Health Impact Assessment

California's SB 375 and its Impact on Kern County's Disadvantaged Unincorporated Communities and Low Income Urban Neighborhoods

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Executive Summary

California's landmark climate change law, Senate Bill 375 (SB 375), directs Metropolitan Planning Organizations (MPO) to develop and incorporate a Sustainable Community Strategy (SCS) in their Regional Transportation Plan (RTP). The SCS must set forth a forecasted development (housing and employment growth) pattern that, when integrated with the region's transportation networks and other transportation measures and polices, will reduce greenhouse gas emissions generated by automobiles and light trucks to achieve the greenhouse gas emission reduction targets approved by the California Air Resources Board.[1]

This Health Impact Assessment (HIA) focuses on potential impacts of SB 375 implementation in four Kern County communities – Arvin, Lamont, Weedpatch and Greenfield. Arvin, Lamont and Weedpatch are considered disadvantaged unincorporated communities while Greenfield is considered as low income urban neighborhood as it is within the boundaries of the City of Bakersfield. The project team developed the scope of the HIA analysis in partnership with community residents and partners. Through this process, we sought to identify potential impacts based on the following two questions:

1. How does the SCS change the quality and accessibility of public transit and access to destinations in disadvantaged unincorporated communities and low income urban neighborhoods?
2. Will Kern's SCS increase the availability of community resources to residents of disadvantaged unincorporated communities and low income urban neighborhoods?

Major Findings

A person's health and economic wellbeing is influenced by *accessibility* – the ease with which desired destinations can be reached within a particular land use-transportation system. The ease with which they can get from home to job, the time it takes to get from home to a health clinic, or the reliability of transportation from home to school, to suggest a few examples. Our prior work has shown that residents of disadvantaged unincorporated communities (DUCs) in Kern County typically enjoy far less accessibility than residents positioned closer to the urban core communities of Bakersfield. This is especially problematic for residents of DUCs – as well as underserved neighborhoods in cities - that don't have access to automobiles.

This HIA examines jobs and services located within each study community to assess bicycle and pedestrian access. We found that Kern COG's 2040 alternative scenarios have similar outcomes with respect to jobs and services in the study communities, with almost all scenarios showing a worsening in jobs housing balance, exacerbating the current lack of jobs (relative to housing) in three of four study communities (and not one scenarios effectively addressing the severe jobs / housing imbalance in *all* of the communities). Relative to growth in dwelling units, our assessment showed that two study communities showed very little housing growth, while two show moderate growth.

The HIA also examines the location of transit stops in 2013 and in the 2040 Scenarios, finding that transit increases in 2040 Scenarios over the present, but the Plan, Intensified, 33% Housing Mix, and 100% Infill Scenarios provide less density of transit stops but serve locations over a larger geographic area.

Finally, the HIA analysis quantifies transit access and access to services from DUCs and low-income urban communities by measuring access to jobs by both automobile and public transit. We found that transit access and transit and auto access to services is greatest in Bakersfield and its immediate surroundings, often including Greenfield. Transit access to jobs and services is greater for much of the region (and the four study communities) in the Preferred, Intensified, 33% Housing, and 100% Infill Scenarios, although variation in transit access to jobs and services between those scenarios is limited. Auto access to services is centered on Bakersfield in the 2040 Scenarios, and access to government services decreases across the region in 2040. Variation in auto access to services between 2040 Scenarios is limited.

This HIA represents an improvement over existing research practices that, for the most part, only consider changes in accessibility at large levels of geography. Drilling down our analysis to individual DUCs and low-income urban communities allows the data to show how conditions are expected to change on the ground for small communities, given expected changes in demographics, transportation infrastructure, and land uses.

Major Recommendations

1. Kern COG should seek and apply for funding from sources beyond Kern COGs regional planning programs to invest in low income rural communities

2. Our analysis and public input provided to the COG indicate that DUCs and low income urban neighborhoods have particularly elevated needs. Because none of the scenarios include significant transit investments in the study communities that result in substantially improved transit outcomes, our analysis did not show substantial differences between scenarios. This limits the ability of regional partners and community members to understand the impacts of varying the transportation plans that might be adopted, and it limits differences between scenario outcomes in those areas. We recommend that future SCS/RTP efforts include transit, including active transportation, projects that target communities that have particularly elevated transit needs.

3. Kern COG should improve the jobs housing balance to ensure adequate growth and investments that will allow these communities to thrive. A balance of housing and employment and services in each community can lead to improved access to jobs and services while simultaneously reducing vehicle travel. Efforts aimed at achieving a

greater degree of jobs housing balance in the region (and in particular in areas with a substantial imbalance), have the potential to greatly increase residents' health.

4. Finally, we recommend that Kern COG adopt the following set of policies in their 2014 RTP that will address historic need and improve land use and transit integration for years to come.
    a. Create a new classification of transit ready areas to prioritize and target investments in communities with demonstrated need – such as those studied in this analysis. Kern County residents have requested more housing options, improved public transit and opportunities for active transportation and more mixed use and compact development. Transit ready areas would be eligible to receive planning and financial assistance which will improve communities by designing more compact, less car dependent projects.
    b. Delay or eliminate the allocation of discretionary funding sources that promote and/or support new town development. Kern COG must fund needs in existing communities first, particularly in low income neighborhoods and communities.
    c. The RTP should front load pedestrian, biking, and transit projects to provide real transportation options to Kern County residents.

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Committee for Better Arvin

Center on Race, Poverty and the Environment

Central California Environmental Justice Network

Dolores Huerta Foundation

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Central Valley Air Quality Coalition

California Rural Legal Assistance Foundation

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Policy Link Central Valley Health Policy Institute UCD Center for Regional Change

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I. Introduction

In 2008, California passed the Sustainable Communities and Climate Protection Act (Senate Bill 375 or SB 375), to further the statewide effort to reduce greenhouse gas emissions. This novel policy will help California meet state climate goals by improving the integration of regional transportation spending, housing allocations and land use planning. SB 375 will support California's goals to combat climate change by reducing greenhouse gas emissions to 1990 levels by 2020 as set out by Assembly Bill 32, the Global Warming Solutions Act of 2006. The transportation sector is the single largest contributor to greenhouse gases of any sector: automobiles and light trucks contribute almost 30% alone.[2] SB 375 requires the California Air Resources Board (CARB) to set greenhouse gas reductions targets for each federally designated Metropolitan Planning Organizations.

In order to meet the statewide goal of reduced greenhouse gas emissions, among other requirements, SB 375 requires Metropolitan Planning Organizations (MPOs) to include a Sustainable Community Strategy (SCS) in their Regional Transportation Plan (RTP). The SCS will serve as a set of planning strategies that can be followed to meet emissions reduction targets. Before an SCS can be adopted, MPOs must develop a series of scenarios that detail land use and transportation investments and that attempt to meet greenhouse gas targets set by the state; at the conclusion of this process, the local government will vote on their preferred scenario, which will be used and analyzed in the development of the SCS. Though an adopted SCS is not itself legally enforceable, a city or county may choose to adopt the SCS into a legally enforceable format, such as a general plan. Thus, within the SCS exists the potential to promote community equity through policy decisions throughout the region.

In each region the SCS shall:

1. Identify the general location of land uses, residential densities, and building intensities with the region;
2. Identify areas within the region sufficient to house all the population of the region, including all economic segments of the population over the course of the planning period of the RTP, taking into account net migration in the region, population growth, household formation and employment growth;
3. Identify areas within the region sufficient to house an eight year projection of the regional housing need, and;
4. Identify a transportation network to service the transportation needs of the region.[3]

This is the first time that MPOs in California will integrate land use and transportation planning, making implementation of SB 375 critically important for health outcomes. A strong SCS that prioritizes walking, biking, transit and infill development could see significant reductions in respiratory health impacts and costs related to traffic pollution, for example.[4] SB 375 provides decision makers with important opportunities to grow and invest in more strategic and healthier

ways. The implications of SB 375 implementation on health will be discussed in further detail throughout this report.

This Health Impact Assessment (HIA), focused on SB 375 implementation in Kern County, will analyze potential health impacts to low income communities of color based on Kern County Council of Governments' proposed SCS. Discussions of land use and transportation planning in Kern County rarely incorporate discussions of impacts to residents' health and potential health outcomes despite the region's long standing history of negative health outcomes. The HIA partners hope to engage decision makers in a regional discussion on the intersections of land use, transportation and health. Without a holistic approach to land use and transportation planning that includes discussions of health, these communities run the risk of continued neglect and disinvestment while wealthier communities reap the benefits of smart growth planning.

II. SB 375 in the San Joaquin Valley

The San Joaquin Valley (SJV) is a region that brings into stark relief the many, often conflicting, realities of California. It is a region of great wealth: it farms for our nation, it is rich in natural resources, and it is one of the most geographically varied areas in the state. Despite its tremendous assets, the region faces enormous challenges. The region has been labeled the "Appalachia of the West" and is home to some of the most concentrated poverty in the country. The SJV contains our nation's dirtiest air. Education levels are much lower than other parts of the state, and unemployment levels are significantly higher than the rest of California. The region experiences extremely high rates of food insecurity and health outcomes for the region's residents vary tremendously depending on race, ethnicity, income, and where you live. Poor planning practices, institutionalized racism, and entrenched agricultural, industrial and development interests have led to growth patterns that put great strain on the natural environment and have perpetuated historic patterns of disinvestment in low income communities and communities of color. [5]

SB 375 provides a unique opportunity for this region to direct future infrastructure investments into the low income and communities of color that struggle each day to make their neighborhoods healthy, vibrant and sustainable places to live. It also provides MPOs with opportunities to invest in and revitalize communities that have been historically overlooked and excluded from the benefits of short and long term planning. However, if business as usual policies and practices predominate through implementation of SB 375, low income communities of color – already the most negatively impacted by historic planning decisions - stand to be harmed the most.

SB 375 in Kern County

Kern County is characterized by rapidly changing demographics – specifically, a fast growing Latino population. The total population is projected to grow from 840,000 residents (in 2010) to 1,540,000 residents by 2050.[6] In Kern County, the White non-Hispanic population is expected to

decline while the Hispanic population grows by 2.4% each year. See Figure below for comparisons across race and ethnicity.

Figure 1: Kern County- Summary of Race and Ethnicity Forecast, 2010-2050.

	White alone non-Hispanic	Hispanic all races	Black or African American alone non-Hispanic	American Indian and Alaska Native alone non-Hispanic	Asian alone non-Hispanic	Native Hawaiian and other Pacific Islander alone non-Hispanic	Some other race or in combination non-Hispanic
2010	323,794	391,144	45,377	5,893	33,100	995	39,328
2050	227,955	1,027,764	81,180	4,578	98,741	2406	97,373
Increase	-95,823	636,620	35,803	-1,315	65,641	1411	58,045
Annual Rate	-0.9%	2.4%	1.5%	-0.6%	2.8%	2.2%	2.3%

Source: The Planning Center/DC&E, San Joaquin Valley Demographic Forecasts, 2010-2050.

The Kern Council of Governments (KCOG) is tasked with creating the region's first SCS in its 2014 RTP. KCOG will accommodate population growth 1,077,300 and employment growth of 577,100 through the year 2040, in its 2014 RTP.[7]

As discussed in the introduction, thousands of residents in low income communities stand to be negatively impacted if KCOG does not implement SB 375 in a way that equitably distributes the benefits of smart growth planning. Through a series of community education workshops residents identified experiencing systematic neglect via historic planning and investment policies that have resulted in inadequate access to public transit, lack of sidewalks and paved roads, unsafe drinking water and dilapidated septic systems, and little to no access to basic services and affordable housing by residents from low income communities.

A growing body of research indicates that land use and transportation decisions can promote an active lifestyle and improve overall health. Communities that promote public transportation, walking, and biking have been shown to improve air quality and increase access to: health care, education, social services, healthy food, and places for recreation and physical activities. Together these factors are often described as the "social determinants of health." The World Health Organization defines social determinants of health as "the conditions in which people are born, grow, live, work and age, including the health system."[8]

In Kern County alone, the city of Bakersfield ranks as the most polluted American city by deadly particulates, 15.6% of all county residents have been diagnosed with asthma, and 41.4% of all of its children are obese. The county also has the highest death rate due to heart disease and second highest rates of death due to Chronic Obstructive Pulmonary Disease (COPD) and diabetes.[9]

Investment in existing communities and high quality transportation systems however, do not benefit all communities in the same way. For example, other regions in California – such as the Southern California Association of Governments region have complied with SB 375 requirements by developing land use scenarios that concentrate growth and resource allocation in areas in which physical proximity of housing to jobs, schools, health care centers, stores or high quality transportation systems already exist. This approach inevitably makes certain neighborhoods and communities an attractive investment option for fulfilling SB 375 requirements, while leaving others at a disadvantage. Low income communities, especially those in rural settings, often lack the basic features of healthy, sustainable neighborhoods – potable water, adequate sewer systems, quality and quantity of affordable housing options, adequate public transit, complete streets and essential services. Maximizing opportunities for all communities, particularly those that are most vulnerable, and addressing existing inequities will result in a healthier, more sustainable region. Investing in these communities reduces the need to sprawl as revitalization efforts focus on infill development on vacant and/or underutilized land within existing communities.

While MPOs are tasked with developing an SCS that forecasts projected land use growth, cities and counties maintain sole land use decision making authority. Key to making projected growth and investment a reality in existing low income communities will be the billions of transportation and planning dollars that will distributed via the RTP, the master planning document that houses the SCS. Kern COG estimates that a total of 11.6 billion dollars will be available through the life of the 2014 RTP.[10] Existing law requires the various elements of the RTP to maintain internal consistency. As such, if the SCS directs housing and employment growth and transit investments (transit service and active transportation) to low income communities, then projected revenues in the financial element of the RTP must follow that direction. Growth and transit networks in low income communities will help reverse decades of disinvestment by directing monetary resources to support communities in becoming healthy and sustainable.

III. Overview of the Kern County HIA Project

Leadership Counsel for Justice and Accountability (Leadership Counsel), Central Valley Health Policy Institute (CVHPI) and UC Davis Center for Regional Change (CRC) partnered to conduct an HIA on SB 375 implementation in Kern County, with technical assistance from PolicyLink. The project is breaking new ground with respect to analyzing the impacts of SB 375 implementation by assessing its impact on more rural communities. We have observed SB 375 has an inherent assumption that the most reduction of greenhouse gas emissions would come about principally

by encouraging land use and transportation planning strategies in city neighborhoods and communities in which infrastructure already exists, where transit opportunities are already robust and where diverse land uses already exist in close proximity to one another. But small, spatially isolated, often rural communities also have a great deal at stake in this process, and, this team decided to conduct an analysis that would inform decision makers of regional impacts to the health of residents living in low income communities of color from the relatively urban to the rural.

Leadership Counsel managed this project, with financial support from CRLA. The project team developed educational materials and conducted community education workshops on SB 375 and HIAs to build and support engagement of community residents in the decision making process. The team convened the Kern HIA steering committee, composed of local community partners, to develop the scope of the HIA. Due to resource constraints and limitations, Leadership Counsel consolidated steering committee meetings with the meetings of the South Kern Building Healthy Communities Environment Action Team. CVHPI and the UCD CRC served as technical partners, conducting research and analysis, and providing technical assistance. PolicyLink advised the project partners on HIA methods, provided additional data about some of the communities, and reviewed and edited drafts of the reports.

The Kern HIA team launched this project's full partners' meeting in January of 2012 to begin workplan activities, assess Kern Council of Governments' (KCOG) decision making timeline and identify community partners to form the initial steering committee. The project ended in March of 2014 in time to utilize findings and recommendations during the public review period of the 2014 Draft RTP/SCS Environmental Impact Report (EIR).

This HIA includes the following components:

- Background: detailed information about the demographics and characteristics of target communities.
- Methodology: process used to implement the HIA and description of data sources and research methods.
- SB 375 Analysis: describes proposed implementation and potential challenges and opportunities for target communities.
- Assessment: existing conditions of target communities and potential impacts relative to existing conditions.
- Recommendations: describes a set of policy recommendations as a result of assessment findings.
- Monitoring Plan: identifies strategies to monitor impacts of implementation based on priorities developed by the Environment Action Team.

IV. Background and Screening

What is an HIA?

A Health Impact Assessment is a "combination of procedures, methods and tools that systematically judges the potential, and sometimes unintended, effects of a policy, plan, program or project on the health of a population and the distribution of those effects within the population."[11] This allows for the thorough and thoughtful deliberation of potential impacts of proposed policies or plans before final policies or plans are adopted. HIAs tend to focus on the "social determinants of health." The World Health Organization defines these as:

> The conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power, and resources at global, national, and local levels. The social determinants of health are responsible for a wide range of health inequities – the unfair and avoidable differences in health status seen within and between countries".[12]

Steps in a typical HIA:

- Screening involves determining whether an HIA is feasible, timely and would add value to the decision making process.
- Scoping involves creating a plan and timeline for conducting an HIA that defines priority issues, research questions and methods and participant roles.
- Assessment involves creating an existing conditions report for a geographic area and/or population in order to understand baseline conditions and to be able to predict changes in health outcomes. This step also involves evaluating potential health impacts.
- Recommendations are developed to improve the project, plan or policy and/or to mitigate any negative health impacts.
- Reporting involves communicating the results with decision makers.
- Monitoring involves tracking the impacts of the HIA on the decision making process and the decision, the implementation of the decision, and the impacts of the decision on health determinants.[13]

Importance of Health in SB 375 Implementation

The stakes in SB 375 are very high for low income communities, and for rural communities even more so. If housing and employment growth and transit investments are equitably allocated, SB 375 creates new opportunities for improving the health of low income neighborhoods and low income rural communities. But if investments are not equitably allocated the consequences for these neighborhoods and communities could be disastrous, further exacerbating regional inequities that lead to significant health disparities. The American Lung Association in California notes in their report *Public Health Crossroads: Sustainable Growth for Healthier Kern Neighborhoods* that a future in which new growth in Kern County is 60 percent more walkable

and interconnected with existing built neighborhoods could reduce traffic-pollution health costs by $139 million in 2035 alone. The ALA report demonstrates that the following community characteristics can significantly contribute to negative health outcomes: lack of access to basic services such as grocery, medical, and employment; infrastructure deficiencies that impede walkability and physical activity; and, little to no access to public transportation.

As previously noted, SB 375 is novel in that California regional transportation planning agencies must integrate land use and transportation planning for the first time. This task can prove to be difficult yet manageable and successful if decision makers engage with the community in meaningful discussions about the intersections of land use, transportation and health. Such discussions can lead to policy developments that address the many challenges faced by low income communities of color, including land use policies that can improve the built environment and improve health outcomes.

Land use mix[14], street and pedestrian connectivity[15], pedestrian and cyclist infrastructure[16] and parks and open spaces[17] are neighborhood features that have all been found to be positively associated with physical activity and walkability. Though walkability has had numerous definitions in literature, it can generally be understood as a measure of an environment's ability to promote and increase access to pedestrian oriented activity, such as walking or bicycling. Because walkability has been positively associated with physical activity,[18] highly walkable neighborhoods have the potential to significantly improve health outcomes of neighborhood residents. Physical activity, in turn, can help reduce the risks of several adverse health conditions associated with physical inactivity, including heart disease, type 2 diabetes, colon cancer, breast cancer, and mortality[19]. The importance of physical activity is emphasized by the World Health Organization's (WHO) decree that physical inactivity is among the top 15 risk factors for the Global Burden of Disease[20].

Despite the significant risks associated with physical inactivity, the majority of adults in the Western world do not perform sufficient physical activity for health benefits. By increasing neighborhood walkability, residents will have greater opportunities to engage in an active, healthy lifestyle. Thus, increasing neighborhood walkability can be a valuable opportunity to improve the health outcomes of the general population. However, because it is often the poorest of neighborhoods that lack basic features of walkability, regional planners should give special consideration to these neighborhoods if the opportunity for improved health outcomes is to be distributed equitably throughout the region.

Public transportation policies have the potential to impact health outcomes[21] by addressing inequity in resource access across populations and granting access to transportation for populations without vehicles. Access to public transportation connects community members to employment, economic, and social opportunities as well as to essential services (such as healthcare), which are all critically linked with positive health outcomes. While vehicle ownership has been shown to be linked with improved health, public transportation has the potential to serve as its functional equivalent[22] and offer the benefits of vehicle ownership to

those unable to afford or access vehicles. The importance of ensuring transit opportunities is underscored by findings that inadequate access to transport has been linked to a higher risk for social exclusion, particularly for the unemployed, elderly, sick, low wage workers, and women[23].

In addition to providing access to opportunities and services, public transportation policies have the potential to improve air quality. Because personal vehicles significantly contribute to air pollutants[24], increasing public transportation and promoting ridership could reduce the number of vehicles on the road, reducing the volume of harmful emissions[25], and improving the air quality and health outcomes of the region.

Does the HIA Add Value in this Process?

To date, discussion on the impacts on community health in the development of the Kern SCS has been driven by community partners. Advocates recognized the need and importance of conducting a health impact assessment given this new mandated policy that requires multiple jurisdictions to think beyond their geographical limits and work towards creating a regional plan that provides benefits to all. The Kern SCS will seek to integrate land use and transportation planning for the first time. It is no easy feat to overcome given decades of urban sprawl, concentrated poverty, bad air quality and inadequate transit service in Kern County.

V. Development of the SCS in Kern County

The KCOG is directed by a Policy Board of Directors composed of elected representatives from Kern's eleven cities and two county board of supervisors.[26] This is ultimately the group of leaders responsible for adopting the 2014 RTP that will include the region's first SCS. The Policy Board is expected to formally approve the 2014 RTP in June of 2014. The RTP contains a number of elements (Policy, Action and Financial) in addition to the SCS that guides transportation planning and investment throughout Kern County.

Efforts to implement SB 375 in the county began with the establishment of the Kern Climate Change Task Force in 2009 to help KCOG meet the goals and objectives of SB 375.[27] This task force was folded into the KCOG Transportation Modeling Committee in 2010 to help create the necessary parameters to forecast a pattern of development that would meet the GHG reduction targets.[28] In 2012, the Regional Policy Advisory Council - composed of planners from member agencies, one public member, and other interested stakeholders – began to oversee the development of draft SCS scenarios to be carried into the draft Environmental Impact Report for further analysis.[29]

Two cycles of public workshops were held across Kern County to gather input from residents. Public engagement efforts during the first cycle included sixteen community workshops and two meetings with interested stakeholders between March and June of 2012.[30] Efforts to gather public input in the second cycle took place from August 2012 through October of 2013. These efforts included community festivals, community workshops, presentations to city councils and county board of supervisors.

Following the two cycles of public outreach, the RPAC approved four preliminary scenarios, including a no project alternative, to be reviewed in the EIR. All preliminary scenarios met the 5 and 10% GHG reduction targets. Two additional scenarios were then added during the writing of the draft EIR. The six draft SCS scenarios are described below.

- No Project Alternative: Includes only those transportation projects that are included in the first of the previously conforming transportation plan or have completed environmental review by January 2014. The growth scenario included is based on local general plans.
- Old Plan Alternative: Includes those transportation projects in the 2011 RTP. Land use assumptions include any updated growth information and planning assumptions from 2011. This includes significantly less funding for maintenance, transit, and alternative transportation projects.
- Preferred Alternative: Transportation projects include many from the 2011 RTP in addition to the new projects that close gaps and expand the transportation system. Land use assumptions are more aggressive in terms of infill, multifamily housing, and smaller lot single family homes.
- Intensified Alternative: Transportation projects are similar to the preferred scenario except that transit, bike, and pedestrian projects are implemented sooner. Land use assumptions are based on the preferred scenario except that the land use scenario is more aggressive in that urban development occurs sooner and large lot single-family housing is limited to 47% of new growth.
- 33 Percent Housing Mix Alternative: Transportation projects are the same as in the Intensified Alternative. Land use assumptions are based on the Intensified Alternative, except that new housing in the metro area is 33% high density, 33% medium density, and 33% low density.
- 100 Percent Infill Alternative: Transportation projects are the same as in the Intensified Alternative. Land use assumptions are more aggressive than the Intensified and 33 Percent Housing Mix Alternatives, as 100% of new growth is infill, and new countywide housing would be about two thirds high or medium density.

Appendix B includes detailed information on the decision making timeline and process used to create Kern's first SCS.

VI. Goals and Determining Scope

Through a series of meetings, the steering committee identified project goals to guide the implementation of the HIA. The goals of this project were to:

1. Ensure consideration of community values (maintaining community history, culture, and beliefs intact).
2. Ensure consideration of environmental justice issues, as they related to community health, within the SCS process.

3. Ensure that the final SCS adequately considers and addresses the concerns and aspirations of disadvantaged, unincorporated communities.
4. Ensure disadvantaged unincorporated communities can meaningfully participate in the SCS planning process.

Developing the Steering Committee

The project team met in January of 2012 to identify partners to help guide the development and ultimate implementation of this HIA. Partners were identified based on their expertise on issues impacting low income communities of color and level of engagement and organizing activities in these communities.

The first steering committee meeting convened on February 22nd, 2012 to introduce the HIA project, review the steps in an HIA, build a shared understanding of SB 375 and implementation timeline, and to discuss the role of the committee. Representatives from eight community based organizations and community groups participated in this initial meeting. Participation in this process was voluntary throughout the implementation of the HIA.

During this first meeting the steering committee identified the following values to help guide the implementation of the Kern HIA project:

- Equity
- Community Empowerment
- Collaboration
- Accountability
- Scientific Integrity
- Dignity and Respect towards community residents

Developing the Scope for the Kern HIA Project

The project partners facilitated a series of visioning exercises to identify possible areas of focus for this HIA. At the initial steering committee meeting, the project partners engaged participants in a discussion on the intent and goals of SB 375 as some members were not familiar with this new mandate. Upon building a shared understanding of SB 375 mandates, steering committee members were asked to share aspects of their advocacy efforts that had some relation to the goals of this new policy. Finally, the steering committee was asked to identify broad issue areas that have health and equity implications related to SB 375. This resulted in the identification of five broad issue areas and a number of sub categories that could potentially impact health outcomes in low income communities:

Figure 2: Steering Committee Priorities I

Broad Issue Area	*Sub Categories*
Transportation	• Transit connectivity from home to employment • Access to transit for school, services, jobs
Land Use/Infrastructure	• Zoning

	• Basic infrastructure such as drinking water, wastewater, sidewalks, streetlights, gutters, drainage • Placement of housing, businesses and services • Food access centers • Employment opportunities • Placement of toxic uses
Air Quality	• Diesel emissions • Siting of toxic and recycling centers
Economic Development	• Improved employment opportunities • Improved wages • Proximity of jobs to rural communities
Health	• Access to healthy foods • Land use designation for grocery stores in disadvantaged communities

Priority Areas for HIA Analysis and Advocacy

The steering committee reconvened on March 22nd of 2012 to finalize the scoping process. The committee convened to a) identify the top two priority areas for the HIA, and b) prioritize two objectives within each priority area based on initial visioning exercises. The project partners then facilitated a priority setting discussion with the coalition. Participants were reminded to use the following set of criteria, among others, in their prioritization a) relevance to SB 375 implementation, b) impacts on health and equity, and c) whether, absent this groups' attention, the issue would be considered in the debate.

Through this exercise the committee agreed that the air quality and health topic areas identified in the initial scoping process would be outcomes of all that is studied as part of this HIA. The committee then tentatively agreed to focus this HIA on the following priorities:

Priority #1: Land Use/Infrastructure

- Objective 1: Access to basic infrastructure (drinking water and wastewater) and services in disadvantaged unincorporated communities
- Objective 2: Polluting and toxic sources (industry, agriculture, pesticide application)

Priority #2: Transportation

- Objective 1: Access to improved public transportation to access schools, jobs, and services in disadvantaged unincorporated communities
- Objective 2: Diesel Triangle: reduce highway pollution from goods movement which creates hot spots for toxic pollution in Kern County

While the project partners aspired to analyze as many community objectives as possible, resources, time and staff capacity placed constraints on the ability to analyze all objectives identified by the steering committee. Project partners informed steering committee members that the selected priorities for the HIA were tentative while internal capacity was assessed.

Geographic Area of Focus

While SB 375 implementation will impact all of Kern County residents, the steering committee decided to focus on those most vulnerable to implementation. The committee identified target communities based on existing relationships with community residents and engagement in advocacy efforts by related to SB 375. The communities identified, predominantly Latino and low income, have long been neglected by elected officials, county and city staff and other powerful interests and as a result lack some or many of the basic features of healthy, sustainable neighborhoods – potable water, sewer systems, quality and quantity of affordable housing, adequate public transit, complete streets and essential services.

The target disadvantaged unincorporated communities include Arvin, Lamont and Weedpatch – all located in southeast Kern County. The HIA will also focus on the Greenfield neighborhood located in part in the City of Bakersfield.

Demographics for the study areas, Kern County, and the state of California are summarized in the table below, which is excerpted from Karner and London (in press)[31]. From the table, the share of linguistically isolated households, households living in poverty and minority households are much are greater in Arvin, Lamont, and Weedpatch than the county as a whole, while Greenfield has lower poverty rates and a slightly higher minority and linguistically isolated population than the county. The share of residents commuting using a mode other than a single occupancy vehicle is much greater in Arvin and Lamont (the two study areas with available data) than the county or the state, indicating a greater reliance on transit, carpooling, biking or walking.

Figure 3: Key Demographics of Study Communities

	Population[a]	Poverty (%)[b]	Per capita HH income (2011$)[b]	People of color (%)[a]	Non-SOV commute mode share (%)[b]	Linguistic isolation (%)[b,c]
Arvin city	19,304	34.9	9,241	94.8	37.0	47.6
Lamont CDP	15,120	28.8	10,332	95.4	40.6	46.4
Greenfield CDP	3,991	9.1	24,126	61.9	-	22.6
Weedpatch CDP	2,658	36.4	8,620	94.4	-	57.6
Kern county	**839,631**	**21.4**	**20,167**	**61.4**	**24.4**	**17.9**
Statewide	**36,995,499**	**14.4**	**29,634**	**59.9**	**27.0**	**19.7**

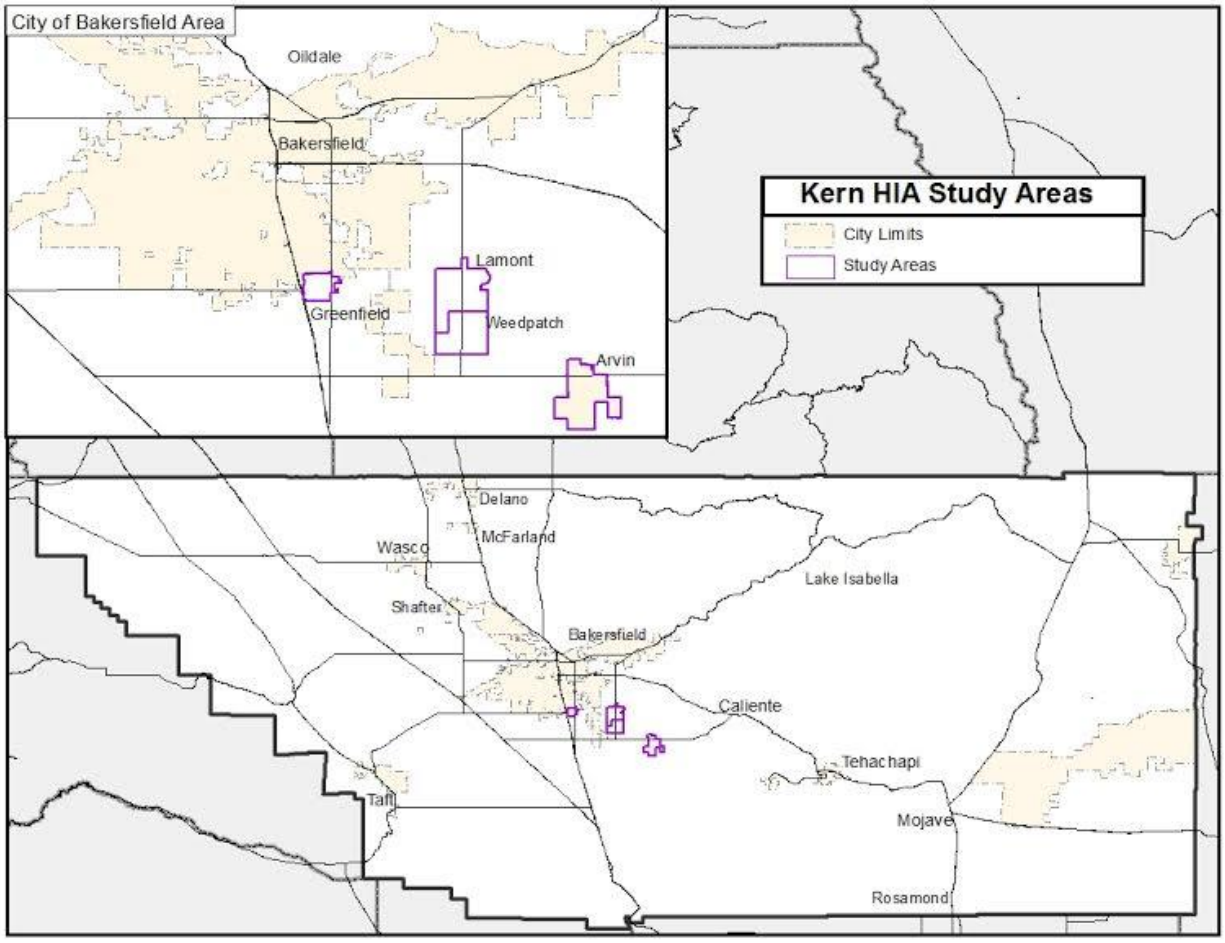
Missing data indicate a margin of error greater than or equal to 50% of the estimate.

[a]Source: Census 2010, Summary File 1.

[b]Source: American Community Survey, 2007 – 2011 five year estimates.

[c]Defined as those speaking English less than "very well."

Figure 4: Map of HIA Study Communities



Source: Maps provided by the UC Davis Center for Regional Change.

Residents of DUCs and low income urban neighborhoods have limited means of transportation to reach basic daily necessities including employment, healthy food providers, healthcare services, etc. The Coalition's priorities are based on a recognition that in our region a disproportionate amount of people of color, recent immigrants, and low income people live in rural and urban fringe unincorporated and/or severely under resourced communities that lack basic infrastructure and essential services, and demonstrate worse health outcomes than more developed and better resourced urban and suburban communities in the region. Flowing from this perspective, the coalition's vision, goals, and priorities emphasized a desire for the adoption of SCS elements that explicitly address and plan for transportation investments and land use

choices that will improve health outcomes in traditionally excluded and under-served communities.

VII. HIA Research Questions & Description of Health Pathways

Following the March 2012 steering committee meeting, the project team met to develop a proposed research agenda based on priorities identified by the coalition. After discussing availability of resources, organizational capacity, relevance to SB 375 and data availability, the project team narrowed the priority areas and objectives to include:

Priority 1: Transportation

- Objective 1: Increased access to public transportation in disadvantaged unincorporated communities and low income urban communities

Priority 2: Land Use

- Objective 1: Increased access to basic community resources in disadvantaged unincorporated communities and low income urban communities

While the steering committee was particularly interested in analyzing changes in access to basic infrastructure such as drinking water and wastewater, sitting of toxic and polluting land uses and the reduction of highway pollution from goods movement, the project partners felt that these priorities would not be directly addressed by the implementation of SB 375. The SCS would not directly address drinking water quality and access to wastewater, pollution from goods movement, and would not look at siting of toxic sites because of lack of land use authority.

The project partners met with the steering committee in May of 2012 to discuss and explain modification to HIA priorities. The committee agreed to continue to develop the scope of the HIA based the project team recommendations.

SB 375 and Transit Access and Access to Resources

The RTP has long provided an opportunity to influence the transportation infrastructure in a region, which leads directly to transit access and access to resources. The other side of the access equation is land use. Though the specifics of land use decisions are enforceable only through other means, such as zoning ordinances or county general plans, the SCS still presents an important opportunity for local governments to influence future planning decisions, as decisions outlined in the SCS have the potential to serve as the foundation for or be directly incorporated into a future enforceable format. Thus, it is of great importance for the SCS to encompass land use decisions that promote health in all communities in particular those who have experienced historical disinvestment such as DUCs and low income urban neighborhoods. It is important to note, however, that despite a shared history of historic disinvestment, DUCs and low income urban neighborhoods face a different set of land use issues in the

implementation of SB 375. For this reason, DUCs and low income urban communities will be the focus of this analysis.

Improved Access to Public Transportation

Accessibility – the ease with which an individual can reach opportunities, goods and services - affects a person's health, economic wellbeing and quality of life. The quality of a transit system can directly affect residents' access, in particular for households without a personal vehicle. While the quality of the transit system is a primary determinant, changes in land use can also affect the types of destinations that residents can access through public transport.

Transit accessibility and neighborhood design can also play an important role in facilitating walking and bicycling. Many studies have found a correlation between walkability and walking for transportation[32]. These effects of the built environment are likely to persist even when controlling for individual preferences and particular types of neighborhoods.[33] Creating neighborhoods that support the use of non-motorized modes can therefore work to facilitate physical activity resulting health benefits.

To meet the priorities of the community advisory team, the HIA team suggested exploring this area of focus using the following research question:

- Will the SCS increase access to public transit in DUCs and low income urban neighborhoods? To what extent will transit access change under the SCS scenarios?

Objective 1: Increased Access to Public Transit in rural DUCs and low income urban communities

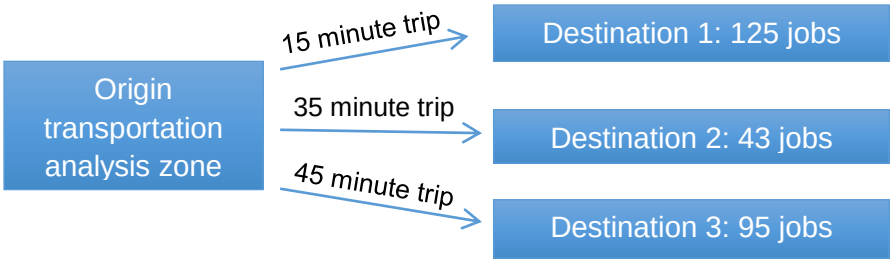
For this objective, we first characterized the existing public transit systems serving DUCs and low income urban communities by examining survey data, the location of existing transit services, and the proximity of residents to transit stops. This descriptive analysis will illustrate the extent to which transit currently meets (or does not meet) the needs or residents of these communities.

We will then quantify transit access in terms of travel times to destinations for current conditions and in 2040 under each SCS scenario. The analysis of existing conditions relies on travel demand model outputs for 2013 conditions and for 2040 conditions under each SCS Scenario. In order to provide an overall estimate of destinations that are available by transit, we use access to jobs (of all types) as a proxy for destinations. Jobs represent economic opportunities as well as amenities, goods and services, and the greater the number of jobs accessible by transit, the greater the accessibility. Specifically, we estimate transit access as the number of jobs that can be reached from particular communities within a 45 minute[34] transit trip during the peak morning commute. The transit travel time estimate includes in-vehicle travel time, walk access times (at origins and destinations and at transfers), and wait times (at the origin and at transfers). Job locations and transit travel times are available at the

transportation analysis zone (TAZ) level using data provided by KCOG; these values are combined in order to provide an estimate of accessible jobs at each travel time interval for each origin TAZ.

The process of combining travel times and job locations is illustrated in the hypothetical figure below. For the particular origin TAZ shown, three destination TAZs are available within a 45 minute transit trip. Summing over all of the available jobs in the three destination zones results in 263 total jobs accessible in 45 minutes. This result gets associated with the origin TAZ. Ultimately, TAZs are aggregated[35] to the corresponding DUCs and low income urban communities in order to obtain accessibility estimates for those areas.

Figure 5: Process of Combining Travel Times and Job Locations



To more closely examine the localized access impacts of the SCS in each community, we also examine the growth in jobs allocated to DUCs and low income urban communities in each KCOG SCS scenario and compare it to existing conditions.

Existing Conditions:

- What is the overall quality and accessibility of existing public transit in DUCs, low income urban communities, and the county as a whole?
- Does public transit adequately connect people living in DUCs and low income urban communities to destinations?

Forecasting question:

- How does each scenario change the quality and accessibility of public transit and access to destinations in DUCs and low income urban communities?

Indicators

1. Location of transit stops serving target areas (existing and forecasting conditions)
2. Number of jobs that can be accessed by transit trips of 45 minutes or less during the peak morning commute period (existing conditions and forecasting)
3. Number of jobs that are located in each community (existing conditions and forecasting)

Land Use: Improved Access to Basic Resources

Land use decisions made at regional levels have the capacity to promote health in a number of ways, including through allocating investment into development of basic resources, such as employment, affordable housing, healthy food and healthcare facilities and services. Access to these resources have a strong influence on the health outcomes of communities. In other regions, proximity and the ease of traveling to health care services has been found to influence health care decisions, where high travel times and distances can be a hindrance to the effective use of health services.[36] Similarly, rurality has been associated with increased travel distances, times and decreased frequency of medical visits overall and to specialists relative to urban areas.[37] Furthermore, licensed drivers and those with access to rides through their families made significantly more health-service related trips.[38] These studies of other regions illustrate the importance of considering rural access to health care during the transportation planning process.

Because DUCs and low income urban communities often do not offer these resources, the SCS can initiate and encourage the development of these communities into livable, sustainable neighborhoods by including policies that allocate appropriate development in DUCs and low income urban communities that will include and support these resources.

At the same time, this development has the potential to reduce VMT and improve air quality; residents of these communities will have the option to decrease or eliminate vehicle trips into neighboring communities to obtain these basic resources, if these resources are available in their communities. Simultaneously residents will be exposed to fewer of the effects of vehicle travel, including emissions and accidents. Thus, the SCS can potentially further the mission of SB 375 of reducing VMT, while at the same time promoting a vision of community equity, improving the health of DUCs and low income urban communities, and the region as a whole.

Greater walkability and access to resources has been associated with decreased use of cars and thus lower greenhouse gas emissions. Walkability and pedestrian mobility in DUCs and low income urban neighborhoods is often hindered by inadequate pedestrian infrastructure, including unmaintained sidewalks and bike lanes (or an absence of either or both from the community), single-use housing, and lack of curb cuts. Without adequate pedestrian infrastructure, residents may choose to decrease or eliminate pedestrian trips to access basic community resources. Further, because several residents of these communities are unable to afford a personal vehicle, adequate pedestrian infrastructure may be necessary for them to access resources that promote health. Also, inadequate pedestrian infrastructure may cause decreased pedestrian activity within the community, which can then contribute to negative health outcomes, such as cardiovascular disease and diabetes.

Though neighborhood walkability and access to resources can be key promoters of community health and an opportunity for community equity through investment in historically overlooked neighborhoods, they also have the potential to further the mission of SB 375. Increasing

walkability promotes pedestrian mobility; when residents feel they do not have to use a vehicle in their neighborhoods, they may choose not to, leading to a decrease in county wide VMT. Thus, in this section we focus on analyzing the potential for increased access to services and walkability in low income urban neighborhoods.

To meet the priorities of the coalition, the HIA project team suggests exploring this area of focus using the following research questions:

- Will the SCS increase access to basic community necessities in DUCs and low income urban communities? To what extent will the SCS change basic access to resources in DUCs and low income urban communities?

Objective 1: Increased Access to Basic Community Resources in DUCs

For this objective, we first characterized the availability of basic resources in DUCs and low income urban communities. Basic resources are defined as including stores offering healthy, fresh foods, healthcare facilities and services and early education child care centers. We profiled the community in terms of basic resources available.

We then evaluated existing access to educational, governmental, and health care services by using the methods similar to those used for transit access above. In other words, we used travel demand model data available for 2005 and in each scenario in 2040 to evaluate access to services using access to jobs of three types: educational, medical, and government as a proxy for access to specific facility locations (which are unavailable for future years). Unfortunately, data about stores offering healthy food were unavailable for this part of the evaluation[39]. We used the same method described above to estimate jobs of each type accessible within a 45 minute trip by transit during the peak morning commute period, except that we split the analysis by job type rather than estimating access to all jobs. We also conducted the analysis for automobile access for a 45 minute trip to provide a point of comparison and to glean accessibility for those with access to a car, but we note that residents without access to vehicles don't benefit from auto access.

To more closely examine the localized impact of the SCS in each community, we also examined the growth in educational, governmental, and health care jobs allocated to DUCs and low income urban communities in each KCOG SCS scenario and compared it to existing conditions.

Existing Conditions:

- To what extent are basic community resources available in DUCs and low income urban communities?

Forecasting Question:

- Will Kern's SCS increase the availability of community resource to residents of disadvantaged unincorporated communities and low income urban communities?

Indicators

1. Number of places offering fresh food within DUCs and low income urban communities (existing conditions)
2. Number of government, health care, or educational jobs that can be accessed by transit or auto trips of 45 minutes or less during the peak morning commute period (existing conditions and forecasting)
3. Number of government, health care, or educational jobs that are located in each community (existing conditions and forecasting)

Geographic Boundaries, Data Sources and Limitations in Available Data

The forecasted analyses of active transportation and accessibility both rely directly on travel demand model outputs, so are limited by the precision and accuracy of those models. Travel demand models are complex and data intensive, and it takes time to update them to reflect the contemporary challenges addressed under SB375. Performing an independent verification of the model precision and accuracy in different areas and for different types of trips is beyond the scope of this work; however, where known or suspected issues arise we note it in our discussion.

VIII. Assessment of Existing Conditions and SCS Outcomes

Priority 1 Objective 1: Access to Public Transportation in Disadvantaged Unincorporated Communities and Low Income Urban Neighborhoods

Indicator: Location of transit stops serving target areas (existing and forecasting conditions)

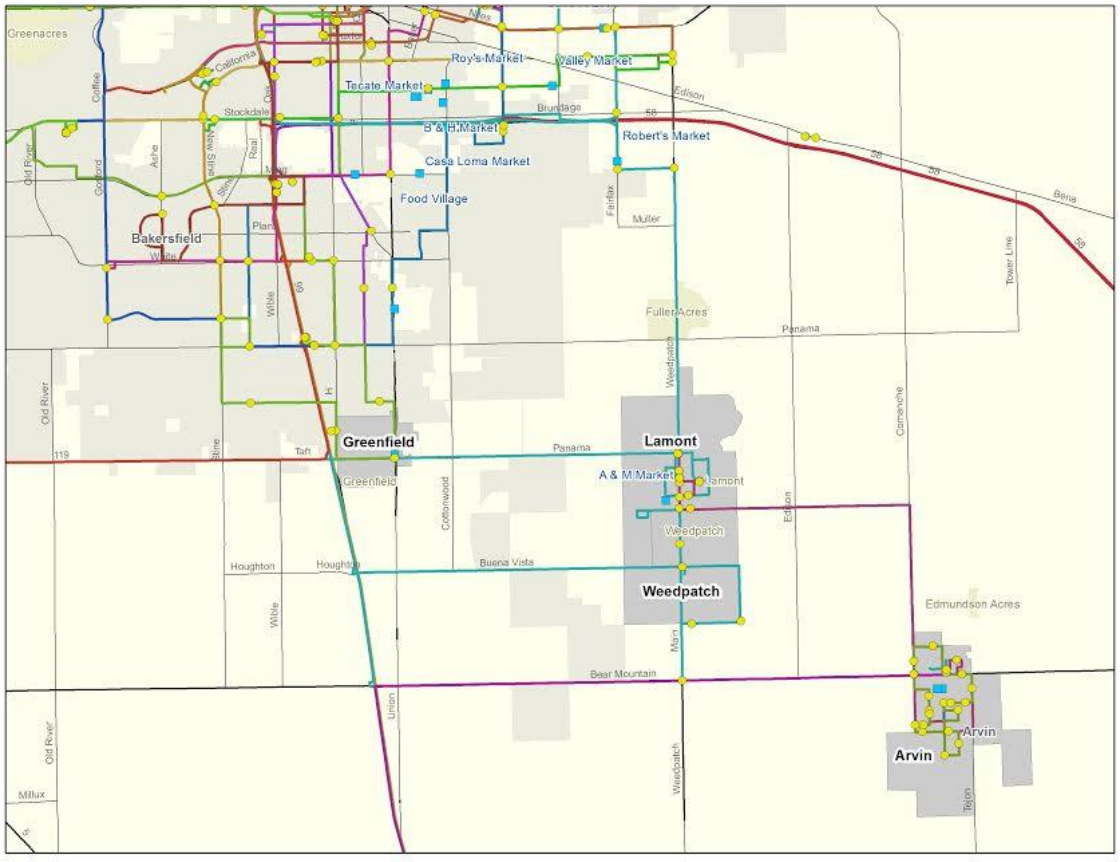
The table below shows the share of the population within ¼ and ½ mile of bus stops within each target area. Additionally, the map below shows the location of transit stops in the target areas. A substantial share of the population lives close to bus stops in Arvin, Lamont, and Weedpatch while Greenfield has more moderate shares. While the figure below indicates close proximity to bus stops this does indicate frequency, reliability and affordability. Residents from these neighborhoods have identified the need for more frequent transit service to better meet their needs.

Figure 6: Population within ½ and ¼ mile of Bus Stop

		Pop (2010) *Blocks*	Population within 1/4 mi of bus stop *from ppl/parc*	% population within 1/4 mi of bus stop	Population within 1/2 mi of bus stop *from ppl/parc*	% population within 1/4 mi of bus stop
		19,30				
Arvin	CDP	4	18,028	93.4%	19,270	99.8%
Greenfield	CDP	3,991	948	23.8%	3,073	77.0%
		15,12				
Lamont	CDP	0	9,085	60.1%	13,532	89.5%
Weedpatch	CDP	2,658	2,029	76.3%	2,586	97.3%

Source: PolicyLink, 2013

Figure 7 : Location of Transit Stops in Study Communities



Source: PolicyLink, 2013.

The location of transit stops in the travel demand model under 2013 current conditions and in 2040 for each Scenario is shown in maps in Appendix A of the Health Impact Assessment Results: Accessibility under Kern COG SCS Scenarios (Accessibility Analysis, Appendix C). Maps do not include the No Project Scenario for which transit stop data was unavailable at the time of

writing. From those maps, the 2040 Old Plan Scenario adds a substantial number of transit stops, in particular in and around Bakersfield (including Greenfield). In 2040 the Preferred Plan, Intensified, 33% Housing Mix, and 100% Infill Scenarios all have the same transit stops, which are more numerous than 2013 conditions. When compared to the Old Plan Scenario, the transit stops in these four Scenarios are distributed over a larger area (and with less density) in the Bakersfield area. Stop locations in Lamont, Weedpatch and Arvin appear unchanged from 2013 to any of the 2040 Scenarios.

Indicator: Number of jobs that can be accessed by transit trips of 45 minutes or less during the peak morning commute period (existing conditions and forecasting)

Our evaluation of transit accessibility, which uses the number of jobs accessible by transit within 15, 30, and 45 minutes, provides an indication of the effects of both changes in transit service and changes in the location of destinations. The table below shows transit access for each of the analysis areas and for the region as a whole, for 2013, 2040 No Project Scenarios, and the Old Plan, Plan, Intensified, 33% Housing Mix, and 100% Infill Scenarios in 2040. Transit access values are represented as the number of jobs accessible within 15, 30, and 45 minutes and are estimated at the TAZ level. Because each area includes more than one TAZ, the median and range (minimum to maximum values) are shown.

From the table, the median values in Arvin, Lamont, and Weedpatch are zero (indicating no transit access to jobs) for trips of 15, 30, and 45 minutes. However, a subset of these areas do have access to jobs (as indicated by the maximum values in the range.) The maximum is non-zero in Arvin in the 45 minute range (indicating some areas with transit access to jobs) for the Plan, Intensified, 33% Housing Mix, and 100% Infill Scenarios. Lamont and Weedpatch experience non-zero maximums (some areas with transit access to jobs) within 30 and 45 minutes. Lamont experiences its highest maximum values in the Plan, Intensified, 33% Housing Mix, and 100% Infill, while Weedpatch experiences its highest maximum values in the Plan, Intensified, and 33% Housing Mix Scenarios.

In contrast to Arvin, Lamont, and Weedpatch, the median number of jobs accessible by transit in Greenfield is non-zero for all Scenarios in the 30 and 45-minute timeframe. The Greenfield medians are greatest in the Plan, Intensified, 33% Housing Mix, and 100% Infill Scenarios, indicating that there is moderate transit access to jobs in those Scenarios, in particular within a 45 minute timeframe.

Figure 8: Transit Access (jobs accessibility for 15, 30, and 45 minute trips)

Transit Access (jobs accessibly for 15, 30, and 45 minute trips, shown as median [range])*								
Travel time	Location	2013	2040					
		Current Conditions	No Project	Old Plan	Preferred Plan	Intensified	33% Housing Mix	100% Infill
15 min	Arvin	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]
	Greenfield	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 34]	0 [0 - 34]	0 [0 - 0]	0 [0 - 0]
	Lamont	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]
	Weedpatch	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]
	Region	0 [0 - 2,734]	0 [0 - 8,745]	0 [0 - 9,984]	0 [0 - 34,226]	0 [0 - 31,555]	0 [0 - 33,928]	0 [0 - 328,417]
30 min	Arvin	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]
	Greenfield	919 [0 - 4,758]	636 [0 - 1,851]	2,236 [1,282 - 3,424]	12,677 [3,722 - 34,732]	12,677 [3,722 - 34,732]	12,045 [3,672 - 34,905]	14,328 [4,777 - 40,065]
	Lamont	0 [0 - 0]	0 [0 - 1,213]	0 [0 - 0]	0 [0 - 1,760]	0 [0 - 1,760]	0 [0 - 1,697	0 [0 - 1,635]
	Weedpatch	0 [0 - 0]	0 [0 - 1,799]	0 [0 - 0]	0 [0 - 1,856]	0 [0 - 1,856]	0 [0 - 1,793]	0 [0 - 1,731]
	Region	0 [0 - 35,529]	0 [0 - 70,281]	0 [0 - 83,070]	0 [0 - 144,863]	0 [0 - 143,640]	0 [0 - 149,657]	0 [0 - 172,591]
45 min	Arvin	0 [0 - 0]	0 [0 - 0]	0 [0 - 0]	0 [0 - 1,173]	0 [0 - 1,173]	0 [0 - 1,110]	0 [0 - 1,048]
	Greenfield	16,745 [0 - 22,112]	10,947 [0 - 14,652]	8,528 [6,759 - 12,600]	105,472 [70,916 - 132,577]	105,926 [64,194 - 134,087]	106,102 [72,154 - 132,783]	119,559 [72,617 - 145,105]
	Lamont	0 [0 - 646]	0 [0 - 2,370]	0 [0 - 0]	0 [0 - 3,084]	0 [0 - 3,084]	0 [0 - 3008]	0 [0 - 3,207]
	Weedpatch	0 [0 - 45]	0 [0 - 2,267]	0 [0 - 0]	0 [0 - 12,751]	0 [0 - 14,812]	0 [0 - 11,904]	0 [0 - 4,818]
	Region	0 [0 - 79,805]	0 [0 - 129,667]	0 [0 - 143,513]	0 [0 - 217,403]	0 [0 - 217,413]	0 [0 - 220,263]	0 [0 - 236,447]

* Median and range (minimum to maximum) of all Travel Analysis Zones (TAZ, the unit of analysis modeled) are shown for each area.

Source: Estimated by the CRC using travel model data provided by KCOG. See Accessibility Analysis, Appendix C for detail

Transit access estimates can also be visualized using maps of region. Appendix B of the Accessibility Analysis includes seven maps of transit accessibility (measured as jobs available within 45 minutes) in Kern County, including 2013 current conditions and the six 2040 Scenarios. From these maps we see that under current conditions the greatest transit access occurs in Bakersfield, with some access in other communities in the area (including Greenfield, Lamont, Weedpatch, Oildale, Taft, Tehachapi, McFarland, and a few other patches.) Transit access increases in the 2040 No Project scenario, primarily in and around Bakersfield. Under the Old Plan, transit access increases a bit more than the No Project Scenario, encompassing a slightly greater range of Bakersfield, but reduced transit access in Lamont and Weedpatch. Under the Preferred Plan, transit access increases in patches across Bakersfield and the surrounding areas, leaving some gaps in the center but broadening the expanse of transit access. Greenfield fares much better than under the Old Plan, and Lamont, Weedpatch, and Arvin have a small amount of transit access (a small improvement over the Old Plan). Transit access under the 33% Housing Mix and the 100% Infill Scenarios is similar to the Preferred Plan, although in the 100% Infill Scenario, central Bakersfield experiences higher levels of access. Note that the small differences observed in the 33% Housing Mix and 100% Infill Scenarios are because these Scenarios do not vary from the Preferred Plan in terms of the transit or job projections, but they likely increase the share of the population with better transit access (which is not reflected in our measurement) due to the shift in location of housing.

<u>Indicator: Number of jobs that are located in each community (existing conditions and forecasting)</u>

In this section we look at the projected growth in Kern County under each SCS scenario. Greater job growth within a community indicates more easy access to jobs and services in a community (e.g. some of these jobs and services may be accessed by walking or biking). Greater population growth (which is indicated by greater dwelling units) may indicate a future with a larger tax base (which brings a number of opportunities for community enhancement and economic development) and these may benefit a community if growth is desired and if appropriate protections are in place to prevent displacement of existing residents. Although not all jobs are available to all residents, the ratio of jobs per dwelling unit provides an indication of the accessibility of work opportunities. Note that this analysis presents jobs/housing ratios at the community level; interpretation is limited because this is a very small spatial

scale, and it does not include jobs and housing in the area just outside of a community. However, for isolated communities with poor transit service, a community level analysis still provides important insights about job access of residents without access to vehicles.

Currently, the countywide average value is 1.2 jobs per dwelling unit. This value provides an indication of jobs-housing balance for this region (although some residents may commute outside of the county for work and some workers may commute from outside the county, so while this value provides a baseline value, true balance may differ.) Lower values for jobs per dwelling unit in a community indicate that residents are more likely to need to travel outside of the community to get to work. For residents without vehicle access or access to high quality transit, it can be difficult to travel outside of the community for work.

The table below summarizes the land use characteristics of each SCS scenario, and illustrates how each scenario performs, both in absolute and relative terms, with respect to growth generally and with respect to jobs housing balance. The green and red shading indicate deviations from the 2040 No Project (and Old Plan) land use values for each of the other 2040 scenario (green indicates more dwelling units or jobs than the No Project Scenario, while red indicates fewer dwelling units or jobs). The dwelling unit and job projections provide an indication of growth directed to each area, and the jobs per dwelling unit for each study area provides an indication of the balance of jobs and housing in each study area. The jobs per dwelling unit ratio relates to residents' access to jobs and the need for traveling long distances to get to work). In small areas such as the target areas, the jobs within the area are an indication of jobs (and goods, services, etc) that some residents may be able to access by walking or biking.

From the table we see that for the four primary scenarios – Plan, Intensified, 33% Housing Mix, 100% Infill -Arvin experiences less growth in dwelling units and jobs than the No Project Scenario (and the Old Plan Scenario). Compared with current conditions, Arvin's population grows while employment changes only slightly in each of the four aforementioned scenarios. Currently, Arvin's jobs/dwelling unit ratio is much lower than the County average, and will fall further under the Plan, Intensified, 33% Housing Mix, and 100% Infill Scenarios, although it would rise under the No Project (and Old Plan) Scenario. In summary, Arvin's jobs housing balance worsens under each of the four primary proposed scenarios.

In contrast, Greenfield is slated for far more dwelling units and slightly more jobs under the four primary Project Scenarios than the No Project (and Old Plan) Scenario. When compared with current conditions, all 2040 Scenarios show substantial growth in dwelling units and only slight changes in job growth in Greenfield. Greenfield currently experiences a low jobs/dwelling unit ratio, and that ratio falls further under all 2040 Scenarios. That is to say, in Greenfield, jobs housing balance worsens under any scenario.

In Lamont, changes in dwelling units in the alternative scenarios as compared with the No Project Scenario are very slight, with slight decreases under all 2040 Project Scenarios except for 100% Infill which shows slight increases. These changes are modest when compared with current conditions, reflecting slight contraction in growth in the No Project/Old Plan, Plan, Intensified, and 33% Housing Mix Scenarios, and slight increased growth in the 100% Infill Scenario. Employment opportunities in Lamont is much higher than current conditions in the No Project (and Old Plan) Scenario, but reflects only slight

increases from current conditions in the Plan, Intensified, 33% Housing Mix, and 100% Infill Scenarios. Similarly, the jobs/dwelling unit ratio is lower than the County average under current conditions and all 2040 Scenarios; the No Project/Old Plan Scenario reflects the greatest improvement in jobs housing balance over current conditions while still falling short of the County average.

In all 2040 Scenarios, the number of dwelling units in Weedpatch is forecast to drop slightly (and nearly evenly) when compared to current conditions, while the number of jobs raise slightly (and evenly) in all 2040 Scenarios except for 100% Infill which shows a slight drop from current conditions. The ratio of jobs / dwelling units is slightly higher than current conditions in all 2040 Scenarios, but in each case fails to reach levels near the County average.

Overall, while the county experiences dramatic growth in dwelling units and jobs, growth in Lamont and Weedpatch is very slight in the 2040 Plan, Intensified, 33% Housing Mix, and 100% Infill Scenarios. Greenfield experiences substantial growth in dwelling units, while Arvin experiences moderate growth in dwelling units in those primary proposed Scenarios. All study communities experience only slight changes in jobs in the 2040 Scenarios. This is problematic for isolated communities with poor transit access that currently experience a ratio of jobs to dwelling unit that is far lower than the rest of the County, indicating that residents must travel elsewhere to get to work. Note that the variation in dwelling units and jobs projected in the study communities does not vary much among the 2040 Plan, Intensified, 33% Housing Mix, and 100% Infill Scenarios Project Scenarios.

Figure 9: Land Use Characteristics of Each SCS Scenario

	2013	2040 Scenarios				
	Current Conditions	No Project / Old Plan	Plan	Intensified	33 % Housing Mix	100% Infill
Dwelling units						
Arvin	4,624	**5,831**	5,784	5,784	5,785	7,792
Greenfield	1,697	2,921	4,418	**4,490**	4,228	3,771
Lamont	3,600	3,428	3,426	3,426	3,427	**3,787**
Weedpatch	654	**626**	624	625	624	624
The rest of Kern County	262,925	**443,096**	442,475	442,157	440,765	438,122
Employment (all jobs)						
Arvin	1,701	**8,695**	1,708	1,708	1,708	1,671
Greenfield	528	501	521	**553**	516	517
Lamont	1,884	**3,057**	1,991	1,881	1,876	1,840
Weedpatch	211	**252**	**252**	**252**	**252**	205
The rest of Kern County	320,029	483,445	**495,961**	495,919	478,736	480,522
Jobs per dwelling unit						
Arvin	0.37	**1.49**	0.30	0.30	0.30	0.21
Greenfield	0.31	**0.17**	0.12	0.12	0.12	0.14
Lamont	0.52	**0.89**	0.58	0.55	0.55	0.49
Weedpatch	0.32	**0.40**	**0.40**	**0.40**	**0.40**	0.33
The rest of Kern County	1.22	1.09	**1.12**	**1.12**	1.09	1.10

Higher than 2040 No Project

Lower than 2040 No Project

Highest of the 2040 Scenarios

Source: Calculated by the CRC using scenario land use assumptions provided by KCOG. See Accessibility Analysis, Appendix C for details.

Priority 2 Objective 1: 2Access to Basic Resources in Disadvantaged Unincorporated Communities and Low Income Urban Neighborhoods

Indicator: Number of residents living in close proximity to places offering fresh food within DUCs and low income urban communities (existing conditions)

The table below shows the share of the population within ¼ and ½ mile of grocery stores within each target area. A moderate share of the population lives close to grocery stores in the study communities.

Figure 10: Population within ½ and ¼ mile of Grocery Stores

	Geography	Pop (2010)	Population within 1/4 mi of grocery store	% population within 1/4 mi of grocery store	Population within 1/2 mi of grocery store	% population within 1/2 mi of grocery store
Arvin	CDP	19,304	2,767	14.3%	8,027	41.6%
Greenfield	CDP	3,991	581	14.6%	1,493	37.4%
Lamont	CDP	15,120	2,290	15.1%	5,424	35.9%
Weedpatch	CDP	2,658	216	8.1%	664	25.0%

Source: PolicyLink, 2013.

Indicator: Number of government, health care, or educational jobs that can be accessed by transit or auto trips of 45 minutes or less during the peak morning commute period (existing conditions and forecasting)

Medical services

Estimates of access to medical services can be visualized using maps of the region. Appendix C of Accessibility Analysis includes seven maps showing transit access to services in Kern County in the 2013 baseline and the 2040 Scenarios. Appendix D of the Accessibility Analysis shows seven maps of the same, but using auto access to services (and using a slightly different scale).

Looking at transit access to medical services, the trends for medical jobs look the same as the trends for all jobs. Under current conditions, the greatest transit access occurs in Bakersfield, with some access in surrounding communities in the area (including Greenfield, Lamont, and Weedpatch). Transit access increases in the 2040 No Project scenario, primarily in and around Bakersfield. Under the Old Plan, transit access increases a bit more than the No Project Scenario, encompassing a slightly greater range within Bakersfield, but reduced transit access in Lamont and Weedpatch. Under the Preferred Plan, transit access increases in patches across Bakersfield and the surrounding areas, leaving some gaps in the center of Bakersfield but broadening the expanse of transit access. Greenfield fares much better than under the Old Plan, and Lamont, Weedpatch, and Arvin have a small amount of increased transit access (a small improvement over the Old Plan). Transit access under the 33% Housing Mix and the 100% Infill Scenarios is similar to the Preferred Plan, although in the 100% Infill Scenario, central Bakersfield experiences higher levels of access.

Looking at auto access to medical services, we see that access is currently centered on Bakersfield and areas to the northeast and includes Greenfield[xl]. In all 2040 Scenarios, auto access to medical services increases in and around Bakersfield, including for all four study communities. Note that the scale shown in the auto maps is greater than the scale shown in the transit maps, reflecting the greater access to services by car.

Educational services

Estimates of access to educational services can be visualized using maps of the region. Appendix E of Accessibility Analysis includes seven maps showing transit access to services in Kern County in the 2013 baseline and the 2040 Scenarios. Appendix F of the Accessibility Analysis shows seven maps of the same, but using auto access to services.

Looking at transit access to educational services, the trends look the same as for all jobs and medical services. Under current conditions, the greatest transit access occurs in Bakersfield, with some access in surrounding communities in the area (including Greenfield, Lamont, and Weedpatch). Transit access increases in the 2040 No Project scenario, primarily in and around Bakersfield. Under the Old Plan, transit access increases a bit more than the No Project Scenario, encompassing a slightly greater range of Bakersfield, but reduced transit access in Lamont and Weedpatch. Under the Preferred Plan, transit access increases in patches across Bakersfield and the surrounding areas, leaving some gaps in the center but broadening the expanse of transit access. Greenfield fares much better than under the Old Plan, and Lamont, Weedpatch, and Arvin have a small amount of transit access (a small improvement over the Old Plan). Transit access under the 33% Housing Mix and the 100% Infill Scenarios is similar to the Preferred Plan, although in the 100% Infill Scenario, central Bakersfield experiences higher levels of access.

Looking at auto access to educational services, we see that access is currently centered on Bakersfield and areas to the northeast and includes Greenfield[xli]. In all 2040 Scenarios, auto access to educational services increases in and around Bakersfield, including for all four study communities. Note that the scale shown in the auto maps is greater than the scale shown in the transit maps, reflecting the greater access to services by car.

Government services

Estimates of access to government services can be visualized using maps of the region. Appendix G of the Accessibility Analysis includes seven maps showing transit access to services in Kern County in the 2013 baseline and the 2040 Scenarios. Appendix H of the Accessibility Analysis shows seven maps of the same, but using auto access to services.

Looking at transit access to government services, the trends look very similar as for all jobs and medical services. Under current conditions the greatest transit access occurs in Bakersfield, with some access in surrounding communities in the area (including Greenfield and Lamont but not Weedpatch). Transit access increases in the 2040 No Project scenario, primarily in and around Bakersfield. Under the Old Plan, transit access increases a bit more than the No Project Scenario, encompassing a slightly greater

range of Bakersfield, but reduced transit access in Lamont and Weedpatch. Under the Preferred Plan, transit access increases in patches across Bakersfield and the surrounding areas, leaving some gaps in the center but broadening the expanse of transit access. Greenfield fares much better than under the Old Plan, and Lamont, Weedpatch, and Arvin have a small amount of transit access (a small improvement over the Old Plan). Transit access under the 33% Housing Mix and the 100% Infill Scenarios is similar to the Preferred Plan, although in the 100% Infill Scenario, central Bakersfield experiences higher levels of access.

Looking at auto access to government services, we see that access is currently centered on Bakersfield and areas to the northeast[xlii]. In all 2040 Scenarios, auto access to educational services across the region decreases while areas of elevated access become more central (rather than oriented to the northeast) and access improves in Lamont, Weedpatch, and Arvin. Note that the scale shown in the auto maps is greater than the scale shown in the transit maps, reflecting the greater access to services by car. Furthermore, the scale for auto access to government services is greater than for auto access to educational and medical services, reflecting the greater access to government services by car in 2013 (by 2040 values drop to the scale used for educational and medical services.)

Indicator: Number of government, health care, or educational jobs that are located in each community (existing conditions and forecasting)

In the table below we examine the projections of job classifications for job types that are related to access to services: medical, educational, and government. These job estimates may be the best proxy for access to amenities and services by foot or bike in the study communities. In terms of medical, educational, and government services located in the study communities, we see from the table below that government and medical jobs are expected to grow similarly (and substantially) in the study communities across all 2040 Scenarios, with the exception of Arvin's No Project levels, which are greater. Educational jobs are also projected to grow similarly across all 2040 Scenarios, with more modest growth in Greenfield and Weedpatch than in the other study areas.

Overall, educational services are expected to increase moderately in all study areas, while government and medical services will increase greatly in all study communities. These forecasts are uniform across the Plan, Intensified, 33% Housing Mix, and 100% Infill Scenarios. Greater levels of these jobs in each study community will likely increase residents' access to these services by foot or bike.

Figure 11: Job Classification for Job Types Related to Access to Service

	2013	2040 Scenarios				
	Current Conditions	No Project / Old Plan	Plan	Intensified	33 % Housing Mix	100% Infill
Government Jobs						
Arvin	17	**579**	150	150	150	150
Greenfield	10	**31**	**31**	**31**	**31**	**31**
Lamont	2	**127**	**127**	**127**	**127**	**127**
Weedpatch	-	**10**	**10**	**10**	**10**	**10**
The rest of Kern County	33,896	38,714	**38,924**	38,907	37,780	37,933
Medical Jobs						
Arvin	114	**1,438**	149	149	149	149
Greenfield	22	**58**	**58**	**58**	**58**	**58**
Lamont	53	**328**	**328**	**328**	**328**	**328**
Weedpatch	1	**20**	**20**	**20**	**20**	**20**
The rest of Kern County	15,811	32,153	33,206	33,224	32,304	**32,643**
Educational Jobs						
Arvin	83	**138**	**138**	**138**	**138**	**138**
Greenfield	14	**16**	**16**	**16**	**16**	**16**
Lamont	4	**24**	**24**	**24**	**24**	**24**
Weedpatch	0	**4**	**4**	**4**	**4**	**4**
The rest of Kern County	11109	**38,495**	38,301	38,270	37,142	37,197

Higher than 2040 No Project

Lower than 2040 No Project

Highest of the 2040 Scenarios

Source: Calculated by the CRC using scenario land use assumptions provided by KCOG. See Accessibility Analysis, Appendix C for details.

Accessibility Summary and Discussion

We conducted our analysis of transit access and access to services in several parts. Note that changes in transit access to services in 2040 (when compared to 2013) is a function of changes in transit service and changes in land use (which may affect traffic and therefore transit travel times) and the locations of jobs in 2040.

We first examined the location of transit stops in 2013 and in the 2040 Scenarios, finding that transit increases in 2040 Scenarios over the present, but the 2040 Plan, Intensified, 33% Housing Mix, and 100% Infill Scenarios provide less density of transit stops but serve locations over a larger area.

We then evaluated transit access and transit and auto access to services using travel model outputs to estimate the number of jobs within 45 minutes of residents. Overall, transit access and transit and auto access to services is greatest in Bakersfield and its immediate surroundings, often including Greenfield. Transit access to jobs and services is greater for much of the region (and the four study areas) in the Preferred, Intensified, 33% Housing, and 100% Infill Scenarios, although variation in transit access to jobs and services between those scenarios is limited. Auto access to services is centered around Bakersfield in the 2040 Scenarios, and access to government services decreases across the region in 2040. Variation in auto access to services between 2040 Scenarios is limited. Note that the scale of access to services for residents with a car is greater that transit access to services across the region, especially in rural areas. However, for residents that do not have access to a car, transit access may be

the only option. Last, the 45 minute trip duration leads to a somewhat dramatic drop off in modeled auto access to services; a gravity model would provide a more nuanced result, however no gravity model is available for this region at this time.

Finally, we looked at jobs and services located within each study community (which provides an indication of bike/pedestrian access to jobs and services), finding that the 2040 Project Scenarios have similar outcomes, showing a lack of growth in dwelling units in Lamont and Weedpatch, while Greenfield and to some extent Arvin experience growth in dwelling units. At the same time, jobs do not change substantially in the 2040 Scenarios in the study communities, exacerbating the current lack of jobs (relative to housing) in all four study communities.

IX. Recommendations and Next Steps

In this section, we first summarize general land use and transportation planning concepts as they relate to the Kern County context as well as those drawn from the findings from this HIA. We then draw from those principles and findings to present recommendations related to KCOG activities that might be used to implement land use and planning principles in the regional planning context. Finally, we present two lessons learned from the HIA of the 2014 SCS/RTP process, which might inform future SCS/RTP processes in Kern County.

Land use and transportation planning concepts:

A number of resources provide land use and transportation planning principles, but few provide insights applicable to rural areas in particular. Kern COG and its member jurisdictions should consider and incorporate these concepts in regional and local land use planning process to improve the overall health and sustainability of small low income communities – such as those studied in this analysis. Livability principles are discussed in the context of rural communities in the 2011 Partnership for Sustainable Communities report, "Supporting Sustainable Rural Communities"[xliii]. To summarize that discussion:

- **Provide non-auto oriented transportation choices and community design.** Providing bike, pedestrian, and transit facilities, and compact, mixed use communities can improve residents' quality of life, access to resources and opportunities, and economic growth. Town centers are good locations for transit services that provide access to other cities and the rest of the region.

- **Promote equitable, affordable housing in proximity to jobs, goods and services.** Communities with a variety of housing options (include single family and multifamily units at a range of price points) in locations that are proximate to jobs, businesses, and services, can fill residents' needs for all life phases and reduce residents' housing and transportation costs.

- **Foster economic opportunities.** Communities need strong employment opportunities to thrive. Rural communities have unique economic opportunities that may stem from agricultural, energy production, recreational, or other resources. Community specific planning and investment can enhance economic competitiveness of rural communities and small towns.

- **Enhance existing communities.** Conserving working and natural lands and channeling development in small towns should enhance communities without eroding the landscape, e.g. by investing in existing main streets in rural communities or improving water and wastewater systems outside of towns.

- **Leverage Federal opportunities.** Federal investments and policies can help support communities' efforts to achieve economic, community environmental, housing, and transportation goals. Projects or plans that coordinate or address multiple objectives can bring better outcomes to communities.

- **Value each community.** Rural communities and towns have unique characteristics, resources, and histories. Thoughtful plans and projects that value this character can strengthen communities while helping to revitalize them.

In addition to the rural planning concepts reviewed above, we draw from the results of this HIA to highlight two planning principles that are particularly relevant to the SCS process in Kern County:

- **Climate, health, and equity objectives are interrelated.** Increasing transit, walking, and biking mode shares and increasing access to jobs and services in communities across the region can increase active travel, reduce VMT and improve health and quality of life. Investments in transit (more bus service, vanpools, etc.) and bicycle and pedestrian infrastructure improvements can increase those mode shares. Similarly, balancing growth in affordable housing, employment, and services in communities can improve access to economic opportunities and resources, improving health and quality of life. Low income urban communities and unincorporated communities often have a greater need for these improvements but lack the resources needed to plan or build them.

- **Invest in existing communities.** This principle is also mentioned in the Partnership for Sustainable Communities report summarized above, but we reiterate it because the HIA results indicate that it is particularly important in the Kern County RTP/SCS planning context. Existing communities can be strengthened with thoughtful channeling of transportation investments, planning efforts, and balanced growth in those communities. As described in "Smart Growth in Rural California: a working paper outlining A Land Use and Investment Plan For all California"[xliv], SB 375's emphasis on developing areas in proximity to urban centers and high frequency transit routes may make sense in an urban context, but it largely leaves existing rural communities out of regional growth plans. When paired with Greenfield development that planned for areas outside of existing communities, there is seemingly little future for existing communities. Instead of focusing growth exclusively on existing urban centers and new suburban or exurban areas, channeling growth into existing urban and rural communities can improve environmental, health, and economic outcomes across the region.

Recommendations: Implementation in the Kern COG Regional Planning Context

In light of the principles highlighted by Partnership for Sustainable Communities and the HIA analysis (described above), in this section we present specific recommendations to be incorporated in Kern County planning processes. While the RTP planning process centers on regional planning led by the MPO, in reality many funding streams may be determined by other agencies or in other venues that are outside of the MPO's control. Similarly, the land use designations that are the focus of the SCS

ultimately fall under the authority of city and county. However, in many cases the MPO plays an important role in analyzing the outcomes of potential projects and plans and informing the community about those outcomes, potentially shifting the conversation about those projects and plans in relevant venues.[xlv] While we recognize that Kern COG does not have land use authority, it does have complete control over an 11 billion dollar budget that can be used to incentivize land use planning that supports investments in existing communities.

1. Support efforts to fund investments and planning in rural communities:

While the lack of flexibility of funding streams may appear to be a potential challenge to channeling funding to specific areas or projects, Local governments (cities, counties, or MPOs) with identified planning needs or project proposal in rural areas may seek funding from state, federal, and NGO sources. The following three reports provide comprehensive lists of programs that provide support for sustainable and healthy community plans and projects:

- The 2011 report "Supporting Sustainable Rural Communities"[xlvi] describes a number of sources of Federal programs and funds available to rural communities through USDA, HUD, DOT, and EPA.

- A 2012 report issued by US DOT[xlvii] provides a list of Federal programs and funding sources available to communities wishing to engage in healthy transportation planning (including those provided by US DOT, US DOT partners, the US Department of Health and Human Services, the US Department of the Interior, USDA, USEPA, and several others).

- The Local Government Commission's report[xlviii] also lists a number of potential programs and funds, that can be used to implement healthy communities in the San Joaquin Valley, including Safe Routes to Schools, FHWA funding sources, Caltrans funds, California Department of Public Health funds, and foundation funds (e.g. from the California Endowment and the Robert Wood Johnson Foundation).

Emerging state funding programs, such as the Active Transportation Program and funding through the cap-and-trade program also provide opportunities for increased investment in low income, rural communities. Kern COG and its member jurisdictions should actively pursue state level funding sources to help close infrastructure and housing gaps in low income areas.

Finally, the Kern COG Board of Directors has approved the existence of a planning and technical assistance program to support small cities and communities to engage in smart growth planning efforts but has yet to identify and commit secured revenue to support such a program. While Kern COG allocates funding from a number of constrained regional, state and federal sources, there are flexible sources of funding that can be used to support this program. This would allow small cities and small low income communities –such as those in this study – to draw much needed funding to support healthy growth. In addition, the capacity and resources of small cities, towns, and unincorporated communities wishing to apply for such funds is often limited. KCOG's expertise and knowledge might be a powerful means to assist smaller communities in harnessing these funds, either through this program or through technical assistance for community planners.

2. Explore the impact of different transportation investments:

The SCS/RTP process provides a unique opportunity to coordinate land use and transportation plans across the region. While the SCS component provides a new avenue to tie land use to transportation, the RTP continues to provide a powerful opportunity to thoughtfully plan regional transportation investments. A crucial part of the SCS/RTP process is evaluating the outcomes of various land use and transportation planning strategies in order to inform the selection of a preferred land use and transportation scenario and the list of transportation projects that will be funded.

The Kern SCS/RTP scenarios do vary in terms of the transportation projects included (and the timing of those projects). However, the transit outcomes in the study areas do not appear to vary much by scenario. This limits the ability of regional partners and community members to understand the impacts of varying the transportation plans that might be adopted, and it limits differences between scenario outcomes in those areas.

While it may be too late to alter the transportation projects included in each scenario for the 2014 RTP, we recommend that future SCS/RTP efforts include transit projects that target communities that have particularly elevated transit needs. The same is likely true of bicycle and pedestrian projects; however they were not included in this analysis.

3. Explore scenarios that balance jobs and housing:

In order to address the environmental and health impacts of land use and transportation plans in Kern County, it is important to explore a full range of land use scenarios. In the analysis of the health impacts of accessibility under each KCOG SCS scenario, we found little variation in the job growth in study communities in each 2040 scenario, and the Project scenarios did not improve the current mismatch in jobs and housing in study communities.

A balance of housing and employment and services in each community can lead to improved access to jobs and services and reduced vehicle travel. We recommend that Kern COG alter the transportation and land use plan included in each scenario for the 2014 RTP to include a range of land use scenarios with at least some aimed at achieving a greater degree of jobs housing balance in the region (and in particular in areas with a substantial imbalance), which has the potential to greatly increase residents' health. Evaluations of a wider range of scenarios will provide more information to decision makers and community members working to achieve substantial quality of life improvements in the region.

4. Adopt a set of policies that prioritize existing communities first.

Kern County residents, those residing in study communities and in other neighborhoods, report experiences of historic neglect and participated in the many public workshops held throughout this process to have their voices heard. Community residents have repeatedly asked for a range of affordable housing choices, real transit and active transportation options, access to basic resources and more compact development. We recommend that Kern COG incorporate the following policies in the 2014 Regional Transportation Plan to address historic need:

1) Create a new classification of transit ready areas (TRA). As this study indicates the jobs/housing balance growth in small communities such as Arvin, Lamont and Weedpatch decreases. SB 375 carries an inherent bias towards reducing greenhouse gas emissions by allocating housing and employment growth in heavily urbanized areas. This creates a fundamental problem for small low income communities that are in dire need of investment. If these communities are left out of projected housing and employment growth patterns, the possibility for future funding from local, regional and state funding sources for such projects will be severely restricted pushing these areas even further behind. TRA's will be eligible to receive planning and financial assistance which will improve communities by designing more compact, less car dependent projects.

2) Incorporate a policy that RTP investments must first serve the needs of existing neighborhoods and communities before any discretionary funding is used to support and/or serve new town development. Funding should first be spent in neighborhoods and communities with the highest demonstrated needs. To identify needs, Kern COG should catalogue existing conditions (transit service, opportunities for walking and biking, housing quantity and quality, and key demographic indicators) and develop an action plan to meet those needs. Kern COG should work with community stakeholders to identify specific action steps to implement this policy.

3) The RTP should front load walking, biking, and transit projects to provide real transportation choices to Kern County residents. This will reduce vehicle miles traveled, vehicle pollution, and improve health outcomes for all communities.

Adding these policies to the Draft RTP or to any of the alternatives included in the Draft EIR will ensure that Kern COG meets is SB 375 targets, sets a foundation for improving existing communities in Kern County, and provides Kern County residents with the type of growth and development they have been requesting for years.

X. Conclusion

We recognize and commend the tremendous amount of effort of Kern COG staff to develop the regions first SCS. This process has proven to be a challenging, yet exciting, experience that we have all learned from. We hope to partner with KCOG, its member jurisdictions, community residents, community partners and decision makers to both implement this plan and prepare for its next iteration in 2018. Our hope is to work with KCOG staff and decision makers to further improve the draft RTP to ensure that the needs of our most vulnerable communities are adequately met. We will continue to meet with community residents and decision makers during this public review period and leading up to the June 26, 2014 vote to adopt the final plan. Land use and transportation planning are inextricably tied to community health outcomes and our goal is to help improve short and long term planning documents to build a healthy and sustainable Kern region.

[1] California Government Code Section 1(a)
[2] California Government Code Section 1(a)
[3] California Government Code Section 65080 et seq
[4] American Lung Association – Public Health Crossroads: Sustainable Growth for Healthier Fresno Neighborhoods
[5] Alan Berube and Bruce Katz, "Katrina's Window: Confronting Concentrated Poverty Across America," Washington: The Brookings Institution, October 2005
[6] The Planning Center DC&E, 2012
[7] KCOG Draft RTP 2014
[8] WHO
[9] ALAC – Public Health Crossroads –Sustainable Growth for Healthier Kern Neighborhoods
[10] Kern COG Draft 2014 RTP
[11] International Association of Impact Assessment, 2006. http://www.iaia.org/publicdocuments/special-publications/SP5.pdf
[12] World Health Organization, 2009. http://www.who.int/social_determinants/en/.
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[34] Originally the analysis included 15 and 30 minute transit accessibilities, but for the purposes of simplifying comparisons, capturing a reasonable one-way travel time, and capturing variation for the analysis areas, the 45 minute distance is most suitable and is the focus of this analysis (although some data are reported at 15 and 30 minute intervals). A longer transit commute time would capture more jobs and potentially more variation, but a transit commute time that is too long would fail to indicate reasonable accessibility. A spot check of the model reveals that modeled transit times from Riverdale to downtown Fresno are approximately 90 minutes, however using 90 minutes as a one-way travel time does not represent an ease of access, so this travel time is not used. We did not estimate accessibility using a gravity model (which uses a calibrated algorithm to discount access at increasingly long travel times to provide one metric for access at various trip durations), as region-specific calibrated coefficients would be needed, and one is not known to have been previously specified for the Fresno COG travel model (email. comm., 2/19/2014, Kai Han).

[35] Where a target area contains more than one TAZ, TAZ level data are aggregated.

[36] McLafferty, GIS and health care, Annu. Rev. Public Health 2003. 24:25–42

[37] Chan, L., L. G. Hart and D. C. Goodman (2006). "Geographic Access to Health Care for Rural Medicare Beneficiaries." The Journal of Rural Health **22**(2): 140-146.

[38] Arcury, T. A., J. S. Preisser, W. M. Gesler and J. M. Powers (2005). "Access to Transportation and Health Care Utilization in a Rural Region." The Journal of Rural Health **21**(1): 31-38

[39] The model outputs provide the locations of nine job categories: industrial, retail, office, educational, medical, services, food, government, and other. All job types listed represent access to economic opportunities. However in terms of access to resources and services, some of these job types have explicit value (e.g. medical and educational facilities clearly fill a need), while others have value that is obscured by the aggregate nature of the data ('retail' indicates grocery stores as well all other retail opportunities), and still others may indicate potential disbenefits (e.g.

industrial facilities that are in very close proximity may correlate to undesirable environmental exposures, even while they may provide economic opportunities). We focus medical, educational, and government jobs but can provide information about other job categories upon request. See Appendix A for a full description of what each job category includes.

[xl] The mapped auto accessibilities in 2013 are somewhat counterintuitive in light of the other auto accessibility maps (for 2040 Scenarios), seeming overly skewed to the northeast. We rechecked our data processing steps and were unable to find an error in our processing of travel demand outputs provided by Kern COG. If the maps reflect actual auto accessibilities, it may be that the northeast side of town is currently less congested or has more jobs than it will in future years (relative to the rest of the areas around Bakersfield).

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[xlii] The mapped auto accessibilities in 2013 are somewhat counterintuitive in light of the other auto accessibility maps (for 2040 Scenarios), seeming overly skewed to the northeast. We rechecked our data processing steps and were unable to find an error in our processing of travel demand outputs provided by Kern COG. If the maps reflect actual auto accessibilities, it may be that the northeast side of town is currently less congested or has more jobs than it will in future years (relative to the rest of the areas around Bakersfield).

[xliii] Issued by the Partnership for Sustainable Communities (HUD, DOT, EPA, USDA) in Fall 2011. Available at http://www.epa.gov/smartgrowth/pdf/2011_11_supporting-sustainable-rural-communities.pdf

[xliv] Authored by Anne Bellows, Pheobe Seaton, and Veronica Garibay through Leadership Counsel for Justice and Accountability, available at http://www.leadershipcounsel.org/#!publicatons-and-resources/csgp.

[xlv] For example, the role of MPOs in equitable transportation planning is discussed in Lowe, Kate. "Bypassing Equity? Transit Investment and Regional Transportation Planning." Journal of Planning Education and Research 2014 34: 30

[xlvi] Issued by the Partnership for Sustainable Communities (HUD, DOT, EPA, USDA) in Fall 2011. Available at http://www.epa.gov/smartgrowth/pdf/2011_11_supporting-sustainable-rural-communities.pdf

[xlvii] US DOT, 2012. Metropolitan Transportation Planning for Healthy Communities. Available at http://www.planning.dot.gov/documents/Volpe_FHWA_MPOHealth_12122012.pdf

[xlviii] Available at http://www.lgc.org/healthy-communities-design-toolkit.