form and any addenda issued during the proposal period. The proposer shall also be responsible for informing itself with respect to any and all conditions, which may in any way affect the amount or nature of the proposal or the performance of the work in the event the proposer is selected. Failure of the proposer to examine and inform itself in this manner shall be at the proposer's own risk and no relief for error or omission shall be given.

3. Submission of Proposal/Period of Acceptance

One reproducible master, five copies, and one electronic copy of all proposals must be delivered to Kern COG no later than 5:00 p.m. PST, Monday, March 28, 2016. Proposals will not be accepted after 5:00 p.m. PST. Postmarks will not be accepted. Proposals should be delivered to:

Ahron Hakimi, Executive Director
Kern Council of Governments
1401 19th Street, Suite 300
Bakersfield, CA 93301

All proposals will remain firm for a period of ninety (90) days following the final date for submission. All proposals will become the sole property of Kern COG and a part of its official records without obligation on the part of Kern COG.

This RFP is not to be construed as a contract of commitment on the part of Kern COG. Kern COG reserves the right to reject all proposals, to seek additional information from each proposer, or to issue another RFP, if deemed appropriate.

4. Modification or Withdrawal of Proposals

Any proposal received before the date and time specified above for receipt of proposals may be withdrawn or modified by written request of the proposer. To be considered, however, the modified proposal must be received by the proposal due date and time specified previously.

All verbal modifications to these conditions or provisions are ineffective for proposal evaluation purposes. Only written changes issued by proposers to Kern COG are authorized and binding.

5. Rejection of Proposals

Failure to meet the requirements for the request for proposals will be cause for rejection of the proposal. Kern COG may reject any proposal if it is conditional, incomplete, or contains irregularities or inordinately high cost rates. Kern COG may waive an immaterial deviation in a proposal. Waver of an immaterial deviation shall in no way modify the Request for Proposals document or excuse the proposer from full compliance with the contract requirements if the proposer is awarded the contract.

CONSULTANT SELECTION

The actual award of the contract will be by the Kern COG Transportation Planning and Policy Committee (tentatively set for the Thursday, April 21, 2016 meeting). Proposal opening does not constitute the awarding of a contract. The contract is not in force until it is awarded by Kern COG and executed by the Kern COG designees. A subcommittee of the PSC will evaluate, interview and recommend the selected consultant to the Kern COG Transportation Planning and Policy Committee for approval.

PROPOSER OBJECTIONS

A proposer may object to any of the terms or provisions set forth in the RFP's Scope of Work or to the selection of a particular proposer on the grounds that Kern COG's procedures, the provisions of this RFP, or applicable provisions of federal, state, or local law have been violated or inaccurately or inappropriately applied by submitting Kern COG a written explanation of the basis for the objection. Deadlines for submittal of objections are:

- No later than two weeks prior to the date proposals are due, for objections to RFP provisions; or
- Within three working days after the date on which contract award is authorized or the date the proposer is notified that it was not selected, whichever is later, for objections to proposer selection.

If the proposer does not state any objections, Kern COG will assume that the RFP Scope of Work is acceptable to the proposer and have been fully factored into its response. If the proposer intends to negotiate with Kern COG concerning any part of the Scope of Work the proposer finds objectionable, the proposer must provide specific language in its response that will address or cure its objections.

KERN COG RIGHTS

Kern COG may investigate the qualifications of any proposer under consideration, require confirmation of information furnished by a proposer, and require additional evidence of qualifications to perform the work described in this RFP.

Kern COG reserves the right to:

- Reject any or all of the proposals if it deems such action is in the public interest;
- Issue subsequent Requests for Proposals;
- Cancel the entire Request for Proposal;
- Remedy technical errors in the Request for Proposals process;
- Appoint an evaluation committee to review the proposals and make the selection based upon the written proposal only;
- Seek the assistance of outside technical experts in proposal evaluation;
- Approve or disapprove the use of particular subcontractors;
- Establish a short list of proposers eligible for interviews after review of written proposals;
- Negotiate with some, all, or none of the respondents to the RFP;
- Solicit best and final offers from all or some of the proposers;
- Award a contract to one or more proposers;
- Accept an offer other than the lowest price offer; and
- Waive informalities and irregularities in proposals and the bid process.

This RFP does not commit Kern COG to enter into a contract, nor does it obligate Kern COG to pay for any costs incurred in preparation and submission of proposals or in anticipation of a contract. All proposals will be subject to public disclosure as required by the California Public Records Act.

Kern COG reserves the right to investigate the qualifications of all firms under consideration to confirm any part of the information furnished by a proposer, or to require other evidence of managerial, financial, or other capabilities which are considered necessary for the successful performance of the contract.

RFP QUESTIONS

All questions on the RFP should be submitted in writing via email to:

eflickinger@kerncog.org

Ed Flickinger Project Manager
Kern Council of Governments
1401 19th Street, Suite 300
Bakersfield, CA 93301

All questions shall be submitted no later than March 8, 2016. Written Questions submitted by March 8, 2016 will be answered and posted at http://www.kerncog.org refer to tab: "Working with Kern COG."

Attachment A

TITLE VI ASSURANCE

Kern Council of Governments, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d-4 and Title 49, Code of Federal Regulations, department of Transportation, Subtitle A, Office of the Secretary, Part 21 Nondiscrimination in Federally Assisted Programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority businesses enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or nation origin in consideration of an award.

KERN COUNTY PEDESTRIAN & BIKE STUDY

PREPARED BY: ATLANTIC & PACIFIC DATA CORPORATION

DATE:	CITY(AREA):	BAKERSFIELD	PROJECT #:	0700-AP15-1218
12/1/15	SEGMENT:	BAKER N-O BNSF RAILROAD TRACKS	LONGITUDE:	-118.99264600000
TUESDAY	LOCATION:	7	LATITUDE:	35.37760700000

AM PM MD OTHER OTHER

◄ W E ► ▲ N S ▼

	ALL					PEDESTRIAN					BIKE (NON-MOTORIZED)					WHEELCHAIR					MOTORIZED BIKE					ILLEGAL CROSSING				
	N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			PEDESTRIAN		BIKE		
	NB	SB	NB	SB	TOTAL	NB	SB	NB	SB	TOTAL	NB	SB	NB	SB	TTL	NB	SB	NB	SB	TOTAL	NB	SB	NB	SB	TOTAL	EB	WB	EB	WB	TOTAL
0000	5	4	5	5	19	3	3	4	1	11	2	1	1	4	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100	6	1	2	5	14	4	0	2	1	7	2	1	0	4	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200	3	1	0	0	4	2	1	0	0	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300	0	1	0	1	2	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400	3	3	1	1	8	1	2	0	0	3	2	1	1	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500	4	4	1	4	13	2	4	1	2	9	2	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600	5	10	9	4	28	3	8	3	1	15	1	2	5	3	11	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
0700	12	19	3	15	49	10	16	2	9	37	1	3	0	5	9	0	0	0	0	0	0	0	0	0	0	1	0	1	1	3
0800	10	20	17	10	57	4	13	13	3	33	6	6	3	5	20	0	0	0	0	0	0	0	0	0	0	0	1	1	2	4
0900	15	15	21	23	74	10	11	16	16	53	4	4	5	7	20	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
1000	22	25	20	30	97	14	18	17	18	67	8	7	2	12	29	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
1100	19	19	13	13	64	11	14	9	7	41	8	2	3	6	19	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4
1200	33	22	19	10	84	21	18	17	5	61	9	3	2	5	19	0	0	0	0	0	0	0	0	0	0	3	1	0	0	4
1300	26	28	34	28	116	16	22	23	17	78	10	4	11	10	35	0	0	0	0	0	0	0	0	0	0	0	2	0	1	3
1400	19	21	23	15	78	14	13	19	7	53	3	7	3	7	20	0	0	0	0	0	0	0	0	0	0	2	1	1	1	5
1500	13	25	8	20	66	9	22	4	7	42	4	1	3	11	19	0	0	0	0	0	0	0	0	0	0	0	2	1	2	5
1600	25	15	24	16	80	17	10	16	8	51	8	5	6	6	25	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4
1700	21	14	9	18	62	16	12	6	13	47	4	1	2	5	12	0	0	0	0	0	0	0	0	0	0	1	1	1	0	3
1800	20	6	14	23	63	14	3	7	15	39	5	3	3	8	19	1	0	0	0	1	0	0	0	0	0	0	0	4	0	4
1900	16	10	18	13	57	11	7	13	9	40	4	2	5	4	15	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
2000	10	15	9	8	42	8	13	8	6	35	1	1	1	2	5	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
2100	10	4	8	7	29	2	3	3	2	10	5	1	5	3	14	0	0	0	0	0	0	0	0	0	0	3	0	0	2	5
2200	12	7	9	3	31	6	3	7	1	17	6	1	2	2	11	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
2300	6	2	6	4	18	1	1	3	1	6	5	1	2	2	10	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
TOTAL	315	291	273	276	1,155	199	218	193	150	760	101	57	65	114	337	1	0	0	0	1	0	0	0	0	0	14	16	15	12	57
	52.47%		47.53%			54.87%		45.13%			46.88%		53.12%			0.00%		0.00%			0.00%		0.00%			52.63%		47.37%		
	100.00%					65.80%					29.18%					0.09%					0.00%					4.94%				

SIDEWALK

SIDEWALK	ALL					PEDESTRIAN					BIKE (NON-MOTORIZED)					WHEELCHAIR					MOTORIZED BIKE					OTHER				
	N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE		
	NB	SB	NB	SB	TOTAL	NB	SB	NB	SB	TOTAL	NB	SB	NB	SB	TOTAL	NB	SB	NB	SB	TOTAL	NB	SB	NB	SB	TOTAL	NB	SB	NB	SB	TOTAL
0000	4	3	4	2	13	3	3	4	1	11	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0					0
0100	5	0	2	4	11	4	0	2	1	7	1	0	0	3	4	0	0	0	0	0	0	0	0	0	0					0
0200	2	1	0	0	3	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0
0300	0	1	0	1	2	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0
0400	1	2	0	1	4	1	2	0	0	3	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0					0
0500	2	4	1	2	9	2	4	1	2	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0
0600	3	9	4	1	17	3	8	2	1	14	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0					0
0700	11	17	2	11	41	10	16	2	9	37	1	1	0	2	4	0	0	0	0	0	0	0	0	0	0					0
0800	5	17	14	4	40	4	13	13	3	33	1	4	1	1	7	0	0	0	0	0	0	0	0	0	0					0
0900	11	13	17	17	58	10	11	16	16	53	1	2	1	1	5	0	0	0	0	0	0	0	0	0	0					0
1000	15	23	18	20	76	14	18	17	18	67	1	5	1	2	9	0	0	0	0	0	0	0	0	0	0					0
1100	13	16	12	6	47	11	14	9	6	40	2	2	3	0	7	0	0	0	0	0	0	0	0	0	0					0
1200	21	20	18	5	64	21	18	17	5	61	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0					0
1300	20	24	26	19	89	16	22	23	16	77	4	2	3	3	12	0	0	0	0	0	0	0	0	0	0					0
1400	16	16	21	9	62	14	13	19	7	53	2	3	2	2	9	0	0	0	0	0	0	0	0	0	0					0
1500	10	22	6	9	47	9	22	4	7	42	1	0	2	2	5	0	0	0	0	0	0	0	0	0	0					0

1600	17	11	18	9	55	17	10	16	8	51	0	1	2	1	4	0	0	0	0	0	0	0	0	0	0					0
1700	16	12	7	13	48	16	12	6	13	47	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0					0
1800	15	5	8	17	45	14	3	7	15	39	0	2	1	2	5	1	0	0	0	1	0	0	0	0	0					0
1900	12	8	13	9	42	11	7	13	9	40	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0					0
2000	8	13	8	6	35	8	13	8	6	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0
2100	2	3	3	3	11	2	3	3	2	10	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0					0
2200	8	3	7	1	19	6	3	6	1	16	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0					0
2300	2	1	3	2	8	1	1	3	1	6	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0					0
TOTAL	219	244	212	171	846	199	218	191	148	756	19	26	21	23	89	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0

STREET

STREET	ALL					PEDESTRIAN					BIKE (NON-MOTORIZED)					WHEELCHAIR					MOTORIZED BIKE					ILLEGAL CROSSING				
	N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			PEDESTRIAN		BIKE		
	NB	SB	NB	SB	TOTAL	NB	SB	NB	SB	TOTAL	NB	SB	NB	SB	TOTAL	NB	SB	NB	SB	TOTAL	NB	SB	NB	SB	TOTAL	EB	WB	EB	WB	TOTAL
0000	1	1	1	3	6	0	0	0	0	0	1	1	1	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100	1	1	0	1	3	0	0	0	0	0	1	1	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400	2	1	1	0	4	0	0	0	0	0	2	1	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500	2	0	0	2	4	0	0	0	0	0	2	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600	2	1	5	3	11	0	0	1	0	1	1	1	3	3	8	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
0700	1	2	1	4	8	0	0	0	0	0	0	2	0	3	5	0	0	0	0	0	0	0	0	0	0	1	0	1	1	3
0800	5	3	3	6	17	0	0	0	0	0	5	2	2	4	13	0	0	0	0	0	0	0	0	0	0	0	1	1	2	4
0900	4	2	4	6	16	0	0	0	0	0	3	2	4	6	15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
1000	7	2	2	10	21	0	0	0	0	0	7	2	1	10	20	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
1100	6	3	1	7	17	0	0	0	1	1	6	0	0	6	12	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4
1200	12	2	1	5	20	0	0	0	0	0	9	1	1	5	16	0	0	0	0	0	0	0	0	0	0	3	1	0	0	4
1300	6	4	8	9	27	0	0	0	1	1	6	2	8	7	23	0	0	0	0	0	0	0	0	0	0	0	2	0	1	3
1400	3	5	2	6	16	0	0	0	0	0	1	4	1	5	11	0	0	0	0	0	0	0	0	0	0	2	1	1	1	5
1500	3	3	2	11	19	0	0	0	0	0	3	1	1	9	14	0	0	0	0	0	0	0	0	0	0	0	2	1	2	5
1600	8	4	6	7	25	0	0	0	0	0	8	4	4	5	21	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4
1700	5	2	2	5	14	0	0	0	0	0	4	1	1	5	11	0	0	0	0	0	0	0	0	0	0	1	1	1	0	3
1800	5	1	6	6	18	0	0	0	0	0	5	1	2	6	14	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
1900	4	2	5	4	15	0	0	0	0	0	3	1	5	4	13	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
2000	2	2	1	2	7	0	0	0	0	0	1	1	1	2	5	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
2100	8	1	5	4	18	0	0	0	0	0	5	1	5	2	13	0	0	0	0	0	0	0	0	0	0	3	0	0	2	5
2200	4	4	2	2	12	0	0	1	0	1	4	1	1	2	8	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
2300	4	1	3	2	10	0	0	0	0	0	4	1	2	1	8	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
TOTAL	96	47	61	105	309	0	0	2	2	4	82	31	44	91	248	0	0	0	0	0	0	0	0	0	0	14	16	15	12	57

BIKE PATH

OTHER PATH	ALL					PEDESTRIAN					BIKE (NON-MOTORIZED)					WHEELCHAIR					MOTORIZED BIKE					OTHER				
	N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE			N-SIDE OR E-SIDE		S-SIDE OR W-SIDE		
	EB	WB	EB	WB	TOTAL	EB	WB	EB	WB	TOTAL	EB	WB	EB	WB	TOTAL	EB	WB	EB	WB	TOTAL	EB	WB	EB	WB	TOTAL	EB	WB	EB	WB	TOTAL
0000	0	0	0	0	0					0					0					0					0					0
0100	0	0	0	0	0					0					0					0					0					0
0200	0	0	0	0	0					0					0					0					0					0
0300	0	0	0	0	0					0					0					0					0					0
0400	0	0	0	0	0					0					0					0					0					0
0500	0	0	0	0	0					0					0					0					0					0
0600	0	0	0	0	0					0					0					0					0					0
0700	0	0	0	0	0					0					0					0					0					0
0800	0	0	0	0	0					0					0					0					0					0
0900	0	0	0	0	0					0					0					0					0					0
1000	0	0	0	0	0					0					0					0					0					0
1100	0	0	0	0	0					0					0					0					0					0
1200	0	0	0	0	0					0					0					0					0					0
1300	0	0	0	0	0					0					0					0					0					0
1400	0	0	0	0	0					0					0					0					0					0
1500	0	0	0	0	0					0					0					0					0					0
1600	0	0	0	0	0					0					0					0					0					0
1700	0	0	0	0	0					0					0					0					0					0
1800	0	0	0	0	0					0					0					0					0					0
1900	0	0	0	0	0					0					0					0					0					0
2000	0	0	0	0	0					0					0					0					0					0
2100	0	0	0	0	0					0					0					0					0					0
2200	0	0	0	0	0					0					0					0					0					0
2300	0	0	0	0	0					0					0					0					0					0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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2015/12/01 13:14:13

Kern Council of Governments

IX.
RPAC

February 3, 2016

TO: Regional Planning Advisory Committee

FROM: Ahron Hakimi
Executive Director

BY: Becky Napier
Regional Planner

SUBJECT: RPAC AGENDA ITEM NUMBER: IX
CEQA GUIDELINES UPDATE

DESCRIPTION:

Senate Bill 743 was signed by Governor Brown on September 27, 2013. The legislation required that the Governor's Office of Planning and Research (OPR) amend the California Environmental Quality Act (CEQA) Guidelines to provide an alternative to delay-based level of service (LOS) for evaluating transportation impacts.

DISCUSSION:

SB 743 required that the new criteria promote the reduction of Greenhouse Gas (GHG) emissions, the development of multimodal transportation networks and a diversity of land uses. Once SB 743 is implemented, delay-based LOS can no longer be considered an indicator of a significant impact on the environment. However, the bill does not preclude local agencies from applying delay-based LOS criteria for system planning and local agency approval of a project. OPR had previously released a preliminary discussion draft of updates to the CEQA Guidelines and received nearly 200 comment letters. On January 20, OPR released a revised proposal of updates to the CEQA guidelines which incorporates many of the comments received on the preliminary discussion draft. The revised proposal includes proposed amendments to the CEQA Guidelines and Appendix G checklist, as well as a draft Technical Advisory. The draft Technical Advisory provides more detailed guidance on setting thresholds and evaluating project impacts under CEQA. OPR is recommending an opt-in period of two years to give agencies time to become acquainted with the new procedures.

A copy of the revised proposal is available at the following website:

https://www.opr.ca.gov/docs/Revised_VMT_CEQA_Guidelines_Proposal_January_20_2016.pdf.

ACTION: Information

Kern Council of Governments

X.
RPAC

February 3, 2016

TO: Regional Planning Advisory Committee

FROM: Ahron Hakimi
Executive Director

BY: Becky Napier
Regional Planner

SUBJECT: RPAC AGENDA ITEM NUMBER: X
SUSTAINABLE COMMUNITIES STRATEGIES AND CONSERVATION

DESCRIPTION:

The Nature Conservancy published a document entitled "Sustainable Communities Strategies and Conservation" in January 2016.

DISCUSSION:

In January 2016, The Nature Conservancy published a document that identified results of the first rounds of Sustainable Communities Strategies (SCSs) as they pertained to conservation. The document also made policy recommendations for future rounds of SCS development.

The document Abstract states the following: "Sustainable Communities Strategies (SCSs), which link land use, transportation and climate policy, are designed to reduce per capita greenhouse gas (GHG) emissions while providing benefits ranging from improved air quality and expanded transportation options to revitalization of city centers and investment in disadvantaged communities. Because conservation of natural and working lands is essential to achieving these goals, most SCSs include policies, objectives or implementation measures relating to conservation, and many take innovative approaches that may be of use to other regions. In order to build on these successes and help Metropolitan Planning Organizations (MPOs) achieve more robust results in future rounds, this report surveys conservation measures in existing SCSs, along with conservation-related proposals that were made but not adopted in each region, and then offers a set of model policies and best practices for future SCSs."

The document can be found at the following website:

http://www.southernsierrapartnership.org/uploads/2/3/7/6/23766303/sustainable_communities_strategies_and_conservation_-_full_report.pdf.

References to Kern are found on pages 38 – 40.

ACTION

Information