TO: Doug Ito, Kurt Karperos and Lynn Terry, California Air Resources Board
FROM: Autumn Bernstein, Norm Marshall and Pete Hathaway on behalf of ClimatePlan
DATE: August 5, 2010
RE: Setting SB 375 Targets for San Joaquin Valley COGs

Dear ARB staff,

On behalf of ClimatePlan, we are writing to share our analysis of proposed SB 375 regional GHG targets for the eight San Joaquin Valley Councils of Government (COGs).

In order to aid the Air Resources Board in accomplishing its mandate to set regional targets, we evaluated the land use and transportation policies included in Fresno and Kern's submissions to the ARB and attempted to assess the degree to which these scenarios truly represent what is ambitious and achievable. We also assessed information from the San Joaquin Valley Blueprint, the existing adopted Regional Transportation Plans, and the draft 2010 Regional Transportation Plans currently under development. These analyses were conducted by consultants Norm Marshall and Peter Hathaway. The results of this Analysis are included as Attachment A.

In addition, we conducted an independent assessment of what an ambitious and achievable scenario for the San Joaquin Valley would be, utilizing a scenario developed during the San Joaquin Valley Blueprint process. Scenario C, also known as the 'Valleywide Hybrid" scenario, was the most ambitious of the four scenarios considered during the final phase of the Blueprint process and represents an ambitious but achievable vision. Calthorpe Associates used the Vision California RapidFire model to calculate the emissions reductions that would be achieved if this scenario were implemented along with supportive transit, walk and bike investments. The Valley's current transportation investment plans are extremely auto-centric; much more emphasis will need to be placed on pedestrian, bicycle and transit infrastructure in future RTPs to support Blueprint implementation.

We also examined a base case scenario for the Valley, and a scenario based on the "growing smart" scenario from the recent *Vision California: Charting Our Future* report. The results of this analysis are included as Attachment B.

Our Recommendation

The eight San Joaquin Valley COGs face unique challenges in this process, not least of which is a lack of information and tools for advance planning and GHG analysis. Both ARB and the COGs deserve to be commended for the hard work they have done over the past several months to inform this process. The statewide travel model currently under development by Caltrans and UC Davis will be an important step forward and will allow for better transportation planning in the Valley, particularly around the issue of interregional travel.

In the meanwhile, the ARB must adopt targets for the San Joaquin Valley COGs based upon the information available. While there are factors such as interregional travel that

are beyond the capacity of the COGs to address in this target-setting round, there are other factors which the COGs do have the ability to influence – such as decisions around land use and local transportation investments – that can have a significant impact on GHG emissions.

Based on the analysis we have conducted, we recommend that the targets for the eight Valley COGs should be as follows:

2020: 5-6%

2035: Placeholder target of 12% and a commitment to revisit these targets in 2012 when better models are in place.

The Valley is both the fastest-growing region in California and the hardest hit by the foreclosure crisis and economic downturn. The Valley has some of the state's worst air basins and most impoverished, underserved communities. There is a huge amount of entitled but unbuilt development in the Valley, a byproduct of the boom-bust housing market of recent years, most of it low density single-use suburban housing on rural greenfield land accompanied by highway strip commercial retail centers. Even after the economy recovers and the foreclosed homes inventory has been resold, fluctuating energy prices and a surfeit of single family housing stock may diminish market demand for continuation of previous types of development well into the future.

Decisions today about how to accommodate future growth in the Valley can have a disproportionately large impact on both the timing and strength of the economic recovery and continuing achievement of GHG reductions in this region. Blueprint implementation should help attract employment to Valley communities, and will enable increasing reductions in GHG emissions from 2020 to 2035 and beyond. Appropriately ambitious targets will have a positive effect on all of this.

We offer these analyses to help inform your efforts in this precedent setting action. We look forward to working closely with you to make sure California succeeds with implementation of SB 375.

Sincerely,

Autumn Bernstein Peter Hathaway Norm Marshall

Attachments:

- Analysis of Fresno and Kern Submissions
- Results from RapidFire model analysis of the Valley Blueprint

Attachment A
Analysis of Submissions from Fresno COG and Kern COG

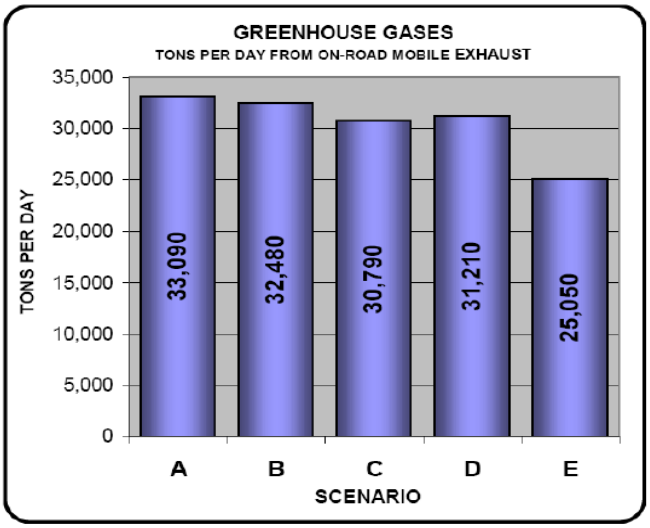
Did Kern and Fresno COGs study a range of alternatives to inform what is ambitious and achievable?

Land Use – During the San Joaquin Valley Blueprint process, all 8 Valley MPOs used the UPlan model developed at UC Davis and widely used throughout California. The UPlan model was used to develop a variety of scenarios, these scenarios resulted in huge differences in greenhouse gas emissions for the same population and employment.[1]

However, for the purposes of SB 375 scenario development, neither Fresno nor Kern utilized the UPlan scenarios in recommending a target.

The Fresno SB 375 submission states:

> *Although the UPlan land use allocation model was used in Fresno COG's Blueprint modeling process, it was decided that for SB 375 purposes, UPlan cannot produce the fine-grained results needed to model local level land use development. In addition, UPlan lacks a market element in its growth allocation, which limits its implementation applicability into general plans. Also, the target-setting schedule did not afford the time nor budget to develop parcel-based land use data needed for such models as I-PLACE3S. Therefore, the traditional spreadsheet method was applied in the target-setting process to allocate the projected growth. (p. 9)*

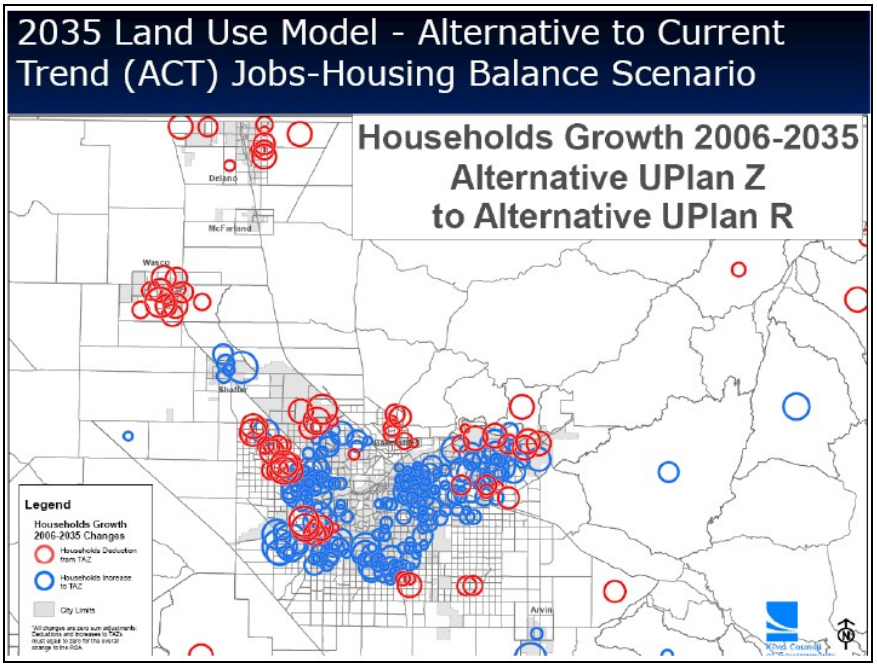


Fresno COG used UPlan to model five different scenarios that reduced reductions by up to 26% (Scenario E – the Metro Rural Loop) from the base case (Scenario A – current trends).

The difference in future GHG emissions from the trend scenario in the UPlan scenarios ranges from 2-7% for most scenarios - and as high as 26% for the most ambitious scenario. These reductions are from land use alone; when combined with transportation measures, significant additional reductions could be achieved. Comparatively, the scenarios modeled by Fresno COG in the SB 375 submission are not ambitious and result in GHG reductions of only 2-4% from the trend scenario.

[1] VRPA Technologies, Inc., *San Joaquin Valley BLUEPRINT: Fresno County Progress Report*, p. 11, 47 (July 30, 2009).

Kern tested two land use alternatives. One alternative was done with UPlan and shifted 17% of new households into infill areas, illustrated below. Kern reports that this land use scenario reduced GHG emissions by 16%! (kernpresentation.pdf, slide 9) However, instead of relying on this scenario, it substituted one where 1% of the growth increment was moved to infill areas. This reduces GHG by 0.7%. (kernproposedtargets.pdf, p. 11) This is not ambitious.



Both Fresno and Kern should refine the UPlan results as necessary and use these as the basis for the land use scenario.

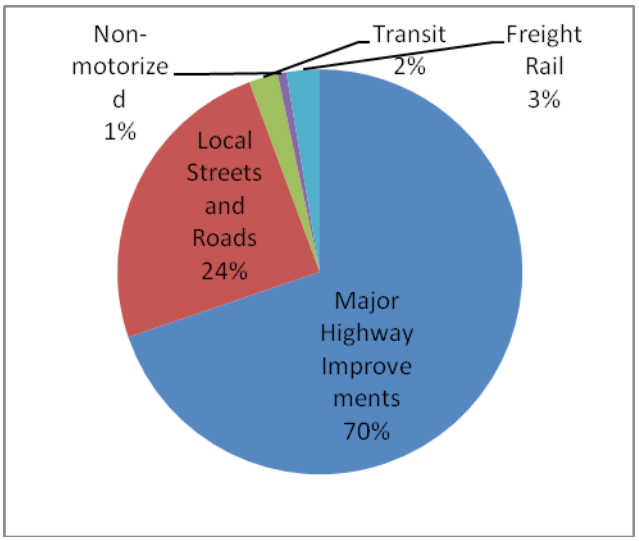
Kern assumes 84,100 more jobs between 2006 and 2035 outside Metro Bakersfield compared to growth of 53,200 households outside Metro Bakersfield. This job growth in rural areas is very high and is not limited to the kinds of exclusively rural employment centers (such as prisons and wind farms) referenced in Kern COG's presentation. This projected job growth also includes a large amount of proposed warehouse development near the intersection of Interstate 5 and Highway 99, just north of the Grapevine. In light of the Blueprint principles and ongoing challenges with air quality, Kern should reconsider whether planning that many jobs and housing outside metro areas is appropriate and desirable.

<u>Investment Plans are Auto-Centric</u> –
Both Fresno and Kern are currently in the process of adopting their 2010 RTPs. The scenarios keep generally the same investment decisions as the RTP and they do not test a variety of alternatives.

The new Draft Kern RTP claims to be "balanced" but it is greatly skewed toward increased roadway capacity.

> *The 2011 Regional Transportation Plan promotes a "balanced" transportation system that calls for increased investments in alternative transportation modes,*

while accommodating a necessary amount of new highway capacity. Heavier emphasis on alternative modes, above and beyond those already incorporated in this Plan, may be desired or preferred but because of financial constraints, alternative mode additions are not financially feasible in the timeframe of this Plan. (Draft 2011 RTP, p. 4-1)



Kern Draft 2035 RTP Distribution of Investments
(Draft 2011 RTP, p. 4-19)

As shown at left, 94% of planned investments are for streets and highways and only 3% are for transit and non-motorized transportation. (The remaining 3% is for freight rail.) For Fresno County, 98% of planned investments are for streets and highways. 2-3% for transit, bicycling and pedestrians is not sufficient, particularly in light of the Blueprint principles which rely upon having sufficient multi-modal infrastructure to support a more compact land use pattern. More than 2-3% of the dollars in the system are flexible and could be used for bike, walk and transit.

Furthermore, a primary focus of the roadway investments in Kern is an expensive new beltway system. Beltways are auto-centric and discourage non-auto alternatives. They are associated with increased VMT as travelers take longer and less direct routes.

Figure 4-1 – Bakersfield Beltway System

Beltways can also have negative economic impacts because they disperse population and decentralize economic activity so that market thresholds needed to support retail and service operations on the margin are not achieved. The result is that, with regard to economic activity in those sectors, metropolitan areas with beltways are made somewhat worse off than those without. A study of 44 U.S. metropolitan areas found that there was a loss of sales and services of $626 per capita with a region's first beltway and an additional $722 with a region's second beltway ($).[2]

Instead of building expressways and freeways in these corridors, the possibility of building multi-modal urban streets or boulevards that support mixed-used development should be explored. These would concentrate economic development in the region's core and be consistent with the land scenario developed using UPlan. Furthermore, by interrupting the street grid with barriers that are expensive to bridge and cross, freeways generally focus perpendicular traffic into funnel sections with congested interchanges. These often become the worst traffic bottlenecks in the region and are a direct consequence of the freeway construction. A system of surface streets can carry as much traffic or more as a freeway system at lower construction cost while providing multimodal options and increasing the value of adjacent properties. Multi-model street investments would also facilitate pedestrian and bike travel. Freeways, in contrast, induce long distance travel, decrease the value of adjacent properties and dilute the local economy.

Pricing – It may be impractical to apply pricing policies within a small MPO, but it would be useful to test the responsiveness to pricing in order to evaluate the effects of a statewide pricing policy, e.g. a carbon tax equivalent to a 4-cent per VMT charge.

TDM – Kern identifies growing employment in rural areas including prisons, military bases, large mining operations and wind energy facilities as a challenge. Vanpool and carpool programs targeted at these employees could reduce future GHGs while also helping reduce travel costs for these workers. While these are fairly well paying jobs, long single-occupant auto commutes would consume a fairly high percentage of the income. These vanpool and carpool programs will be most successful if housing is clustered.

A successful precedent of vanpooling has already been established in Kings County, where a vanpool project of the transit authority has provided transportation to and from agricultural sites. In May 2009, a Nelson\Nygaard Consulting Associate wrote in the San Joaquin Valley Express Transit Study that "Recognizing that lower-density land use patterns will continue to dominate most of the San Joaquin Valley for the foreseeable future, the expansion of ridesharing and vanpool opportunities should be the primary investment to increase transportation choices for inter-county commuters in most of the region." The same could potentially be said for intra-county trips to distant employment centers as well.

[2] Nelson, A.C. and M. Moody. "Effects of Beltways on Metropolitan Economic Activity", *Journal of Urban Planning and Development*, December 2000.

Does the modeling completely account for GHG reductions?

Accounting for Interregional Trips – The modeling of internal-to-external (IX) and external-to-internal (XI) traffic is a statewide problem, but much more so in the Valley, where external trips are 20-40% of the total– much higher than in the big four MPOs. Therefore, the need and the opportunity to address interregional travel is much greater in the Valley. SB 375 provides for Valley COGs to do joint planning for SB 375 implementation and, given the magnitude of the interregional trip challenge, doing so will be critical to successful implementation.

We understand that the big four MPOs are not yet trying to address interregional trips in their models, but only accounting for the portion of IX and XI traffic that is within their region. We recommend that the smaller MPOs do this as well until the new statewide model becomes available, at which time all regions, especially the Valley, should use it to account for interregional travel.

Given that these GHG emissions will ultimately be accounted for, it is important that strategies be developed now to help limit the growth of this travel. Policies should be strengthened that discourage converting open space into low-density housing in rural areas, particularly along major long-distance roadway corridors. Interregional transit service connecting residential areas and job centers across regional boundaries, such as the Altamont Commuter Express, should be expanded.

Land use post-processing – Both Fresno and Kern report using 3D post-processing to account for density, diversity and design effects not adequately accounted for in the travel demand model. This is appropriate and should be continued until improved travel models are available. However, post-processing needs to be done carefully and consistently, and the assumptions and results explained carefully to avoid confusion. For example, Fresno's post-processing not only accounted for the 3Ds, but also accounted for the effects of Pavley and the Low Carbon Fuel Standard.

Attachment B:
Results of RapidFire Analysis of Growth Scenarios for the San Joaquin Valley

Scenario	GHG change (per capita from 2005 to 2020)	GHG change (per capita from 2005 to 2035)	Greenfield land Consumption	*Change from Base Case*		Annual VMT	*Change from Base Case*		Criteria air pollutant emissions	*Change from Base Case*		Total annual fuel consumption	*Change from Base Case*	
1. Base Case *Informed by the land use and density distribution of SJV Blueprint 2050 Recent Trends Scenario*	4%	13%	689 sq mi			52.3 B mi			63,346 tons			2.73 B gal		
2. Valleywide Hybrid *Informed by the land use and density distribution of SJV Blueprint 2050 Recent Trends Scenario*	-11%	-12%	314 sq mi	-375 sq mi	*-54%*	40.8 B mi	-11.5 B mi	*-22%*	49,432 tons	-13,914 tons	*-22%*	2.13 B gal	-0.60 B gal	*-22%*
3. Vision California Growing Smart *(Land use assumptions of Vision CA Growing Smart scenario, applied to San Joaquin Valley region only)*	-16%	-23%	215 sq mi	-473 sq mi	*-69%*	35.4 B mi	-16.9 B mi	*-32%*	42,894 tons	-20,452 tons	*-32%*	1.85 B gal	-0.88 B gal	*-32%*

Scenario	Annual residential energy cost	*Change from Base Case*		Annual water use per new household	*Change from Base Case*		Annual household costs (auto, fuel, energy, and water)	*Change from Base Case*	
1. Base Case *Informed by the land use and density distribution of SJV Blueprint 2050 Recent Trends Scenario*	$4.60 B			133,203 gal			$17,945		
2. Valleywide Hybrid *Informed by the land use and density distribution of SJV Blueprint 2050 Recent Trends Scenario*	$4.34 B	-$0.26 B	*-6%*	114,780 gal	-18,423 gal	*-14%*	$14,318	-$3,628	*-20%*
3. Vision California Growing Smart *(Land use assumptions of Vision CA Growing Smart scenario, applied to San Joaquin Valley region only)*	$4.21 B	-$0.39 B	*-8%*	105,559 gal	-27,644 gal	*-21%*	$12,547	-$5,399	*-30%*