

DESK GUIDE

**ENVIRONMENTAL JUSTICE IN
TRANSPORTATION PLANNING AND
INVESTMENTS**

January 2003

Prepared for:

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Division of Transportation Planning
Office of Policy Analysis & Research

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Please note:

Throughout this Desk Guide, website addresses are cited to facilitate access to reference materials, examples, case studies or regulations related to environmental justice in planning. While every effort has been made to provide up-to-date materials, website addresses are subject to change and may not always be operable. An alternative method to finding these materials would be to use the title or topic as a word search using an internet browser.

Foreword

Transportation systems play an essential role in advancing the economy, safety, and quality of life in California. Every hour of every day, transportation facilities carry people and goods, providing mobility to the state’s residents, visitors, and businesses. The systems are extensive and diverse: roadways, public transit systems, bikeways and walkways, railroads, airports, and seaports. Investments in transportation systems provide substantial benefits, such as improving access to jobs, supporting the efficient movement of freight, and promoting safety for system users. Transportation investments may also generate unintended negative impacts. *If poorly planned or designed, new and expanded facilities may be unsightly, increase air pollution and noise, and disrupt or displace established communities.*

Environmental justice is a public policy goal of promoting the fair treatment and meaningful involvement of all people in the decision-making for transportation. Satisfying this goal means ensuring that low-income and minority communities receive an equitable distribution of the benefits of transportation activities without suffering disproportionate adverse impacts. Achieving environmental justice requires both analytical techniques as well as the full and fair participation by all potentially affected communities in the transportation decision-making process.

A number of laws and policy statements support the consideration of environmental justice in transportation activities. But clearly environmental justice goals are more than a set of legal and regulatory obligations; they are the starting point for good practice in planning. The principles of environmental justice are wholly consistent with core American values of fairness and have always been a part of good transportation decision-making. Seeking and incorporating early public involvement from a wide range of socio-economic groups improves transportation planning and project development.

The purpose of this Desk Guide is to provide those involved in decisions about California’s transportation system—public agencies, concerned citizens, community-based organizations, and elected officials—with information and examples of ways to promote environmental justice. While this Desk Guide covers the full breadth of regulatory, procedural, and technical issues, it does not provide detailed guidance or background in any specific area. Rather, each section of the Desk Guide points to resources (reports, papers, guidance documents, Internet sites, etc.) that provide greater detail for interested readers.

This Desk Guide is the product of a collaborative effort among consultants, community-based organizations (CBOs), and transportation agencies in California. Background material was identified through an extensive literature review and interviews with key individuals. A series of ten half-day workshops were held around the state to engage CBOs on the topic of transportation and environmental justice, probe specific issues, and bring to light examples of both good and bad practices. In addition, a two-day workshop was held for public agencies involved in transportation decision-making—metropolitan planning organizations, regional transportation planning agencies, public transit agencies, cities and counties, seaports and airports, air quality agencies, and Caltrans

district staff. The entire project benefited from the periodic input of an Advisory Panel, comprising individuals working extensively on transportation and environmental justice in California. Funding for this project was provided by the Office of Policy Analysis & Research, Division of Transportation Planning, Caltrans.

The Desk Guide is organized into six chapters. **Chapter 1** reviews the positive and negative impacts of transportation investments. **Chapter 2** discusses the legal and regulatory context of environmental justice as it relates to transportation. **Chapter 3** discusses how public agencies incorporate environmental justice into their activities and policies. **Chapter 4** discusses when and how environmental justice can be addressed in the long-range transportation planning process. **Chapter 5** reviews how environmental justice relates to the transportation project development cycle. **Chapter 6** presents case studies highlighting the applications of various techniques to achieve environmental justice goals. An **Appendix** includes a glossary of common transportation acronyms and terms. Throughout this Desk Guide, “Resources” and “Examples” are highlighted in text boxes.

It is important to consider this a living document. Environmental justice is an emerging field in some ways—new laws will be passed, new court decisions issued, new guidance released by the federal and state government, and new analytical techniques will be become available. It is the California Department of Transportation’s intent to provide updates of this Desk Guide to ensure that it remains fully relevant and useful to the people and agencies of California.

How Transportation Investment Affects Communities

Changes to transportation systems can have profound economic, social, and environmental impacts on communities. Nearly every transportation project has both positive and negative effects. It is the goal of environmental justice to ensure that when transportation decisions are made, low-income and minority communities have a full opportunity to participate in the decision-making, and they receive an equitable distribution of benefits and not a disproportionate share of burdens. The subsequent chapters in this Desk Guide describe how to achieve this goal. This chapter reviews the impacts of transportation investments on communities generally, and also highlights how these impacts may benefit or burden low-income and minority communities in particular.

1.1

Economic Impacts

The quality and efficiency of transportation systems are important to a community's economic health. Transportation investments can provide access to jobs, create jobs directly, influence broader economic development, and affect property values.

Access to Employment

The number of jobs to which community members have access is often closely linked to the quality and diversity of the transportation system. Transportation investments can improve access to employment locations, thereby improving the welfare of households that are able to take advantage of greater opportunities.

Transportation investments can be particularly important to low-income people. Those without a reliable automobile often face severe mobility constraints. The availability of good transportation choices, such as public transit, is important for providing jobs access in low-income communities. By providing access to broader geographic areas, transportation investments open up more employment opportunities to low-income and minority workers, and also make under-served communities more attractive to outside investment and growth.

Most job growth in recent years has occurred in suburbs. Using transportation investments to improve access to these jobs for inner-city residents is an important component of economic development. The cost of transportation options becomes critical when trying to serve low-income populations. Public



RESOURCE

National Cooperative Highway Research Program (NCHRP) Report 456: *Guidebook for Assessing the Social and Economic Effects of Transportation Projects* is a comprehensive resource for the issues discussed in this and the next section. In addition to describing potential social and economic impacts, the report provides step-by-step techniques for completing impact assessment. The report is available on the Internet at <<http://www4.trb.org/trb/crp.nsf>> under NCHRP project 25-19.

agencies may invest substantially in improved road or transit access to low-income communities, but if community members cannot afford the cost of using these services, then the investment does little or nothing for them.



EXAMPLE

AC TRANSIT ROUTE 376 PROVIDES ACCESS TO EMPLOYMENT

In the summer of 1997, residents of North Richmond, California and their representatives described to AC Transit, the local transit agency, that there were some important problems with the community's bus service. The nearest bus route, at the edge of the community, operated infrequently and only until 7 p.m. Given their severely limited access to jobs and services, welfare reform loomed as an impending disaster for many residents of North Richmond.

AC Transit representatives met repeatedly with North Richmond community members to design transportation services for welfare-to-work needs. The result is AC Transit Route 376, the new route that operates from 8 p.m. to 1:30 a.m., seven days a week, connecting North Richmond and the nearby community of Parchester Village to employment sites, a community college, a medical clinic, and shopping centers, as well as regional bus routes and BART trains.

The bus schedule is coordinated with shift changes at major employment sites. The collaborative effort in North Richmond led to an innovative plan for route deviation: bus riders can ask the driver to go off the fixed route a block or two to take them closer to their homes at night.¹

Transportation investments may also hinder employment access when they disrupt previously convenient routes. For example, converting an at-grade arterial street to a limited access freeway may block easy pedestrian access across the freeway and limit vehicle access to businesses that lie between freeway interchanges.

Job Creation

In addition to providing access to employment, transportation investments often create new jobs directly. Jobs associated with the construction and operation of transportation systems tend to be relatively well paying and often include positions that require minimal specialized training. As part of the project planning process, the jobs associated with construction of transportation facilities can be guaranteed to residents of the local community. Although construction jobs are only temporary, they are sometimes available for a number of years, and can provide experience and new skills that open up opportunities for jobs in other sectors. Jobs associated with transportation operations, such as transit vehicle operators and facilities maintenance workers, are usually permanent.

Transportation investments can also support long-term job creation for low-income and minority communities. Improving access to under-served neighborhoods can help to trigger the development of new businesses and employment opportunities.



EXAMPLE
CYPRESS FREEWAY AND BENEFITS TO LOCAL AND MINORITY WORKERS

After the 1989 Loma Prieta earthquake damaged the Cypress Freeway in Oakland beyond repair, Caltrans faced the challenge of rebuilding the freeway in a way that would benefit local West Oakland residents as well as the traveling public. Caltrans took steps to facilitate participation of local and minority workers and contractors in the construction phase of the project. The *Freeway Performance Agreement* signed with the City of Oakland established the following goals for the project:

- 35 percent Disadvantaged Business Enterprise participation
- 20 percent Local Business Enterprise participation
- 45 percent employment of local residents, minorities, and women on a craft-by-craft basis in terms of hours and employment

An Independent Monitoring Team was hired by Caltrans to assess compliance with these goals. The result shows that the goals were met, although certain groups (notably blacks and West Oakland residents) were underrepresented in the project. In addition, Caltrans' financial support for the Cypress/Mandela Training Center helped produce a program that has outlived the construction phase of the Cypress Freeway and continues to provide needed training opportunities for Oakland residents today.

Economic Development

Transportation investments can benefit the local or regional economy by improving access to businesses. An understanding of economic development impacts is critical for environmental justice analysis because businesses owned by minority and low-income individuals often operate on a small profit margin; small changes in their competitiveness resulting from transportation access improvements may determine whether or not such businesses are able to survive. At the local level, access improvements can help a community become more economically competitive within a larger region, possibly redistributing some income from other parts of the region. For example, retail sales (and local sales tax receipts) may grow if transportation improvements allow more shoppers to reach local stores. Local employers may benefit if more workers are able to reach a job site.



EXAMPLE
FRUITVALE TRANSIT VILLAGE AND ECONOMIC DEVELOPMENT

The Fruitvale community in Oakland is a primarily low-income Latino neighborhood with sizable African-American and Asian populations. In 1991, Bay Area Rapid Transit (BART) proposed the construction of a multi-level parking facility adjacent to the Fruitvale BART station. BART held a community meeting to receive input on the proposal. Many people were concerned that the parking facility would do little to promote economic development in the area. Community members wanted a more pedestrian-friendly atmosphere between the station and the nearby commercial district to encourage BART users to patronize local businesses. BART abandoned the parking garage proposal and agreed to work with a local community development corporation, the Unity Council, to create a pedestrian plaza connecting the station and the nearby commercial district. Since then, the Unity Council and its partners have competed successfully for local and federal planning grants and engaged in various efforts to involve community members in project planning and design.

There is a growing recognition that low-income, inner city neighborhoods have great potential for economic development, if they receive appropriate investments. Professor Michael Porter at the Harvard Business School argues that inner cities boast several factors that are attractive to businesses—a committed workforce, efficient access to railroads and ports, and a high concentration of consumers.² When transportation investments contribute to this competitiveness, they can play a vital role in the revitalization of distressed neighborhoods.

This is not to say that all transportation investments produce local economic development. When new facilities are unattractive, generate excessive noise, or exacerbate local congestion, local businesses may suffer. And redistribution of economic activity within a region can harm low-income and minority communities. As manufacturing, service, retail, and information industries have decentralized and jobs have shifted to suburbs, many inner cities have been faced with declining employment, a narrowing range of job and income opportunities, and a shrinking tax base.

Transportation investments can also generate economic development on a larger scale (i.e., region, state, nation)—either by redistributing impacts from other areas or by generating new economic development through productivity improvements. Transportation costs are often a significant part of total production and distribution costs. Efficient transportation networks allow for more centralized production, taking advantages of scale economies. In addition, resources required to produce certain goods may be transported from areas where they are most abundant, or from areas where they can be produced in a more sustainable fashion. Consequently, investments in transportation have the potential to reduce the costs of consumer goods. This is all facilitated by the fact that an efficient transportation system allows goods to be delivered more cheaply.

Property Values

Changes to the transportation system are likely to affect the value of property in the vicinity of the change. Property values reflect the demand for land and the structures on the land. This demand is influenced by all the transportation impacts described in this chapter, including accessibility, noise, aesthetics, and safety. Thus, changes in property value may be partly due to a market reaction to the cumulative effect of all other transportation impacts.³

For commercial land uses, a change in accessibility is typically the factor that has the greatest effect on property values. When roadway improvements increase pass-by traffic, retail stores usually gain customers and their value rises. Conversely, a new highway that diverts potential customers from local streets may cause the by-passed businesses to fail. Transportation investments that allow for easier pick-up and delivery of freight will increase the value of manufacturing or warehousing properties. Improvements to transit or highway facilities may boost the value of office space because they allow easier access by employees. Depending on the location, these changes in commercial property values may benefit or harm low-income and minority residents.

Residential property is more likely to be influenced by changes to noise levels, pedestrian safety, and aesthetics. In some cases, new rail transit service has been

shown to boost home values around stations. Streetscape improvements such as landscaping and pedestrian facilities may have a positive effect on the property values of adjacent residences. Expanding a roadway will often lower residential property values in the immediate vicinity because of the effects of increased traffic. Residences on streets with higher traffic volumes have been shown to have lower property values, all else being equal.⁴ Residences along parallel roadways are likely to experience increased property values simultaneously from improved access and from decreased “cut-through” traffic. In many cases, heavily used transportation corridors are flanked by low-income and minority residents, and they bear the brunt of transportation system changes that increase traffic volumes.



EXAMPLE
EFFECT OF BART ON PROPERTY VALUES

Construction of the BART system in the San Francisco Bay Area has provided an opportunity to examine the effect of improved transit access on housing values and commercial office rents. Researchers have found that, all else being equal, homes closer to BART stations in Alameda and Contra Costa Counties sell for more than homes farther away from stations. For example, Alameda County 1990 homes prices increased by \$2.29 for every meter the home was closer to a BART station. In contrast, research has shown no consistent pattern of higher office rents closer to BART stations.⁵

Equity concerns may also arise when there are uniform increases in property value. For example, improved transportation access might improve property values in a community that is home to predominantly minority or low-income renters. This could lead to sharp changes in property turnover or property speculation that could have serious impacts on the existing community. Often there are ways to address such concerns if policy-makers and the community are alert to such possibilities in advance.

1.2 Social Impacts

Compared to economic and environmental impacts, social impacts are often difficult to assess quantitatively, and therefore may not receive as much attention from planners. Yet social impacts can be among the most significant consequences of transportation investments, particularly at the neighborhood level. Social impacts include community cohesion, transportation choices, aesthetics, and safety.

Community Cohesion

Transportation investments can have a profound effect on the social networks in a community, characteristics that often lumped together under the term “community cohesion.” In all communities, relationships between friends, neighbors, and relatives, and between people and the services they use, are important components of the quality of life of community members.

Transportation investments can enhance community cohesion by improving connections within a community. For example, investments in pedestrian facilities (sidewalks, crosswalks, street furniture, lighting, landscaping, etc.) or traffic calming usually encourage more short walking and bicycling trips within a community. New or improved transit lines may help tie together a community along a corridor.

Transportation projects can also disrupt established relationships between community members. One way is through the displacement of businesses or households, which can break up social networks and sever the comfortable relationships that may exist between residents and local shopkeepers and service providers. A new or expanded transportation facility can also affect community cohesion when it acts as a barrier. A new facility (highway, railway, etc.) may physically block movement or force residents to follow new circuitous routes.



RESOURCE

Caltrans has produced a guidebook for assessing the social and economic impact of transportation projects, the *Community Impact Assessment Handbook*. It is available on the Internet at <<http://www.dot.ca.gov/ser/>>.

Even if it doesn't physically block movement, a transportation facility can act as a psychological barrier, particularly if it is noisy, dangerous, or is visually unattractive. Residents may curtail walking trips if they entail passing under a dark overpass, crossing a busy intersection, or walking along a loud freeway. Studies demonstrate that people living on streets with heavy traffic tend to know fewer of their neighbors and are less likely to spend time outdoors when compared to people on streets with lower traffic volumes in the same neighborhood.⁶ Children may be most affected by higher traffic volumes—when parents restrict a child's activities because of traffic safety concerns, it reduces the child's effective play area, access to friends, etc.

Changes to community cohesion, both positive and negative, are often felt most acutely by low-income and minority populations because these communities rely more heavily on informal social networks. Low-income communities may depend on friends and neighbors for things like carpooling, childcare, housework and yard work, etc. Minority communities may be more likely to have a local network of shops and services that cater to their specific tastes, and they will benefit greatly if their link to those shops and services is enhanced. Non-English speaking communities will suffer a greater degree of isolation if transportation facilities cut off their existing, social networks.

Transportation Choices

The availability of a choice of transportation modes affects the quality of life of a community in multiple ways. Many communities in California have no viable transportation alternatives to the private automobile. Transportation investments can affect mobility by helping or hindering other modes such as public transit (including demand-responsive service), walking, bicycling, and carpooling. Perhaps most importantly, as described in Section 1.1, non-automobile travel modes (primarily transit) are essential to ensuring access to jobs by low-income individuals who do not own a reliable car. Diverse transportation choices also enhance a community by allowing easier and more pleasant travel to social,

recreational, educational, and shopping destinations. Transit access to health care facilities can be particularly important for low-income communities in locations where inner city medical centers are being closed in favor of suburban facilities.

Many transportation investments enhance travel choices, for example expanding public transit service, creating bike paths or bike lanes, or improving the pedestrian infrastructure. Some investments may harm travel choices. For instance, an expanded roadway that results in increased traffic levels may make walking and bicycling in that vicinity more difficult. Transit service becomes a less attractive option if rail stations and bus stops are harder to reach, if the route becomes more circuitous, or the arrival frequency less reliable.

Aesthetics

Transportation facilities are often major elements of the urban landscape, and they can affect the aesthetic quality of an individual building or an entire community. The visual attractiveness of transportation facilities (or lack thereof) helps to define the image of a community to outsiders. Because they are often massive, a transportation facility like a highway will tend to dominate the landscape.

The assessment of the aesthetics of a transportation facility is inherently subjective. Cultural differences are likely to influence aesthetic preferences and may lead to standards that could not be predicted without specific input from the local community. When investment in a transportation corridor includes features such as new street trees and other types of landscaping, public art, or pedestrian and bicycle facilities, it may become more attractive to the community. In contrast, many residents find that large new transportation facilities detract from a community's aesthetic appeal. Extensive lighting and billboards that often accompany highways may be intrusive. When transportation facilities are not properly maintained, trash accumulates and contributes to unattractiveness.

Transportation facilities can also affect aesthetics when they block existing vistas or sunlight, or destroy important visual landmarks. A freeway flyover ramp, an elevated rail track, or a high sound wall can block view and shade immediate neighbors. Such impacts may be felt more strongly in minority and low-income communities because residents may have fewer opportunities to get away to other settings for aesthetic pleasure. Aesthetics are often not addressed as routinely as other, less subjective impacts, and may go unmitigated in the absence of concerted advocacy.

Safety

Transportation investments may affect safety in a variety of ways, including the safety of drivers, pedestrians, bicyclists, and transit patrons. Improvements to roadways often improve safety for motorists. Widening, straightening, or smoothing roads typically reduces the opportunity for vehicle collisions. Roadway intersections can be made safer for drivers by installing stop signs or signals, adjusting signal timing, or restricting certain turning movements. Enhancements to roadways can also lead to higher driving speeds, however, which may compromise safety.

regional perspective. Likewise, investments that reduce roadway congestion typically reduce pollution emissions, although this benefit may be offset to a degree by new (induced) travel.

Transportation system investments that increase traffic on a particular facility usually degrade air quality in the immediate vicinity of that facility. Minorities and the poor may be particularly vulnerable to the effects of air pollution, as described below.



RESOURCE

The U.S. EPA's Internet site has extensive information about the federal air quality standards at <http://www.epa.gov/oar/oaqps/>.

Air Quality Standards

The U.S. EPA established National Ambient Air Quality Standards (NAAQS) to protect public health, including the health of sensitive populations such as children and the elderly, from adverse effects of poor air quality. Pollutants covered by NAAQS (so-called “criteria pollutants”) include carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), sulfur dioxide (SO₂), fine particulate matter (PM_{2.5}), coarse particulate matter (PM₁₀) and lead (Pb). Of these six pollutants, lead is the only one that is not closely linked to the transportation sector. In the United States, lead is no longer found in motor fuel and consequently does not appear in automobile exhaust.

Another common class of pollutants emitted by vehicles is known as volatile organic compounds (VOCs). VOCs combine with oxides of nitrogen (NO_x) to form ozone. So, although VOCs are not criteria pollutants, they affect the formation of criteria pollutants.

The federal air quality standards for the six criteria pollutants are shown in Table 1.1. Units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m³), and micrograms per cubic meter of air (µg/m³). Periodic air samples are tested at various locations throughout each region. As shown in the table, the concentrations are averaged over different time periods. Most of the pollutants have one standard for short-term average, and a less strict standard for the longer-term average. Nearly all large urban areas in California, and many rural areas in the central and southern part of the state, do not meet these standards for ozone and particulate matter.

Transportation is a major source of four air pollutants in particular: CO, particulates, smog, and air toxics. These four pollutants are discussed in greater detail below.

**Table 1.1
National Ambient Air Quality Standards**

Pollutant	Measurement Period	Standard Value	
Carbon Monoxide (CO)	8-hour Average	9 ppm	(10 mg/m ³)
	1-hour Average	35 ppm	(40 mg/m ³)
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.053 ppm	(100 µg/m ³)
Ozone (O ₃)	1-hour Average	0.12 ppm	(235 µg/m ³)
	8-hour Average	0.08 ppm	(157 µg/m ³)
Lead (Pb)	Quarterly Average	1.5 µg/m ³	
Particulate (PM 10)	Annual Arithmetic Mean	50 µg/m ³	
	24-hour Average	150 µg/m ³	
Particulate (PM 2.5)	Annual Arithmetic Mean	15 µg/m ³	
	24-hour Average	65 µg/m ³	
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	0.03 ppm	(80 µg/m ³)
	24-hour Average	0.14 ppm	(365 µg/m ³)

Carbon Monoxide

Motor vehicles contribute a large portion of carbon monoxide (CO) emissions. CO is a colorless, odorless, poisonous gas. When humans are exposed to CO, it enters the bloodstream through the lungs and inhibits the blood’s capacity to carry oxygen to organs and tissues. Persons with heart disease are especially sensitive to CO poisoning and may experience chest pain if they breathe the gas while exercising. Infants, elderly persons, and individuals with respiratory disease are particularly sensitive. Carbon monoxide can also affect healthy individuals by impairing exercise capacity, visual perception, manual dexterity, learning functions, and ability to perform complex tasks.

Carbon monoxide is formed during the combustion of fossil fuels. In automobiles, CO is produced when hydrocarbon-based fuels like gasoline are not completely burned in a car’s engine. Unlike some of the other criteria pollutants, CO is generally a concern only in the area closest to the source of emissions, such as a highway corridor or the area around a busy intersection. Heavy traffic volumes can cause CO “hot spots,” where concentrations of the gas may reach levels that are dangerous to human health.

Carbon monoxide can be an environmental justice concern for two principal reasons. First, minority and low-income individuals may be disproportionately exposed to carbon monoxide when they live, work, attend school, or play near CO “hot spots.” Second, African Americans have disproportionately high rates of heart disease and therefore may be more susceptible to carbon monoxide health impacts than other populations.¹¹

Particulate Matter

Heavy-duty diesel engines (e.g., large trucks and construction equipment) are a major source of particulate matter emissions. Airborne particulate matter may harm human health, reduce visibility, and is another component of smog. It consists of microscopic material in the air and is capable of being inhaled by humans. Particulate matter is generally divided into two size ranges: “fine” particles less than 2.5 micrometers in diameter (PM_{2.5}), and “coarse” particles less than 10 micrometers in diameter (PM₁₀).

Fine particulates cause the greatest harm to human health. Roughly 1/20th the width of a human hair, these fine particles can be inhaled deep into the lungs reaching areas where the cells replenish the blood with oxygen. They can cause breathing irritation, inflammation and damage to the lungs, and premature death. Fine particulates may be released directly to the atmosphere from vehicle tailpipes, or they may be formed in the atmosphere from other pollutants such as sulfur dioxide (SO₂), nitrogen oxides (NO_x) and volatile organic compounds (VOC). Gasoline-powered vehicles produce relatively small amounts of PM_{2.5}, but diesel engines (e.g., heavy-duty trucks and construction equipment) are a major source.

Coarse particulates, although not as serious a threat to human health as PM_{2.5}, are also known to cause adverse health effects. When inhaled, they tend to be deposited in the upper parts of the respiratory system from which they can be eventually expelled back into the throat. While some of these coarse particles are generated naturally, they are also produced by human activities including construction, demolition, mining, road dust, tire wear and grinding processes of soil, rocks, or metals.

Particulate matter is also an effective delivery mechanism for toxic air contaminants, which attach themselves to particulate matter that floats in the air. These air toxics are then inhaled into the lungs, where they can be absorbed into the blood and tissue. Air toxics are discussed later in this section.

Concentrations of particulate matter are often elevated near the facilities where they are directly emitted such as freeways, shipping yards, and other areas with heavy diesel truck traffic or with certain industrial or construction activities. However, particulate matter can also be a concern on a regional scale since it can be formed on a slower time scale through atmospheric processes, and because fine particles can sometimes be carried great distances.

Particulate matter pollution can raise environmental justice concern. Because diesel combustion and industrial operations often occur in areas with higher concentrations of minority and low-income residents, these groups may be

disproportionately exposed. In addition, people with asthma are more susceptible to health problems associated with particulate matter. Low-income individuals and African Americans have higher asthma rates than the general population so they may be disproportionately impacted even in cases where elevated particulate pollution is evenly distributed throughout a region.¹²

Smog (Ground-level Ozone)

Ground-level ozone is the primary component of smog, which hangs over many large cities on warm, calm days. Ground-level ozone is not emitted directly from cars, but is formed in the atmosphere when nitrogen oxides (NO_x) and volatile organic compounds (VOC) react in sunlight. Ground-level ozone should not be confused with stratospheric ozone, which is much higher in the atmosphere and works to block ultraviolet rays from the sun.

Smog can make breathing difficult and increase susceptibility to cardio-respiratory diseases. Even healthy young adults breathe less efficiently on days when the air is heavily polluted, especially if exercising outdoors. Particularly vulnerable to smog are people with heart or lung disease, the elderly, and small children.

Automobiles and light trucks are the largest source of NO_x and VOCs, the two main ingredients of smog. NO_x includes nitric oxide and nitrogen dioxide, and is produced mostly by burning fossil fuels at high temperatures. VOCs are carbon-containing gases and vapors, such as fumes from gasoline. VOC emissions from vehicles occur both as a result of fuel combustion (driving) and fuel evaporation (such as during refueling or when the car heats up during the day).

Unlike CO and particulate matter, which tend to form the highest concentrations in close proximity to their source, ground-level ozone may form highest concentrations far from the source of the precursor emissions. This is because ground-level ozone is a product of chemical reactions in the atmosphere, and thus subject to wind, sunlight, and temperature conditions. So it is generally considered a regional problem that affects hundreds or thousands of square miles, rather than a local problem associated with an individual corridor or transportation facility.

Air Toxics

Toxic air contaminants are pollutants that can cause serious adverse health effects, such as cancer, even in very small quantities. Most air toxics have no known safe levels, and some may accumulate in the body from repeated exposures. People who are exposed to air toxics at sufficient concentrations and for sufficient durations may increase their chances of getting cancer or experiencing other serious health effects. Depending on which air toxics an individual is exposed to, these health effects can include damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, and respiratory problems.

The Air Resources Board has identified about 200 pollutants as air toxics. Motor vehicles are a major source of some of the most serious air toxics, including benzene, formaldehyde, acetaldehyde, and 1,3-butadiene, all of which are likely

carcinogens. Some air toxics like benzene are components of gasoline and are directly emitted from cars as unburned fuel or as fuel vapors, such as during refueling. Others, like formaldehyde and 1,3 butadiene, are not present in fuel but are byproducts of incomplete combustion. The Air Resources Board estimates that mobile sources (which includes both on-road and off-road vehicles) are responsible for 66 percent of benzene, 57 percent of 1,3-butadiene, and 41 percent of formaldehyde emissions statewide.

The Air Resources Board has also classified particulate matter from diesel engines as a toxic air contaminant. Diesel particulates, essentially soot created by incomplete combustion of diesel fuel, contain over 40 individual toxic substances. Emissions from diesel engines are responsible for the majority of airborne cancer risk in California.¹³ Particulate emissions from diesel are produced by on-road vehicles (heavy-duty trucks and buses), large off-road vehicles (bulldozers, tractors, and train locomotives), and large equipment (drilling and pumping engines).

Communities living near freight facilities where there are high concentrations of diesel emissions often have disproportionately high percentages of low-income and minority residents. This is one reason why exposure to air toxics is often associated with environmental justice concerns.



RESOURCE

The California Air Resources Board Internet site is a good source of information about the health effects of air toxics and their sources, <<http://www.arb.ca.gov/toxics/toxics.htm>>.

Noise

Transportation is a major source of noise. Intrusive noise can cause stress and degrade the quality of life for people in affected areas. In extreme cases, intrusive noise can pose a threat to hearing. New transportation facilities or other system changes that increase traffic levels will generally increase noise levels near the facility. Investments in sound walls or new pavement can help to mitigate vehicle noise.

Sound is measured on a non-linear scale in units of decibels. An adjusted scale, using A-weighted decibels [dB(A)], emphasizes those sound frequencies that humans hear best. On this scale, a 10-dB(A) increase is perceived as a doubling of sound. Sound above 65 dB(A) is considered annoying and sound above 125 dB(A) is painful. Noise generated from the transportation system generally falls above the annoyance level but below that which is painful.



EXAMPLE
LAX NOISE MONITORING AND ENVIRONMENTAL JUSTICE ANALYSIS

As part of its 2001 Regional Transportation Plan, the Southern California Association of Governments (SCAG) evaluated the potential noise impacts from proposed new projects. Through this analysis, they found that minority populations would be disproportionately impacted by the proposed airport expansion plan (88.8 percent of the impacted population would be minorities – substantially higher than the 71.4 percent of the total population of the region). These findings informed the decision to limit the expansion of the Los Angeles International Airport, with its high relative concentration of minority residents. SCAG's Regional Council instead favored a more regionally balanced airport expansion plan.

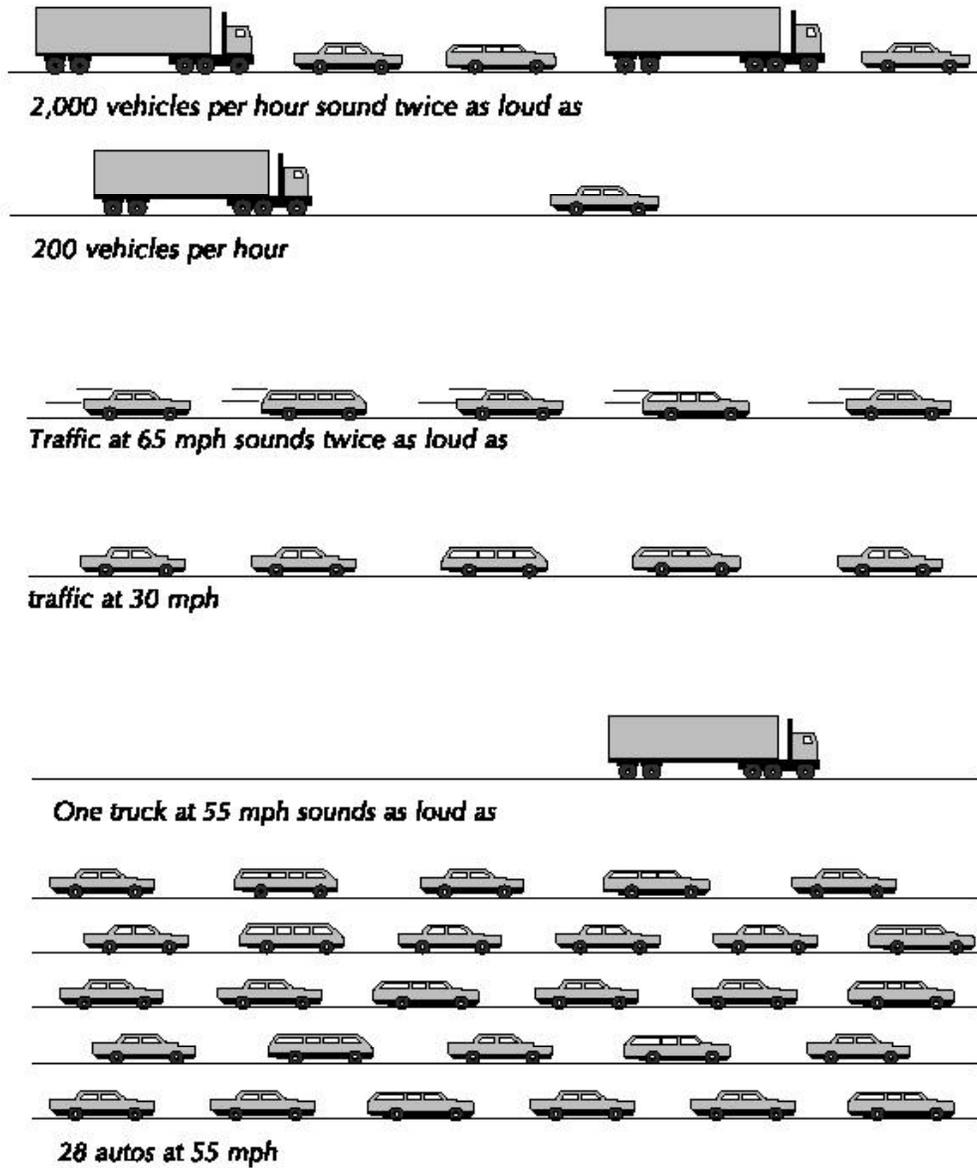
Neighborhoods in the flight path will be able to ensure that agreements are followed thanks to an Internet site called LAX Internet Flight Tracks, which debuted in May 2002. The site allows surrounding residents to find the altitude, operating airline, and the plane number of aircrafts in the flight path of LAX. The site will help the 90,000 people living in the airport's flight path to more easily monitor aircraft noise. If planes fly too low or outside the acceptable path, residents can report them to the airline or the Federal Aviation Administration.

Because noise diminishes with distance from its source, the most serious transportation noise problems are experienced along major transportation corridors. Noise associated with road transport comes primarily from engine operations, but also includes noise generated from pavement-wheel contact, aerodynamic effects, and the vibration of structures. As a result, increased vehicle travel is likely to cause increased noise disturbances to communities. Typical noise levels for highway vehicles at a distance of 25 feet range from about 70dB(A) for freeway traffic to 85dB(A) for a heavy truck. Noise barrier construction has been used to mitigate highway noise exposure in many cases. Figure 1.1 illustrates how traffic changes can affect noise.

Noise associated with rail transport comes primarily from engine operations, but also includes rail-wheel contact, locomotive whistles, and vibration of structures during operations. Although much less widespread than highway noise, the local level noise impacts from rail may be severe. Typical noise levels are 89dB for an electric locomotive, 93dB for a diesel locomotive, and 120dB(A) for a locomotive whistle. For safety reasons, locomotives typically sound a horn at a grade crossing, so increases in train frequency can significantly boost average noise levels for a population living near a crossing.

Figure 1.1¹⁴

How Traffic Volume, Traffic Speed, and Vehicle Type Influence Traffic Noise



Noise is the most recognized environmental impact from aircraft. The U.S. Federal Aviation Administration (FAA) has focused its noise control efforts primarily on regulating aircraft and engines, which has resulted in significant reductions in exposure to aircraft noise. Other types of controls to reduce aircraft noise exposure include modification of flight paths and timing of aircraft operations (usually to minimize nighttime operations) and soundproofing of buildings subject to the severest noise exposure. The FAA measures noise through a measurement called the Day-Night Sound Level (DNL), which is also expressed in decibels (dB). Areas subject to a DNL of 65dB or above are

considered incompatible with residential uses, but may be compatible with other uses.

Construction of transportation facilities can cause annoying noise and vibration to people in the vicinity. As a general rule, the total noise level during a typical 12-hour, daytime construction workday is about 90 dB(A) at 50 feet from the construction site. Impact pile driving can cause daytime annoyance out to a distance of 200 feet and potential vibration damage to structures at distances less than about 35 feet from the pile driving. Tracked vehicles such as bulldozers as well as equipment used for vibratory compaction and excavation can create substantial noise and vibration during earth moving operations.

Residential areas surrounding transportation and industrial facilities are more likely to have low-income and minority populations. Housing characteristics common in low-income communities may cause outdoor noise levels to be felt more acutely. For example, less insulation, poor-quality construction, and open windows in the summer may increase exposure to traffic noise.

Water Resources

Increased traffic can contribute to higher levels of water runoff pollution from highways, including particulates and heavy metals from vehicle exhaust fumes, copper from brake pads, tire and asphalt wear deposits, and drips of oil, grease, antifreeze, hydraulic fluids, and cleaning agents. Contamination of surface water beyond the corridor itself could occur in the event of a spill of material in transport. Spills can permeate the surrounding soil and contaminate the groundwater. Improperly disposed motor oil is an extremely concentrated water contaminant—one quart of motor oil can contaminate a million gallons of fresh water.

Construction of transportation facilities can affect water resources through runoff from the impervious surfaces created by construction sites and erosion of barren rock and soil surfaces exposed during excavation. The use of vehicle washing effluents and oil and hazardous materials at the construction facility could also lead to surface water contamination. Ground excavation in areas with a long history of industrial activity may disturb shallow groundwater containing elevated levels of heavy metals and hazardous organic compounds.

For some situations, water resource impacts may be more severe for low income and minority residents than the population as a whole. For example, water pollution caused by runoff will have a greater impact on poor populations that are dependent on the fish and shellfish they catch for protein in their diets.

Transportation facilities can affect water recreation resources by contributing to contamination and by creating physical obstructions that make water access difficult or unpleasant. Low income and minority populations may suffer disproportionately under these circumstances because they often are less able to access more remote recreational opportunities.

Legal and Regulatory Context

In the transportation context, environmental justice is about ensuring that underserved communities participate in the planning and decision-making for transportation investments, that their concerns and needs are incorporated into plans and policies, and that the resulting system can better serve all its users. Public agencies may need to demonstrate that the adverse impacts of transportation plans, programs and projects do not fall disproportionately on low-income and minority communities, and that these communities receive an equitable distribution of the benefits of transportation investments.

These principles sound simple, and one might think that they are easy to carry out. In practice, achieving this level of fairness presents some complex challenges. There is no single environmental justice regulation or guidance document for transportation professionals to follow; rather, a myriad of federal and state statutes, orders, policies, and guidance documents apply to environmental justice. And the legal framework for addressing environmental justice is subject to changing interpretation by the courts.

Government agency staff should not strive for environmental justice simply to satisfy requirements or to avoid lawsuits. The principles of environmental justice are entirely consistent with good planning and core American values of fairness. Nonetheless, much of the discussion surrounding environmental justice as well as the technical methods for assessing impacts require an understanding of the legal and regulatory requirements. This chapter is intended to provide agency staff as well as the public with an introduction to that background. Most of this background is discussed in greater detail in other documents; reference and highlighted resources point the reader to original documents and summaries, many of which are available on the Internet.

2.1

Historical Beginnings

Long before environmental justice became a prominent regulatory issue, transportation played an important role in Civil Rights struggles.¹⁵ More than 30 years ago, Martin Luther King, Jr. recognized that transportation is an issue that lies at the intersection of civil rights, economics, and the environment. He stated:

“When you go beyond a relatively simple though serious problem such as police racism... you begin to get into all the complexities of the modern American economy. Urban transit systems in most American cities, for example, have become genuine civil rights issues—and a valid one—because the layout of rapid-transit systems determines the accessibility of jobs to the black community. If transportation systems in American cities could be laid out so as to provide an opportunity for poor people to get meaningful employment, then they could begin to move into the mainstream of American life.”

In 1896, the Supreme Court in *Plessy v. Ferguson* upheld segregated railroad cars and legitimated the “separate but equal” treatment of whites and people of color.¹⁶ (This was later overturned in the *Brown v. Board of Education* decision in 1954.) After many years of this institutionalized segregation, Baton Rouge was the site for the first successful bus boycott in the 1950s. It became a blueprint for the more publicized bus boycott in Montgomery, Alabama in 1955-56, led by Rosa Parks and Martin Luther King, Jr. that launched the modern civil rights movement. In the 1960s it was interstate buses that formed the setting under which John Lewis and the Freedom Riders successfully advocated for desegregation. Transportation also figures prominently in the urban unrest of the 1960s. In response to the 1964 Watts Riots, the Report of the Governor’s Commission on the Los Angeles Riots (known as the McCone Report) found that transportation agencies in Los Angeles County handicapped minority residents in seeking and holding jobs, attending schools, shopping, and fulfilling other needs. The report concluded that the inadequate and prohibitively expensive bus service contributed to the isolation that led to the riots in Los Angeles. These few examples illustrate the importance of transportation in the larger context of the civil rights movement.

Many feel that the environmental justice movement really began in 1982 in Warren County, North Carolina—a small, predominantly African-American and low-income community.¹⁷ The State of North Carolina decided to build a toxic waste landfill for the disposal of PCB-contaminated soil in Warren County. Civil rights and environmental activists collaborated to stage many demonstrations, resulting in the arrests of over 500 people.

Soon after the Warren County protests, at the request of Congressman Walter Fauntroy, the U.S. General Accounting Office conducted a study of the states in EPA Region IV (southeastern states) and found that three out of every four landfills were located near predominantly minority communities.¹⁸ In 1987, a Commission on Racial Justice Report suggested that the most significant factor in determining the siting of hazardous waste facilities was race and also found that three out of every five African-Americans and Hispanics lived in a community buttressing unregulated toxic waste sites.¹⁹ Soon after, the National Law Journal conducted a study that found that the EPA took 20 percent longer to place abandoned sites in minority communities on the national priority clean-up list, and that polluters of those neighborhoods paid fines that were 54 percent lower than polluters of white communities.²⁰

Responding to these and other studies and to growing grassroots activism, the U.S. EPA began to examine claims that low-income and minority communities were being subjected to greater environmental risk. Activists convened in 1991 to hold the first National People of Color Environmental Leadership Summit. In 1994, President Clinton signed Executive Order 12898, requiring federal agencies to carry out their activities in a way that avoids disproportionately high and adverse health and environmental impacts on low-income and minority populations. Since the signing of Executive



RESOURCE

The book *Just Transportation* describes the historical context of the current environmental justice movement. It also describes several prominent cases of transportation injustice around the country that have reinvigorated the movement in recent years. *Just Transportation: Dismantling Race and Class Barriers to Mobility*, Bullard, Robert D. and Glenn S. Johnson (Editors), New Society Publishers, 1997.

Order 12898, federal, state, and local agencies have been working to establish environmental justice policies and better incorporate these principles into their activities.

2.2 Title VI of the Civil Rights Act

Description of Title VI

Title VI of the 1964 Civil Rights Act provides one of the principle legal underpinnings for environmental justice. It states that “No person . . . shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.” Title VI prohibits recipients of Federal funds from actions that reflect “intentional discrimination” or that exhibit “adverse disparate impact discrimination” on the basis of race, ethnicity or national origin.²¹

The Civil Rights Restoration Act of 1987 amended Title VI so that recipients of federal aid must comply with the non-discriminatory requirements in all their activities, not just the programs and activities that directly receive Federal support. That is, a government agencies that receive any federal funds must avoid discriminatory impacts not only when setting policy for federally funded programs (such as interstate highway improvements), but also for programs that are entirely state or locally funded, such as school bus service. Later statutes prohibit discrimination on the basis of sex, religion, or disability.

Federal and state agencies implement Title VI through their own regulations. For example, FHWA first adopted Title VI regulations in 1970.²² People fighting perceived environmental injustice may be able to invoke Title VI administratively (i.e., not through the courts) by filing a complaint with an agency’s Title VI office.

Title VI Enforcement

In order to ensure that this mandate is followed within transportation agencies, the U.S. DOT has developed Title VI regulations addressing oversight, complaint procedures, and enforcement actions. The following summary of the regulations is taken from National Cooperative Highway Research Program (NCHRP) Report 8-36 (11).

Compliance and Oversight: The U.S. Department of Transportation (U.S. D.O.T.) Title VI regulations require recipients of federal assistance to implement compliance programs designed to ensure non-discrimination. Key elements include:

Assurances: Every application for U.S. DOT financial assistance must include assurances that the applicant will comply with the department’s Title VI regulations.

Certification: Every application by a state agency (e.g., a state DOT) to carry out a program involving continuing federal assistance must include a statement that the program is being carried out in accordance with the Title VI regulations.

U.S. DOT-Approved Methods of Administration: Every application by a state agency (e.g., a state DOT) to carry out a program involving continuing federal assistance must provide for “methods of administration” that the U.S. DOT finds will give a “reasonable guarantee” of compliance with the Title VI regulations.

Compliance Reports: Each recipient of federal assistance must submit compliance reports” to the U.S. DOT containing information sufficient to enable U.S. DOT to determine whether the recipient is complying with the Title VI regulations.

Access to Documents and Information: Each recipient of federal assistance must give the U.S. DOT access to the recipient’s “books, records, accounts, and other sources of information” and to its facilities as necessary to allow the U.S. DOT to assess the recipient’s compliance with the Title VI regulations. In addition, each recipient must make available to “participants, beneficiaries, and other interested persons” information apprising them of the protections afforded under Title VI and the Title VI regulations.

Oversight: The U.S. DOT is required to review recipients’ practices “from time to time... to determine whether they are complying with this part.”

Administrative Complaint Procedures: The Title VI regulations establish procedures for investigations by U.S. DOT of alleged Title VI violations. Key elements include:

Complaints Filed by Private Parties: “Any person” who believes he or she has been subjected to discrimination in violation of Title VI or the U.S. DOT Title VI regulations may file a complaint with the U.S. DOT. The complaint must be filed within 180 days after the date of the alleged discrimination, unless the U.S. DOT agrees to extend the deadline.

Investigations Conducted by U.S. DOT: The U.S. DOT is required to make a “prompt investigation” when a complaint, compliance review, report, or other information “indicates a possible failure to comply” with the Title VI regulations.²³

In addition to these administrative enforcement procedures, Title VI may also be enforced through court action. Almost immediately after passage, Title VI was featured as a basis for lawsuits opposing the construction of federally funded highways.²⁴ Title VI prohibits intentional discrimination, and the right of individuals to bring suit against government agencies that commit intentional discrimination is well-established. Some earlier court cases, notably *Guardians Association v. Civil Service Commission of New York* (1983) and *Alexander v. Choate* (1985) also set a precedent that individuals could bring suit if government

actions result in discriminatory effects (called disparate impacts), even if these effects were not intentional. As a result of these decisions, environmental justice advocates increasingly pursued discriminatory-impact challenges on a variety of issues, ranging from facility siting in minority neighborhoods to inequitable transportation spending.

Title VI Application to Transportation in the Los Angeles MTA Lawsuit

A lawsuit over investment policies of the Los Angeles Metropolitan Transit Authority (MTA) provides an example of how Title VI can apply to the activities of local transit agencies. In Los Angeles, people without cars and the working poor with limited access to cars are disproportionately low-income people of color, low-income women, the elderly and the disabled. For this population, affordable transit is a basic necessity. So when several MTA policy decisions threatened the future of this resource, a group of advocates filed suit, claiming both intentional and disparate impact discrimination.

A coalition of environmental justice advocates alleged that MTA did not provide low-income people and minority riders an equitable share of the system's services. These community groups enumerated ways that MTA spent large portions of its budget on rail projects that disproportionately benefited white, upper-income communities and on suburban buses that served primarily upper-income whites. For example, the suit alleged that MTA's buses accounted for 94 percent of its passenger trips, but that MTA was spending 70 percent of its budget on the six percent of its passenger-trips that occur by rail. In addition, MTA was accused of crowding levels of 140 percent of capacity on the buses, with no overcrowding of riders on MTA-operated rail lines and feeder buses. In 1996, a federal district court recognized the inequities in the Los Angeles transit system in an historic civil rights class action on behalf of 350,000 Los Angeles bus riders.²⁵

Under the terms of the consent decree that resulted from this case, MTA agreed to the largest settlement in civil rights history, committing to invest over one billion dollars in bus system improvements over 10 years. The MTA case represents the first time that Title VI was successfully used to challenge the spending priorities of a major transit agency.

Today, MTA's long-range plans, major capital projects, and annual budgets require a section addressing the needs of the transit-dependent. Furthermore, MTA is required to work with representatives of the bus riders to implement the decree over the next decade. Although there have been ongoing disagreements about the requirements of the consent decree, an additional order came from the court on August 31, 2001 rejecting an appeal by MTA and forcing MTA to buy hundreds of new buses to relieve overcrowding throughout Los Angeles County.²⁶

Changes in Title VI Enforcement Based on Recent Court Decisions

The case against the Los Angeles MTA claimed both disparate impact, and intentional discrimination. However, as described below, two recent court decisions appear to have limited the ability of private parties (such as the advocacy organizations that brought suit against the MTA) to invoke Title VI in suits against government actions that cause “disparate impacts.”

Alexander v. Sandoval Decision

On April 24, 2001, the U.S. Supreme Court issued an historic 5-4 decision in *Alexander v. Sandoval*.²⁷ The majority opinion, written by Justice Scalia, held that Congress did not intend private individuals to be able to bring suits to enforce discriminatory-impact (or disparate-impact) regulations under Title VI. The opinion held that Title VI was designed to eradicate discrimination in programs funded by the federal government. *The New York Times* described the decision as substantially limiting the “effectiveness of one of the most important civil rights laws” and *Governing* magazine called it a “devastating blow to the environmental justice movement.”

Sandoval stemmed from Alabama’s decision to administer state driver’s license exams only in English. Sandoval and other Spanish-speaking plaintiffs challenged this policy, arguing that it violated Department of Justice discriminatory-impact regulations promulgated under Title VI. Plaintiffs had won in both lower courts. After *Sandoval*, private individuals can no longer bring such lawsuits. Now, said the Court, litigants must prove “intentional discrimination.” Justice Stevens, in a rare oral reading of his dissent from the bench, called the decision “unfounded in our precedent and hostile to decades of settled expectations.”

South Camden Decision

The Supreme Court’s decision in the *Sandoval* case did not resolve the question of whether private plaintiffs may bring the equivalent of Title VI disparate-impact claims under a separate statute, 42 U.S.C. §1983. A rapid response to the Supreme Court was provided by *South Camden Citizens in Action v. New Jersey Department of Environmental Protection*. In this case, citizens were suing over a decision to permit a new cement mixing facility in the racially diverse community of South Waterfront, where there were many existing manufacturing facilities. Judge Orloffsky ruled that despite the conclusions in the *Sandoval* case, citizens could pursue their Title VI discrimination under 42 U.S.C. §1983.²⁸

The U.S. Court of Appeals for the Third Circuit overturned this decision in 2002. In this ongoing legal battle, the Community of Waterfront South plans to appeal the decision and seek further review, claiming that there are legal precedents in other circuits to support their case.

Implications of Recent Court Decisions

For the time being, the *Sandoval* and *South Camden* decisions have limited the role that citizens play in preventing environmental injustices caused by disparate

impacts. However, Title VI is deceptively complex, and its interpretation by the courts may change in the future. Justice Scalia himself noted that “[a]lthough Title VI has often come to this Court, it is fair to say (indeed, perhaps an understatement) that our opinions have not eliminated all uncertainty regarding its commands.”²⁹

Neither the *Sandoval* nor the *South Camden* decisions affect federal and state agencies who themselves may continue to penalize recipients of funds who fail to prevent discriminatory effects. In fact, many federal and state agencies (such as the U.S. DOT) have adopted implementing regulations that prohibit funding of programs with racially discriminatory effects or impacts (i.e., funding can be prohibited even where discrimination is unintentional).³⁰ In addition, these recent court decisions do not affect private parties’ ability to file administrative complaints with U.S. DOT.

2.3

Federal Orders and DOT Guidance

Executive Order 12898

Environmental justice was first identified as a national policy in 1994 when President Clinton signed Executive Order 12898 (E.O. 12898), *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This order requires that each federal agency shall, to the greatest extent allowed by law, administer and implement its programs, policies, and activities that affect human health or the environment so as to identify and avoid “disproportionately high and adverse” effects on minority and low-income populations. E.O. 12898 thus applies to a wider population than Title VI, which does not cover low-income non-minority populations.

Each federal agency and department was instructed to develop a strategy to address E.O. 12898, including the following actions:

- Identify activities that should be revised to promote enforcement of all health and environmental statutes in areas with minority and low-income populations,
- Improve public participation by minority and low-income populations,
- Improve data collection and research related to the health and environment of minority and low-income populations, and
- Identify differential consumption patterns of natural resources by minority and low-income populations.

An interagency working group, led by the Environmental Protection Agency (EPA), was established to oversee the implementation of E.O. 12898. The Order itself does not create any new legal rights and is not enforceable in court. Rather, it is intended to focus federal agencies on the existing regulations, such as Title VI and the National Environmental Policy Act (NEPA), that protect low-income and minority communities from discrimination and ensure their full participation.

DOT Order on Environmental Justice

DOT Order 5610.2

In April 1997, the U.S. Department of Transportation issued the *Order To Address Environmental Justice in Minority Populations and Low-Income Populations* (DOT Order 5610.2).³¹ As the U.S. DOT's response to Executive Order 12898, it generally describes the process for incorporating environmental justice principles into DOT programs, policies and activities. The objective of the Order is to ensure that the interests and well being of minority populations and low-income populations are considered and addressed during transportation decision making, and to achieve this by working within the existing statutory and regulatory requirements. Like E.O. 12898, the DOT Order does not create a new set of requirements for state and local agencies, but is intended to reinforce considerations already embodied in existing law, such as NEPA and Title VI. The Order states that DOT will not carry out any programs, policies or activities that will have a disproportionately high and adverse effect on minority populations or low-income populations unless "further mitigation measures or alternatives that would avoid or reduce the disproportionately high and adverse effect are not practicable."

The DOT order also suggests that "offsetting benefits" should be addressed when assessing effects on low-income and minority populations. Considering offsetting benefits can ensure that projects having a net benefit for these communities are not foregone because of analyses that consider negative impacts alone. For example, a transit project serving a low-income community may cause unavoidable noise impacts, but the community may feel that the access benefits that it affords outweigh these noise impacts. Input from the community becomes particularly crucial when considering determinations related to offsetting benefits.

Clarification Memorandum

The U.S. DOT issued a memorandum in October 1999 to clarify the original DOT order.³² This memorandum states that the appropriate time to ensure compliance with Title VI in the planning process is during the certification reviews conducted for metropolitan planning organizations (MPOs) and through the state wide planning finding rendered at approval of the Federal Statewide Transportation Improvement Program (FSTIP). MPOs are responsible for certifying themselves. In this process, they are expected to demonstrate that they have complied with Title VI requirements. The U.S. DOT 1999 memorandum specifically requests that the FHWA division offices, jointly with FTA regional offices, review and document Title VI compliance when making the finding (required under TEA-21) that FSTIP development and the overall planning process is consistent with the planning requirements. (See Section 4.10 for a discussion of the certification process and a list of environmental justice issues considered during certification review.)

FHWA Order on Environmental Justice

The Federal Highway Administration (FHWA) issued its own order on environmental justice in December 1998, implementing the principles of the DOT Order 5610.2 and E.O. 12898 in all FHWA programs, policies, and activities.³³ The order specifically identifies the following information that should be obtained and analyzed when considering how environmental justice applies to FHWA activities:

- (1) The race or national origin and income level of the population served and/or affected;
- (2) The proposed steps to guard against disproportionately high and adverse effects on persons on the basis of race or national origin; and
- (3) The present and proposed membership by race or national origin in any planning or advisory body that is part of the program.

In the Order, FHWA commits to taking the following steps to prevent disproportionately high and adverse effects:

- (1) *Identifying and evaluating* environmental, public health and interrelated social and economic effects of FHWA programs, policies and activities;
- (2) *Proposing measures to avoid, minimize and/or mitigate* disproportionately high and adverse environmental and public health effects and interrelated social and economic effects, and *providing offsetting benefits* and opportunities to enhance communities, neighborhoods and individuals affected by FHWA programs, policies and activities, where permitted by law and consistent with E.O. 12898;
- (3) *Considering alternatives* to proposed programs, policies and activities, where such alternatives would result in avoiding and/or minimizing disproportionately high and adverse human health or environmental impacts, consistent with E.O. 12898; and
- (4) *Providing public involvement opportunities* and considering the results thereof, including providing meaningful access to public information concerning the human health or environmental impacts and soliciting input from affected minority and low-income populations in considering alternatives during the planning and development of alternatives and decisions.

If it is determined that some activity will have disproportionately high and adverse effects on minority or low-income populations, the FHWA Order calls for mitigation measures or alternatives that would avoid or reduce such adverse effects wherever practicable. FHWA may only carry out actions with disparate impacts where there is a substantial need for the program, policy or activity and where alternatives without disparate effects would also have adverse social, economic, environmental or human health impacts that are more severe or would involve an extraordinary increase in costs.

Additional U.S. DOT Guidance

FHWA and the Federal Transit Administration (FTA) provide other forms of informal guidance to state and local transportation agencies seeking to implement the principles of environmental justice. Much of this guidance is available on their shared environmental justice Internet site, including the following (see <<http://www.fhwa.dot.gov/environment/ej2.htm>>):

State Departments of Transportation (DOTs)

“State DOTs are at the heart of planning, design, construction and operations and maintenance projects across all travel modes. They can successfully integrate Title VI and environmental justice into their activities when they:

- Develop the technical capability to assess the benefits and adverse effects of transportation activities among different population groups and use that capability to develop appropriate procedures, goals and performance measures in all aspects of their mission.
- Ensure that State Transportation Improvement Program findings of statewide planning compliance and NEPA activities satisfy the letter and intent of Title VI requirements and environmental justice principles.
- Enhance their public-involvement activities to ensure the meaningful participation of minority and low-income populations.
- Work with Federal, State, local and transit planning partners to create and enhance intermodal systems, and support projects that can improve the natural and human environments for low-income and minority communities.”

Metropolitan Planning Organizations (MPOs)

“MPOs serve as the primary forum where State DOTs, transit providers, local agencies, and the public develop local transportation plans and programs that address a metropolitan area's needs. MPOs can help local public officials understand how Title VI and environmental justice requirements improve planning and decision-making. Note: Regional Transportation Planning Agencies (RTPAs) in California perform the same planning and programming functions in rural areas that MPOs perform in urbanized areas. RTPAs are also bound by Title VI and other laws. To certify compliance with Title VI and address environmental justice, MPOs and RTPAs need to:

- Enhance their analytical capabilities to ensure that the long-range transportation plan and the transportation improvement program (TIP) comply with Title VI.
- Identify residential, employment, and transportation patterns in low-income and minority populations so that their needs can be identified and addressed, and the benefits and burdens of transportation investments can be fairly distributed.

- Evaluate and - where necessary - improve their public involvement processes to eliminate participation barriers and engage minority and low-income populations in transportation decision-making.”

Transit Providers

“Public transit agencies provide an essential service for many low-income and minority populations who have no other way to get to work, shopping, child care, medical appointments, recreation, or other destinations. Transit agencies support Title VI and environmental justice principles when they:

- Ensure that new investments and changes in transit facilities, services, maintenance, and vehicle replacement deliver equitable levels of service and benefits to minority and low-income populations.
- Avoid, minimize or mitigate disproportionately high and adverse effects on minority and low-income populations.
- Enhance public involvement activities to identify and address the needs of minority and low-income populations in making transportation decisions.”

FHWA and FTA have prepared an Effective Practices booklet that provides practical examples relevant to an array of practitioners on how environmental justice has been integrated into transportation programs, policies, plans and activities. This booklet is available on CD ROM and will soon be available on the FHWA and FTA environmental justice Internet site (see box).

FHWA and FTA also publish *Transportation & Environmental Justice Case Studies*, a list of 10 cases drawn from all aspects of transportation decision making involving issues related to early public involvement, MPO and RTPA regional coordination, data sources, and analytical techniques.³⁴

RESOURCE

FHWA and FTA maintain an environmental justice Internet site with rules and regulations, case studies, best practices, and extensive links to other Internet sites and tools about environmental justice, community impact assessment, public involvement and transportation. <www.fhwa.dot.gov/environment/ej2.htm>



2.4

National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) is the nation’s core environmental statute. Because environmental justice is often addressed under NEPA processes, it is important for transportation professionals and interested citizens to understand NEPA. NEPA’s requirements are deceptively simple: for every “major federal action significantly affecting the quality of the human environment,” the responsible federal agency must evaluate the environmental impacts of that action. This applies to projects receiving federal funding as well as projects that require any type of federal permit approval.

NEPA Process

The documentation prepared under NEPA generally falls within one of three possible types: (1) a Categorical Exclusion (CE) for those actions that have been deemed legislatively or administratively exempt from NEPA; (2) an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for actions that will not result in adverse environmental effects; and (3) an Environmental Impact Statement (EIS) for actions that will potentially involve adverse environmental effects. The level of documentation typically depends on the scope of the proposed action and the relative probability and intensity of potential environmental effects resulting from that action. While NEPA documentation is highly procedural, it requires the use of various data and can involve FHWA in issuing a Record of Decision that explains the basis for the preferred alternative, approves a project's location along with any commitments. The documentation required under NEPA has in practice been used by project opponents to delay, change, or block projects.

The relationship between the NEPA process and environmental justice involves both substantive and procedural considerations. In terms of substance, NEPA documents assess the effects of a proposed action on environmental elements such as air quality, noise, and water quality, and also take into account socioeconomic and community effects, including effects on minority and low-income populations. Procedurally, NEPA includes public involvement and community outreach requirements throughout the entire environmental documentation process, from initial project scoping to circulation of the draft and final environmental documents for public review and comment.

DOT and FHWA Orders identify NEPA as an existing requirement, through which environmental justice should be considered for transportation projects with federal involvement, although the NEPA statute does not specify how an EA or EIS should address environmental justice impacts. However, recent federal documents (discussed below) provide some guidance for public agencies considering environmental justice under NEPA. Further guidance may become available as DOT proceeds with the rule-making process for new regulations implementing NEPA.³⁵ In the interim, the FHWA Western Resource Center has issued informal guidance for transportation practitioners seeking to incorporate environmental justice in NEPA documents (described below).

Council on Environmental Quality Guidance

The Council on Environmental Quality (CEQ), an advisory body in the Executive Branch, has developed guidance for implementing environmental justice under NEPA.³⁶ Even though the guidance does not provide definitive answers to many of the analytical questions facing planners, it does provide some definitions that are widely used when assessing environmental justice in the environmental review process. Below are the definitions for minority individuals and minority populations.

Minority individuals are defined as members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black; or Hispanic.

Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. In identifying minority communities, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a geographically dispersed/transient set of individuals (such as migrant workers or Native American, where either type of group experiences common conditions of environmental exposure or effect. The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds.

It should be noted that while these are the official definitions for NEPA analyses, they may not be appropriate for assessing environmental justice issues in transportation plans, particularly in a state like California where minority individuals are the majority of residents. Chapter 4 and case studies in Chapter 6.2 describe how some agencies have used alternative methods for identifying “communities of concern” when considering transportation plan equity.

The CEQ defines low-income populations as follows:

Low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.

In practice, the two alternate criteria described above for identifying minority populations are often applied to determine low-income populations.³⁷

To determine disproportionate high and adverse impacts, the CEQ guidance requires consideration of factors such as the following:

- Whether the health effects are . . . above generally accepted norms;
- Whether the risk or rate of hazard exposure by a minority population, low-income population, or Indian tribe to an environmental hazard is . . . likely to appreciably exceed the risk or rate to the general population or other appropriate comparison group; and

RESOURCE

For a summary and critical assessment of the federal regulations on environmental justice and transportation, see Michael W. Steinberg's article in the Fall 2000 issue of the *Forum for Applied Research and Public Policy*.



- Whether health effects occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.

FHWA Western Resource Center EIS Guidance

The FHWA Western Resource Center, located in San Francisco, has issued Interim Guidance on addressing environmental justice under NEPA.³⁸ This 2-page guidance document is intended as an interim measure until formal agency guidance is available. It describes where in an EA or EIS environmental justice should be discussed.

Parts of the guidance echo the CEQ guidance, such as the definition of minority populations. In order to identify low-income populations, the guidance recommends using U.S. Department of Health and Human Services poverty guidelines. In 2002, the poverty threshold is \$18,100 for a family of four. Figures are updated annually and are available on the Internet.³⁹

In the Comments and Coordination Section of an EA/EIS, the author should discuss the degree to which affected groups of minority and/or low-income populations have been involved in the decision making process related to the alternative selection, impact analysis, and mitigation. The document should describe the opinions of the communities related to these decisions and what steps are being taken to resolve any controversy that exists.

In terms of identifying adverse impacts, the guidance identifies the following steps:

- (1) Environmental justice considerations should be summarized under the EA/EIS Socio-Economic Consequences section. Specific beneficial and adverse impacts on the overall population and on low-income and minority populations should be addressed under the appropriate topic areas, such as air, noise, community cohesion, economic vitality, safety, etc.
- (2) The impacts of the project on minority and low-income populations should be compared to the impacts on the overall population within the project area.
- (3) Where there is adverse impact on any people, the EA/EIS should discuss what measures are being considered for mitigation, using avoidance first and then minimization and mitigation of the impacts.
- (4) If there are low-income or minority populations impacted by the project, the EA/EIS should identify whether the impacts are still adverse even after consideration of any mitigation.
- (5) If the impacts remain adverse after mitigation, the EA/EIS should determine whether they are disproportionately high and adverse after consideration of offsetting benefits.

The Interim Guidance defines a disproportionately high and adverse effect as an impact that “is appreciably more severe or greater in magnitude on minority or low-income populations than the adverse effect suffered by the non-minority or

non-low-income populations after taking offsetting benefits into account.” If such impacts exist, the EA/EIS should document how the impacts of the alternative could not be avoided or minimized, how the impacted communities were involved in the decision process, and what practicable mitigation commitments have been made. Furthermore, it must be demonstrated how other alternatives which would have a less adverse effect on minority and/or low-income populations are not practicable because they would either not satisfy the project needs, have more severe adverse impacts, or that the social, economic, environmental, or human health impacts of the other alternatives reach costs of extraordinary magnitudes.

Community Impact Assessment

An important element of the environmental review process is the Community Impact Assessment (CIA). CIA is a process of understanding potential social and economic impacts of proposed transportation activities on affected communities, as opposed to the “purely environmental” impacts like air quality or noise. Because social and economic impacts are often central to environmental justice concerns, CIA is closely related to environmental justice assessments, although CIA does not necessarily examine the *distribution* of impacts across racial and income groups.

Under NEPA, social and economic effects by themselves do not trigger the requirement for an EIS. But when an EIS is prepared, social and economic effects must be documented if they are interrelated with natural or physical environmental effects, as is often the case. In an EA or EIS for a highway project in California, the CIA is typically a separate technical report prepared in conjunction with the NEPA document. It is then summarized in the main environmental document.

Although it has existed since the passage of NEPA, CIA has received considerable attention in the last five years. FHWA issued a CIA guidance document in 1996, *Community Impact Assessment: A Quick Reference for Transportation*. FHWA has also established an Internet site devoted to CIA with links to resources (including the 1996 FHWA guidance document), conferences, and training classes.

RESOURCE



FHWA has established an Internet site devoted to community impact assessment with links to resources, conferences, and training classes: <www.ciatrans.net>. Caltrans has developed a *Community Impact Assessment Handbook*, available on the Internet at <<http://www.dot.ca.gov/ser/>>.

2.5

Other Relevant Federal Regulations

A number of other federal actions, while not specifically mentioning environmental justice, may influence how public officials address low-income and minority communities in transportation planning and project implementation. For example, ISTEA and TEA-21 both reinforce the need for strong public participation and proper consultation with Native American Tribal Governments in transportation planning.

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

Known more briefly as the Uniform Act, this law requires uniform and equitable treatment of persons displaced from their homes or businesses by federally assisted programs, such as transportation funding. It also establishes uniform and equitable land acquisition policies.

Federal-Aid Highway Act of 1970

This act established further basis for equitable treatment of communities being affected by transportation projects. Agencies must assure that the adverse economic, social, and environmental effects of a federally-supported highway project have been fully considered in developing the project, and that the final decisions on the project are made in the best overall public interest, taking into consideration the need for fast, safe and efficient transportation, public services, and the costs of eliminating or minimizing such adverse effects.⁴⁰

Americans with Disabilities Act of 1990

Americans with Disabilities Act (ADA) extends the discrimination protection of the 1964 Civil Rights Act to persons with disabilities. Providers of transportation services and infrastructure must involve the disabled community when designing facilities and services to ensure they are accessible. For example, an agency involved in a roadway improvement project should involve the disabled community when designing sidewalks, ramps, street crossing and parking facilities. Transit agencies should consider disabled person access to vehicles and stations.⁴¹

Executive Order 13166

Improving Access to Services for Persons with Limited English Proficiency (Executive Order 13166) was issued by President Clinton in August 2000. It requires federal agencies to “develop a system by which limited English proficiency (LEP) persons can meaningfully access . . . services with, and without unduly burdening, the fundamental mission of the agency.”⁴² Federal agency response to this order has included arrangements for oral language assistance, translating vital documents in languages other than English, and training staff to serve non-English speakers.

2.6

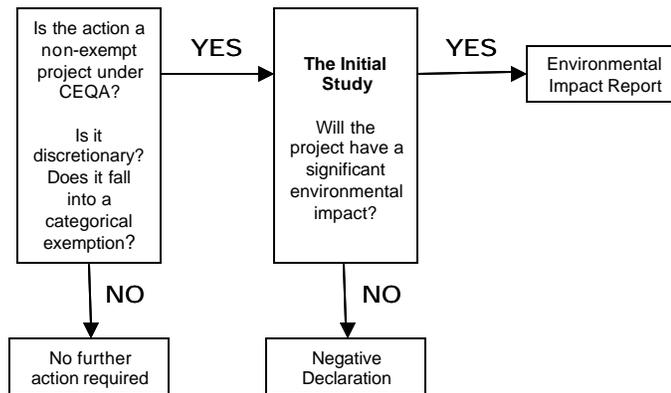
California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) was enacted in 1970, just one year after Congress enacted its predecessor statute, NEPA.⁴³ CEQA requires government agencies in California to identify the significant environmental impacts of their actions, and avoid or mitigate those impacts if possible.^{44 45} It applies to all local, regional, and state agencies, boards and commissions in the state. Similar to NEPA, CEQA applies not only to projects receiving state funding but also to projects requiring discretionary government approval.

CEQA Process

CEQA requires that public agencies refrain from approving projects with significant environmental effects if there are feasible alternatives or mitigation measures that can substantially lessen or avoid those effects, unless there are overriding reasons to the contrary. An initial study determines if the action will result in significant adverse effects. If not, a Negative Declaration is issued. Otherwise, an Environmental Impact Report (EIR) must be prepared (see Figure 2.1).

Figure 2.1
The CEQA Process ⁴⁶



Currently there is no requirement or specific guidance for addressing environmental justice under CEQA, although such guidance is expected in the future (see discussion of Senate Bill 115 below). However, like NEPA, CEQA requires an assessment of the effects of a proposed action on environmental elements such as air quality, noise, and water quality, and therefore is sometimes the most appropriate avenue for considering environmental justice issues should they exist. Practitioners may find helpful guidance in the CEQ guidelines (discussed on Section 2.5 and available on the Internet at <http://ceq.eh.doe.gov/nepa/regs/EJ/justice.pdf>) until specific environmental justice guidance is incorporated into the CEQA Guidelines.

Differences from NEPA

Socioeconomic impact assessment may be required under CEQA, but under fewer circumstances than for NEPA. Under CEQA, socioeconomic impacts should be considered in determining whether a physical change is significant. For example, if the construction of a new freeway will divide a community, the construction would be the physical change and the social effect would be a basis for determining if the effect is significant. Also, if a physical change will create related socioeconomic effects that themselves cause secondary physical effects, then those socioeconomic effects can be assessed. For example, if a new highway into an undeveloped area (a physical change) results in population growth (a socioeconomic effect) that then creates a need for the construction of new schools (a secondary physical effect), then these socioeconomic effects must be considered in an EIR.

For California highway projects, a joint CEQA-NEPA document is often prepared. A Community Impact Assessment (CIA) is usually prepared as a separate technical report for review by both California Department of Transportation (Caltrans) and FHWA, even though not all of the effects studied in the CIA are necessarily applicable to the CEQA portion of the overall environmental document. In the environmental review for other California “non-highway” transportation projects (e.g., bus and rail transit, commuter rail, airports, seaports), the separate CIA is typically not prepared, but the NEPA document does include a section for social and economic effects. The need for a CIA technical report is discussed in the Department’s *Community Impact Assessment Handbook*.

CEQA places more emphasis on the mitigation of adverse impacts. Whereas NEPA only requires disclosure of impacts and potential mitigations, CEQA requires that impacts be mitigated to “less than significant” levels unless the agency makes a finding of “overriding consideration.”⁴⁷

Exempted Transportation Activities

Since the passage of CEQA, a number of statutory exemptions have excluded certain transportation activities from the CEQA requirements, including the following:

- CEQA does not apply to the designation and acquisition of property for designated transportation corridors of statewide or regional priority as provided in regional transportation plans by Caltrans and regional transportation planning agencies, provided certain requirements are met.⁴⁸
- Specified mass transit projects are exempt from CEQA, including new or increased existing passenger or commuter service on rail lines or high-occupancy vehicle lanes, which includes the modernization of existing stations and parking facilities.
- Transit facility extensions are exempt from CEQA if they do not exceed four miles in length and are required for the transfer of passengers from or to exclusive public mass transit guide-way or bus-way public transit services.⁴⁹
- CEQA does not apply to a Regional Transportation Improvement Program (RTIP) or the State Transportation Improvement Program (STIP) but is applicable to a Regional Transportation Plan (RTP) and individual projects that are developed pursuant to these programs.
- CEQA does not apply to the preparation and adoption of a congestion management program by a county congestion management agency.⁵⁰
- CEQA does not apply to transit agency responses to revenue shortfalls during a “fiscal emergency.”⁵¹

Major Court Cases Involving CEQA and Transportation

Ralph W. Keith v. Volpe (Century Freeway)

The litigation over the construction of the Century Freeway is a well-known example of the application of CEQA to a transportation project and environmental justice. The Century Freeway (Interstate 105) consists of 17.3 highway miles routed through some of the most economically depressed areas in Los Angeles County.⁵² The path of the proposed freeway adversely affected housing stock in “predominantly low-income and minority communities.”⁵³ The construction of the freeway was vigorously opposed by the corridor residents, who sought a preliminary injunction on the grounds that federal and state authorities had failed to comply with NEPA, CEQA, Federal Highway Act, and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

This litigation concerned, among other things, the freeway’s potential for noise, air pollution, and impact on the availability of affordable housing. The court halted work on the proposed freeway until the federal defendants prepared an environmental impact statement (EIS) pursuant to NEPA and the state defendants prepared an environmental impact report (EIR) statement pursuant to CEQA, held additional public hearings, complied with certain federal regulations and conducted additional housing availability studies. Ultimately, a consent decree was issued in 1981 that halted litigation to block the freeway project in consideration for a comprehensive program to ameliorate the negative economic, social, and environmental impacts of the proposed freeway. The decree required that the state and federal defendants provide 3,700 housing units for displaced residents.⁵⁴

City of South Pasadena v. Slater (Long Beach Freeway)

A more recent legal interpretation of CEQA as it applies to transportation projects and environmental justice involves the extension of the Long Beach Freeway. Plans to extend the I-710 Long Beach Freeway by 4.5 miles were opposed by East Los Angeles residents. They filed a federal lawsuit brought under several causes of action, including CEQA, alleging the design of the roadway discriminates against Latinos.⁵⁵ While California Department of Transportation plans to cover the freeway or run it underground through the predominately white areas of Pasadena, it will run above ground in El Sereno, which is more than 90 percent Latino. The neighborhood argues that the Department’s plan exposes El Sereno residents to disproportionate environmental, safety, and other problems. The Department counters that the topography makes it difficult, if not impossible, to build the freeway underground and that the agency is providing other mitigating measures, such as landscaping and sound walls.

The lawsuit resulted in a court order that requires the state defendants to prepare an EIS and EIR complying with NEPA and CEQA, respectively, in addition to holding public hearings complying with Section 128 of the Federal-Aid Highway

Act.⁵⁶ In the court’s conclusions of law, the judge stated that there were many serious environmental and livability impacts that occur when commuter traffic circulates on local residential streets – particularly minor streets that are not designed for the safe handling of high volumes of through traffic.⁵⁷

2.7

Recent California Legislation

The State of California has enacted a number of laws addressing environmental justice over the last three years. Additional bills are under consideration by the current legislature.

SB 115 (Solis)

Senate Bill 115 (Chapter 690, Statutes of 1999) was signed into law by Governor Davis in 1999 after a series of earlier environmental justice bills were vetoed by Governor Wilson.⁵⁸ SB 115 was the first California bill to explicitly define environmental justice and to enact environmental justice policy into California’s statutes. The bill defines environmental justice as “the fair treatment of people of all races, cultures and incomes with respect to the development, adoption, implementation and enforcement of environmental laws, regulations and policies.”⁵⁹ Under this legislation, the Governor’s Office of Planning and Research (OPR) is authorized to coordinate environmental justice programs in the state. As part of this effort, OPR and the Secretary of Resources have been given responsibilities to amend the CEQA guidelines to add environmental justice to the list of considerations that need to be taken into account when preparing EIRs. SB 115 broadly requires that all agencies under California’s Environmental Protection Agency (Cal EPA) conduct their programs, policies and activities that substantially affect human health or the environment in a way that ensures the fair treatment of people of all races, cultures and income levels, including minority and low-income populations of the state.

RESOURCE

An article by Ellen M. Peter in the Spring 2001 *Golden Gate University Law Review* provides a good description of the California legislation addressing environmental justice, the debates that ensued during the consideration of each bill, and the efforts of state agencies to implement environmental justice obligations.



SB 89 (Escutia)

Under Senate Bill 89 (Chapter 728, Statutes of 2000), the California Environmental Protection Agency is required to develop an agency-wide environmental justice strategy.⁶⁰ Specifically, Cal EPA is required to convene a working group on environmental justice, a group that is intended to assist the agency by identifying any gaps in existing programs and activities that could impede the achievement of environmental justice.⁶¹ The agency’s working group is charged with identifying those minority and low-income areas of the state that suffer disproportionately high adverse health and environmental impacts.⁶² Agencies within the working group have since been conducting public hearings and compiling data for the purpose of creating an environmental justice strategy to ensure that environmental justice principles are upheld. Activities of the working group are described in greater detail in Section 2.9 below.

AB 1553 (Keeley)

Assembly Bill 1553 (Chapter 763, Statutes of 2001) requires the Governor's Office of Planning and Research to adopt guidelines for the amendment of city and county general plans that address environmental justice issues.⁶³ The guidelines will be advisory and not mandatory. The guidelines will advise localities on how to plan new public facilities and industrial facilities so that they are allocated fairly among all neighborhoods, irrespective of race, income or culture.⁶⁴

AB 1390 (Firebaugh)

Assembly Bill 1390 (Chapter 762, Statutes of 2001) extends until January 1, 2007 a policy enacted in the 2001-02 state budget that directs air districts to focus on diesel emissions in environmental justice communities.⁶⁵ Specifically the bill requires that air districts target funding for three diesel emission reduction programs in environmental justice communities. This bill exempts small air districts from this requirement, and also makes federal agencies eligible to receive grants to purchase zero emission vehicles that would be located in low-income and minority communities.

SB 828 (Alarcón)

Senate Bill 828 (Chapter 765, Statutes of 2001) adds due dates for developing an interagency environmental justice strategy affecting the boards, departments and offices within the California EPA.⁶⁶ The bill also directs Cal EPA to review, identify and address program obstacles impeding environmental justice by December 31, 2003.

2.8

California Agency Administrative Efforts

Department Directives

The California Department of Transportation is acting on several fronts to ensure that environmental justice receives appropriate consideration in transportation activities. The agency instituted two new policies on November 5, 2001. Director's Policy #21 formally incorporates environmental justice into all the Department's programs, policies and activities. Notably, this policy directs all managers and supervisors to "exemplify and actively support environmental justice, and ensure that their subordinates understand and comply with departmental policies regarding environmental justice." Deputy Directive #DD-63 reiterates the environmental justice definition established in SB 115 and identifies more specific responsibilities for various Department Deputy Directors, Division Chiefs, and Deputy District Directors. It states the Department will:

- Avoid, minimize, or mitigate any disproportionate adverse impacts of plans and projects on minority and/or low-income populations.

- Provide equitable transportation services to the public, including minority and low-income populations.
- Strive for a balance of transportation investments, economic prosperity, and environmental protection.
- Include the public, including minority and low-income populations, in transportation investment decision-making from the early planning stages through construction, operations and maintenance.



RESOURCE

For more information on Caltrans Environmental Justice Grant Program, contact the Caltrans Division of Transportation Planning (DOTP) or obtain information and a grant application on the Internet at <<http://www.dot.ca.gov/hq/tpp/grants.htm>>.

On a statewide scale, the Department has funded an environmental justice (EJ) demonstration grant program. These one-time grants are intended to demonstrate the principles of environmental justice in transportation public involvement and decision-making. The Department has conducted workshops throughout the state to explain the grants and to provide information and guidance to transportation planners who are grappling with environmental justice issues. The EJ grants require a 10 percent local match, including up to 5 percent as in-kind contribution. Organizations eligible to apply for the grants include Metropolitan Planning Organizations, Regional Transportation Planning Agencies, cities, counties, transit agencies, private and non-profit organizations, community-based organizations, and Native American Tribal Governments.

The Department has also contracted with a planning consultant to promote more public participation in the agency's planning efforts, particularly among low-income, minority, Native American, and other under-served communities.

The Department's Division of Environmental Analysis has been active in promoting public involvement by low-income and minority populations through the community impacts assessment process. The Department's *Community Impact Assessment Handbook* is available on the Internet at <<http://www.dot.ca.gov/ser/>>. The Department's Division of Transportation Planning maintains a Native American Liaison Branch to promote and improve communication with Native American Tribal Governments. More information is available on the Internet at <http://www.dot.ca.gov/hq/tpp/offices/orip/na/native_american.htm>.

OPR/Cal EPA Interagency Working Group

The Governor's Office of Planning and Research conducts a number of functions including interagency coordination, local agency planning assistance, and the management of the state environmental review processes. Under Senate Bill 115, OPR is designated as the lead agency to coordinate environmental justice programs in the state. OPR's Internet site <<http://www.opr.ca.gov>> provides links to reports, databases, and other organizations related to environmental justice.

Senate Bill 89 requires the Secretary for Environmental Protection to convene a working group on environmental justice to assist the Cal EPA in developing an agency-wide strategy for identifying and addressing any gaps in existing programs, policies or activities that could impede the achievement of environmental justice. This working group is composed of the Secretary for Environmental Protection, the Chairs of the State Air Resources Board, the California Integrated Waste Management Board, the State Water Resources Control Board, the Director of Toxic Substances Control, the Director of Pesticide Regulation, the Director of Environmental Health Hazard Assessment and the Director of Planning and Research. The responsibilities of the working group are as follows:

- Examine existing data and studies on environmental justice, consulting with state, federal and local agencies and affected communities;
- Recommend criteria to the Secretary for Environmental Protection for identifying and addressing any gaps in existing programs, policies or activities that may impede the achievement of environmental justice;
- Recommend procedures and provide guidance to the Cal EPA for the coordination and implementation of intra-agency environmental justice strategies;
- Recommend procedures for collecting, maintaining, analyzing and coordinating information relating to an environmental justice strategy;
- Recommend procedures to ensure that public documents, notices and public hearings relating to human health or the environment are concise, understandable and readily accessible to the public (including guidance on when translation is appropriate);
- Hold public meetings to receive and respond to public comments regarding recommendations required pursuant to this section, prior to the finalization of the recommendations;
- Make recommendations on other matters needed to assist the agency in developing an intra-agency environmental justice strategy.

Following the requirements of Senate Bill 115, Cal EPA developed a model environmental justice mission statement which states that in order to “accord the highest respect and value to every individual and community, the California Environmental Protection Agency and its Boards, Departments and Offices shall conduct their public health and environmental protection programs, policies and activities in a manner that is designed to promote equality and afford fair treatment, full access and full protection to all Californians, including low-income and minority populations.”⁶⁷

OPR conducted a survey of state agencies and departments to identify programs or activities that may have a bearing on environmental justice. Based on these survey results, the working group is examining existing information, recommending identification criteria, holding public hearings, and recommending approaches for state agencies to establish procedures and

regulations on environmental justice. OPR has conducted a series of Environmental Justice Forums around the state to gather public input regarding environmental justice guidance for General Plans (required by AB 1553).

California Air Resources Board

Within Cal EPA, the California Air Resources Board (CARB) is responsible for a broad range of programs including pollution prevention, research, education, monitoring, and enforcement. On December 13, 2001, CARB adopted comprehensive environmental justice policies that are the product of nearly two years of effort by CARB staff in cooperation with the state's 35 local air pollution control districts, environmental and community groups, and industry representatives. The policies acknowledge the need to focus on outreach and education efforts, work with local air districts to meet health-based air quality standards and enforce emissions controls, consider cumulative impacts of pollution exposure, coordinate with local land use and transportation agencies, and support research which adds to our understanding of air pollution impacts, particularly for low-income and minority communities.⁶⁸

California Energy Commission

The California Energy Commission has recognized that the challenge of licensing new power plants involves complex issues relating to air and water quality, land-use planning, and environmental justice.⁶⁹ The Commission has organized an environmental justice roundtable to focus on the social, political, legal, scientific, and technical aspects of these issues. Through a series of public meetings, the Commission plans to bring together panels of scientists, environmentalists, consultants, developers, and the public to discuss a range of topics including demographic analysis, public participation, and health risk analysis and disproportionate impacts.

Incorporating Environmental Justice into Agency Activities

This section describes efforts to integrate environmental justice principles into the everyday workings of a public agency involved in transportation decisions. These efforts include agreement on agency policies, training for staff that must uphold those policies, and strategies for increasing public input and disadvantaged communities' role in agency decision-making. Although a number of the environmental justice policies and requirements described in Chapter 2 have been in existence for some time, it is only in the past several years that many California agencies have begun to adopt formal environmental justice policies, and have begun thinking about ways to integrate environmental justice into the full breadth and depth of their activities. This trend is likely to continue at an increasingly local scale as environmental justice becomes incorporated into California's General Plan Guidelines and cities and counties begin to address environmental justice explicitly within their local planning processes. At the moment, however, there is still a relatively narrow band of experience with implementing agency-wide approaches to environmental justice.

Readers of this guide are cautioned not to view the agency policies and practices suggested below and in other chapters as simply a sequence of tasks that will lead to compliance with environmental justice laws. In order to achieve environmental justice, planners and agencies should see environmental justice as a fundamental evolution in the way agencies operate. This means integrating the philosophy that transportation planning projects and policies are driven by communities. In addition, developing solutions that take distributive effects into account means that many projects and plans will follow a different course than they otherwise would have. Agencies need to anticipate that environmental justice policies and processes will change outcomes of the planning process. This is not to say that planners should stifle their own visions. Rather, planners should integrate fair distribution of benefits and burdens into how they solve problems and understand community goals, and the meaningful public dialog that is required for understanding these goals, forms the foundation for fair, successful, and achievable visions.

3.1

Developing Agency-Specific Environmental Justice Policies

A first step in addressing environmental justice is often the development of an agency policy on the topic. As discussed in Chapter 2, many state agencies have their own environmental justice policies, including the California Department of Transportation, the California Air Resources Board, and the California Energy Commission. Some local and regional agencies have also adopted environmental justice policy statements or principles including cities, counties, MPOs, RTPAs, and air quality districts.

A recent survey of city and county planning activities in California conducted by the Governor's Office of Planning and Research asked the following question:

Has your jurisdiction adopted policies, ordinances or regulations that ensure consideration of environmental justice and/or social equity issues (or that are intended to achieve the objectives of environmental justice and/or social equity) in land use planning and permitting decisions?

In response, 19 percent of cities (45 total) and 9 percent of counties (3 total) in California reported that they had adopted such policies, ordinances, or regulations.

Although developing a formal environmental justice policy is not required of local and regional agencies, many agencies feel that it is a vital step. Formal policies can make clear to all staff and the public that the agency's leaders are serious about considering environmental justice. An environmental justice policy statement should inherently follow, and build off of, relevant federal and state regulations and guidance. It should be specific enough that it makes clear what actions the agency will take, and not just be a bland recitation of federal and state goals and definitions. The policy should also be flexible enough to embrace new procedures that may apply in the future.

Staff at agencies that have adopted environmental justice policies have cautioned that agencies should not raise unrealistic expectations of low-income and minority groups regarding public involvement, analysis, or mitigations. Agencies should challenge themselves to support the principles of environmental justice, but should not adopt policies that the agency lacks the jurisdiction or capacity to support.



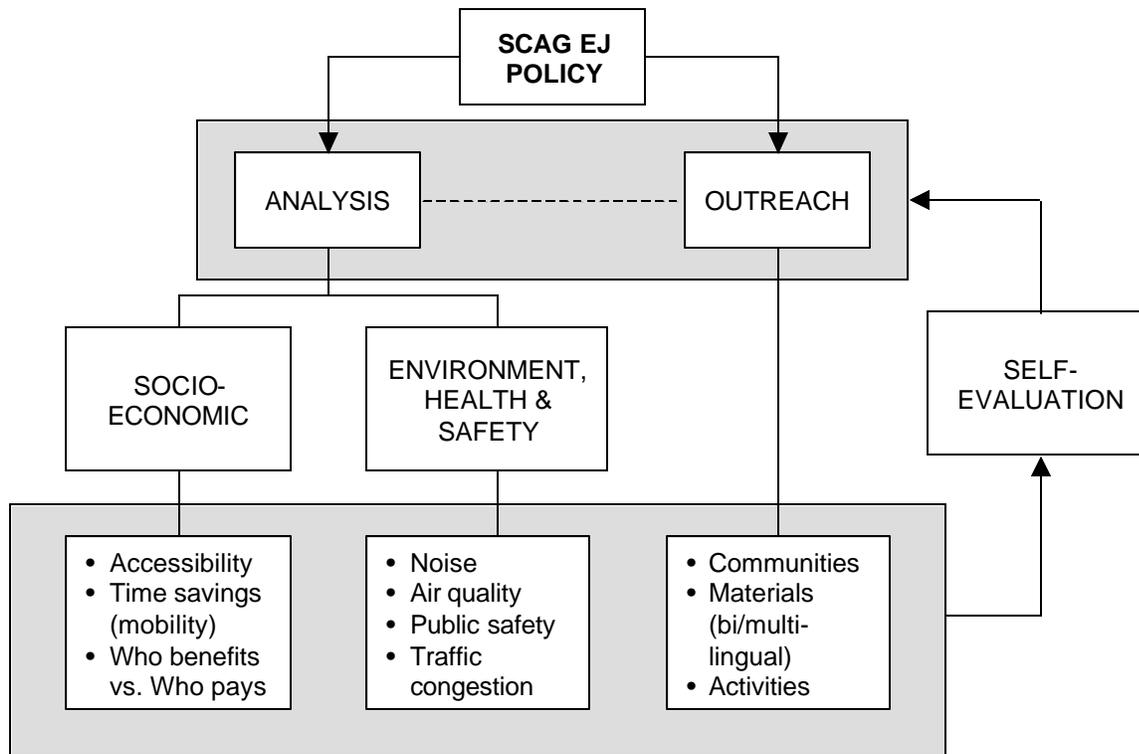
EXAMPLE
SCAG'S ENVIRONMENTAL JUSTICE POLICY

The Southern California Association of Governments (SCAG) has adopted "Compliance Procedures for Environmental Justice in the Planning Process." The document defines SCAG's environmental justice policy in the following six points:

- (1) SCAG is committed to being a leader among the nation's metropolitan planning organizations in its analysis of the environmental, health & safety, and economic impacts of its programs on minority and low-income populations.
- (2) SCAG will provide early and meaningful public access to decision making processes to all interested parties, including minority and low-income populations.
- (3) SCAG will seek out and consider the input of traditionally underrepresented groups, such as minority and low-income populations, in the transportation planning process.
- (4) When disputes arise, it is SCAG's adopted policy to make the fullest possible use of alternative dispute resolution (ADR) techniques, including mediation and consensus building.
- (5) When disproportionately high and adverse impacts on minority or low-income populations are identified, SCAG will take steps to propose mitigation measures or consider alternative approaches.
- (6) SCAG will continue to evaluate and respond as needed to environmental justice issues that arise during the implementation of regional plans.

The Procedures outline the specific activities that SCAG will take to adhere to this policy in the planning process, activities related to both public outreach and involvement and to equity analysis. These activities are shown schematically in Figure 3.1. The boxes at the bottom of this schematic list some examples of areas that may be addressed for any given plan or project. Discussion of specific analytical techniques is included in Chapter 4 and Chapter 6.2.

Figure 3.1
SCAG's Environmental Justice Program



3.2 Training and Education

Many public agencies may want to invest in staff training on environmental justice. Although environmental justice is not a new legal requirement and its principles have been around for years, transportation professionals may not be familiar with recent guidance documents, impact analysis techniques, or public outreach methods. Relevant training courses are available from the federal government as well as the California Department of Transportation. Large public agencies should also consider developing internal training courses or materials.

National Highway Institute Courses

The National Highway Institute (NHI), part of the Federal Highway Administration, began offering a course on environmental justice this year. Several related courses are also available.

Fundamentals of Environmental Justice

This 2-day course presents a framework for using a variety of approaches and tools to accomplish environmental justice goals. It is intended primarily for federal, state, and local transportation agency personnel who interact with

minority and low-income communities. The course explains the principles of environmental justice and how they apply to transportation decisions. Participants will learn to develop proactive strategies and techniques to implement environmental justice in their transportation programs and projects. Contact the NHI Course Scheduler at 703-235-528 or by email at nhi.scheduler@fhwa.dot.gov.

Public Involvement in NEPA and the Transportation Decision-Making Process

This workshop provides information on public involvement processes and techniques. Using NEPA as a backdrop, in addition to related laws, regulations and policies, classroom exercises provide participants opportunities to design public education, public involvement, advisory and joint planning activities. In addition, there is a focus on interagency coordination and decision-making forums, as well as implementation and evaluation plans. The tools used include consensus building, conflict resolution, solving problems and process improvement, among others. Contact the NHI Course Scheduler at 703-235-528 or by email at nhi.scheduler@fhwa.dot.gov.

Preventing Discrimination in the Federal-aid Program: A Systematic Interdisciplinary Approach

This 2½ day course is intended for federal, state, and local transportation staff to explain the implications of Title VI and related statutes in all aspects of transportation planning, project development, construction, and research. The training emphasizes the utilization of an interdisciplinary approach for the early recognition of potential adverse impacts that might be discriminatory so as to avoid these impacts and work for alternative solutions. It also stresses the need for interdisciplinary staff to be involved in the development and implementation of Title VI plans that are required for recipients to meet their non-discrimination obligations. Contact the NHI Course Scheduler at 703-235-528 or by email at nhi.scheduler@fhwa.dot.gov.

Other Courses

FHWA Western Resource Center

FHWA's Western Resource Center provides a one-day environmental justice training course for state and local transportation agency staff. It covers background on Title VI and how it applies to the highway construction process, how to incorporate environmental justice in transportation planning, and the environmental justice requirements under NEPA. The course can be provided on request; contact Katiann Wong-Murillo at Western Resource Center for more information.

California Department of Transportation's "Planning Academy"

The Department's Division of Transportation Planning has created and hosts a week-long Transportation Planning Academy which introduces new Planners to the multi-faceted aspects of transportation planning, and provides an overview of

how these planning functions fit into the Department's organization as a whole. Environmental Justice and Title VI are important parts of the training curriculum. The course discusses the genesis and history of environmental justice, its purpose, and case studies illustrating the application of context-sensitive planning and design.

The Department has also begun development on a two-week Field Academy, which will provide hands-on experience in rail, transit, goods movement, community planning, and livable communities. Issues of environmental justice and public involvement play an increasing role in these trainings.

3.3

Establishing a Citizens' Advisory Committee

Using a citizens' advisory committee (CAC) can be an affective way of bridging the gap between transportation agencies and the public, particularly when environmental justice issues are being addressed. Although most public agencies are familiar with CACs, establishing a CAC focused on environmental justice requires careful structuring of the group's membership and role.

Need for Citizens' Advisory Committees

Ensuring that long-range plans promote environmental justice often involves more in-depth involvement than can be expected from most members of the public. Unlike specific transportation projects where many of the impacts are quite tangible (e.g., noise, dislocation, property values), equity impacts and evaluations of how benefits are distributed in long-range transportation plans can be abstract. Issues like average change in travel time to commercial centers and average subsidy per transit rider can easily confuse people not familiar with the planning process, methods, and terminology. The small group format of CACs allows for necessary depth of discussion, and also allows members to develop expertise in the intricacies of transportation planning and impact assessment.

Citizens' advisory committees can facilitate better continuity in the interaction between public agencies and the community at large. This is particularly needed for long-range planning, where an appreciation of the breadth of a particular community's long-term goals and the history that led the current perspective may, in itself, require substantial experience. Developing an understanding of the numerous aspects of the complex regional transportation planning process requires that individuals understand issues such as the federal, state, and regional transportation finance structure and such complexities as how the transportation and land use investments and regulations interact and where they can and cannot be established. Advisory committees can certainly help improve communication and understanding between planners and communities on these many complex topics.

Depending on a community's experience, representatives of community groups sometimes feel that CACs are among the greatest public involvement successes. This is where citizen advocates can truly inform themselves about all facets of an issue, they can interact personally with agency staff, and they establish an

ongoing relationship so that staff can be held accountable for responding to particular matters of concern and for making sure that concerns are conveyed to decision-makers.

Organization of Citizens' Advisory Committees

These advisory committees can be structured in a number of ways, both in terms of their role in the decision-making process, and in their representation. The actual CAC structure will vary between communities and particular transportation circumstances. This section describes some common formats and issues that relate to CACs and promoting environmental justice. Regardless of the format, the following factors are vital for ensuring an efficient and effective CAC involvement:⁷⁰

- Clear understanding and agreement on the CAC's role by CAC members, agency staff, and agency leadership
- Representation from all relevant viewpoints
- Early (before critical decisions are made) and continuous involvement in the process
- Adequate background information and technical assistance in understanding complex issues
- Adequate time for review and deliberation
- Mutual respect between CAC members and agency staff
- Members who can work well together
- Capable leadership

Representation and Selection

A variety of models exist to ensure fair representation on CACs. In some cases, anyone who wishes to participate is encouraged to become part of the committee. This sometimes functions well when the CAC is focused on environmental justice issues because attendance is frequently small enough that in-depth discussion is possible in the absence of participation restrictions. However, in cases where participation is completely open, it is often a good idea for planners to take steps to ensure that low-income and minority groups are well represented at the meetings. This may require working through community leaders from various segments of the environmental justice community, or simply taking a proactive approach with members who are clearly interested in and informed about the planning process. When official representation on the committee is not open to everyone, CACs are still open for members of the public to come, offer brief comment, and hear the decision-making process.



EXAMPLE SACOG'S TRANSPORTATION ROUNDTABLE

The Sacramento Area Council of Governments (SACOG) has formed a 55-member "Transportation Roundtable" to help steer the development of the region's long-range plan. Membership consists of a diverse set of stakeholders representing the private sector, community and interest groups, and public agencies. The group's mission was clearly defined by SACOG at the outset and includes: identifying priority transportation issues, recommending performance measures, evaluating plan alternatives, and recommending a draft and final plan. The group meets four times per year, in the evening or on a Saturday.

In many cases, CAC seats are allocated by categories of representation. For example, some boards have designated seats for the business community, the disabled community, neighborhood organizations, alternative transportation organizations, low-income advocates, minority advocates, etc. This approach can be useful to ensure diverse representation, but can also cause problems. For example, one would-be participant requested to be involved with a citizen advisory committee because of her community planning knowledge and expertise. She was told that the committee already had its Latino representative and therefore had no need for her participation. In another case, CAC participants complained that each type of industry had a designated representative, while diverse citizen groups were lumped into one category with only one representative. Crafting categories of representation is a challenging task, especially if environmental justice is only one of several purposes that the CAC is intended to serve. Decisions on this matter and their supporting rationale should be carefully documented.

Public agencies always should use caution when assuming that a community-based organization or individual speaks for a whole "community." Working through leaders and representative organizations is effective and necessary for good public involvement, but it is not the whole story. There are many opinions on any given topic in minority and low-income communities as in more affluent neighborhoods. For example, public agencies sometimes assume that by involving a local Latino chamber of commerce, they have engaged the Latino community. Yet Latino business leaders may represent only business interests and not necessarily speak for low-income Latinos struggling to find work.

Roles for the CAC

Clearly defining the role of the CAC at the outset of a planning process can take time and may raise controversies. Even if this information is clearly spelled out in agency policies, the committee should explicitly discuss it. Up-front investment of discussion time is critical to establish trust and avoid more costly delays due to misunderstandings later. CACs generally play an advisory role in transportation decision-making, but the number and variety of issues on which their advice is sought can vary dramatically. Similarly, the extent to which a political body heeds the CACs input can also vary dramatically. If an MPO has been advised through the certification process (see the next section) that it must carefully consider input from the low-income and minority communities, then it is unlikely to disregard advice from a CAC. Ultimately, CACs are most

successful when trust grows between the members and agency staff. If CAC advice is not being heeded by the agency because it is technically unfeasible, CAC members need to be informed of and be provided opportunities to verify this reason; otherwise, members will perceive that they have no power.

Some agencies have separate CACs for specific transportation topics (e.g., transit, bicycles, and infrastructure). CACs focused on environmental justice have a particular challenge because this topic cuts across all aspects of transportation, and they may require more agency staff time than other types of CACs. But this can also be an opportunity for planners in the agency to interact across topic areas toward the goal of enhancing livability for a particular community. An environmental justice CAC should be comprised of members that effectively represent the perspectives from various segments of the low-income and minority communities. *The CAC will be viable only if it is maintained as an effective means for these representatives to relay community concerns, and influence decisions, when possible.*

Discussions with community-based organizations in one California region have highlighted the need for a defined, meaningful role for the CAC. On one hand, these advocates felt that their county transportation agency got many aspects of the public involvement process right: meetings were well-staffed, agendas and background materials were distributed with adequate time for review and could be made available in other languages upon request, and meeting minutes were accurately recorded and forwarded to elected board members. Yet, despite the care with which these important details were addressed, the CAC members felt that their role was completely undefined. Many issues of importance never came to the committee, and there was no process for members to add items to the agenda. Similarly, the group felt that any time CAC input contradicted the staff on an important matter, the CAC perspective was completely disregarded. Members of the committee that represented low-income and minority groups were completely disheartened. This attitude extended through the groups they represented and led to a general lack of trust for the agency among large segments of the affected community.

Situations such as this can occasionally arise when staff or board members believe that CAC members do not represent constituencies. If this is the case, there is a strong argument for restructuring the CAC. The CAC can be a great link to the broader public and a functioning conduit for public perspectives on complex planning issues. When not functioning properly, this important resource is lost.



EXAMPLE

MTC'S ENVIRONMENTAL JUSTICE ADVISORY GROUP

MTC's Environmental Justice Advisory Group (EJAG) provided for an unusually deep level of citizen involvement in the regional transportation planning process. MTC convened the EJAG in response to FTA and FHWA advice to increase involvement of low-income and minority communities. EJAG was designed as an open committee with diverse representation from EPA, transit advocates, and several community-based organizations around the region that focus on transportation justice. The group's purpose was to advise on the equity performance measures for the regional transportation plan. The advisory group worked through a volunteer professor as an intermediary who helped explain technical issues, including helping the advisory group understand when their technical requests exceeded the analysis that an MPO could reasonably be expected to include.

The advisory group became extensively involved in defining performance measures and discussing technical definitions of environmental justice populations. The experience was far from flawless – many members of the committee were dissatisfied that data shortfalls prevented analysis of some performance measures, and some were also disappointed with the deadlines that the plan imposed. Nonetheless, this example demonstrates that a high degree of advisory group involvement is possible. In breaking new ground in this area, MTC discovered that a substantial amount of staff time was involved, and identified many areas where inadequate data prevent ideal equity performance measures. These were important findings that now stand a better chance of being addressed in future long-range planning cycles. MTC's experience also suggests that involvement of a trusted professor or other non-agency expert can improve the quality of communication with the advisory panel. Such an arrangement must acknowledge the substantial time investment of this expert.

3.4

Environmental Justice and Public Involvement

Public involvement has long been a requirement for transportation agencies making decisions about plans, programs, and projects. For many years, however, the approach to public involvement many agencies took can best be described as “decide and defend”: engineers and other transportation experts acted as if they knew what was best, developed effective solutions to transportation needs, then defended their solutions against any criticism during subsequent public review of their solutions. This approach has been challenged and discredited over the past two decades, and today lingers only in the wishful thinking of some.

The meaningful involvement of low-income and minority communities is one of the core principles of environmental justice, explicitly stated in E.O. 12898, the FHWA Order on Environmental Justice, and Caltrans Deputy Directive #DD-63. This section discusses some general elements of public involvement that relate to environmental justice. Chapters 4 and 5 describe more specifically how the involvement of low-income and minority communities can be better integrated in the long-range planning and project development processes. Indeed, public agencies should never view public involvement as an activity distinct from other stages of planning or project development, but rather should strive to integrate public involvement into all agency decisions and “technical” activities.

It is no secret that well-informed, collaborative community participation does not occur spontaneously. It is the job of transportation planners and engineers, and of public officials, to create conditions that encourage the participation of people who are working two and three jobs, who cannot afford to pay for childcare while they are at meetings, who do not speak English (or who speak English but

not “transportation”), who do not have technical backgrounds, or who are intimidated by or distrustful of government officials.

Clearly there is no single set of instructions that can be applied in every situation. Communities differ in their cultures and histories of involvement. Some communities have an extensive civic infrastructure of community-based organizations while in others a transportation project may provide the impetus for organizing.

Much has been written recently about how to better reach out to those who have been traditionally underrepresented in transportation decision-making. A guide to some of these resources is included at the end of this section. The rest of this section provides a brief review of the main points of public involvement as it relates to environmental justice, focusing on issues that were raised consistently by leaders of community based organizations and regional transportation agency staff who attended workshops to inform this guide.

Attitude

Transportation agencies sometimes ask: “how much public involvement do we need to do to satisfy the requirements for environmental justice?” Although part of the federal government certification of MPOs depends on how well MPOs conduct special outreach to low-income and minority communities (discussed further in Chapter 4), there is no definitive answer to the question of “how much?” Successful public involvement depends as much on attitude as it does on technique. In the numerous meetings with California public agencies and community-based organizations that accompanied the development of this document, participants consistently mentioned two prerequisites for meaningful public involvement:

- **Sincerity:** Public agencies and their staff must be sincere in their efforts to involve low-income and minority communities.
- **Trust:** Successful public involvement depends on public agencies and their staff developing trusting relationships with low-income and minority communities.

Commitment to these principles does not come from a struggle to satisfy public involvement requirements, but rather from a genuine understanding that the people who will live with the plans and projects under consideration play an important role in making these efforts successful. Planners that conduct successful outreach are generally those who see the communities’ input as an important source of insight to improve plans and projects, rather than a procedure that must be conducted to satisfy regulations. That said, planners must also be honest about the level of participation that people can meaningfully contribute. It is important to explain clearly what parts of the process are flexible enough to respond to the input sought. To the extent that information is available, planners must also be honest and clear about the expected timelines and sequence of transportation improvements. It’s important to keep in mind that public involvement needs to be stressed in all planning whether done by Regional

Transportation Planning Agencies (RTPA), Metropolitan Planning Organizations (MPO), California Department of Transportation or local government.

Active Engagement

Successful public involvement *actively* seeks input on transportation decisions. Public outreach has traditionally been more passive, requiring the public to take the initiative in order to participate, and with little effort invested by the agency to actively solicit participation. Many public meetings and comment periods fit this definition. Passive public participation techniques lead to self-selection bias of those who have previous experience and interest in transportation issues, and often result in a corresponding lack of diversity (they do not reflect community concerns and issues). Active public involvement requires engaging diverse communities in ways that do not require their previous interest in or knowledge of transportation.

To actively engage low-income and minority communities, an agency's staff needs to seek out the public in places where they are already gathering. This will likely involve presentations and briefings in locations other than agency offices, distribution of printed information, or staffing an information booth. By going to community gatherings, agencies can engage people who would never come to a formal public meeting about a transportation decision. The transportation agency benefits from having an already assembled audience that is on familiar, less intimidating terrain. The potential opportunities for engaging the public in this way are limitless. Some of the options suggested by community-based organizations include the following venues:

- Religious organizations
- Homeowners' or tenants' meetings
- Senior centers
- Local schools
- Business associations
- County fairs, rodeos
- PTA meetings
- Bingo halls
- Shopping malls
- Fraternal orders
- Labor union meetings
- Sporting events
- Street fairs, art fairs
- Barber shops, beauty parlors, and other personal service establishments
- Transit stops



EXAMPLES: THE IMPORTANCE OF PROACTIVE ASSESSMENT OF NEEDS

In Monterey County, a large number of Latino women walk 3.5 miles each morning from Highway 68 to the Las Palmas development, where they work as house cleaners, and then walk back again in the evening. Transit service currently runs on Highway 68 but not to the Las Palmas area. Many of these women do not speak English and are unlikely to speak up for improved transit service. Community organizers have pointed to this example of why planners need to be proactive about engaging low-income and minority groups and understanding their needs.

Community organizers identified another example in Santa Clara County. A pedestrian crossing over I-880 was being disrupted by construction work on a nearby interchange. Project planners did not see the need to minimize the disruption or find alternatives because it was believed that the crossing was rarely used. Yet when the staff from the City of Milpitas went to the site, they found over 100 low-income service employees using the crossing each morning and evening to reach their jobs.

Public Information Materials

When transportation planning or project development activities are underway, public information materials serve to inform the public about upcoming outreach events, to provide an update on plan or project status, or to gather public input. To reach low-income and minority communities, the design and distribution of these materials may differ significantly from what public agencies typically do. Public agency staff should seek assistance from community-based organizations and ask the public directly for suggestions in an effort to identify the most effective communication channels for reaching different groups.

The options for public information media are numerous. Most California agencies use only one or a few media channels; reaching low-income and minority populations may require a more varied effort. Some possible examples for public information materials are listed below.⁷¹ Note that in developing a diverse strategy for conveying public information, agencies should recognize that not everyone has access to email or Internet sites.

- Advertisements
- Badges and buttons
- Billboards
- Brochures
- Church bulletins
- Display boards
- Electronic media
- Fact sheets
- Fast-food placemats
- Fliers
- Grocery bags
- Internet
- Magnets
- Newsletters
- Newspaper inserts and articles
- Notices
- Posters
- Press releases
- Progress bulletins
- Radio
- School handouts
- Slides and overheads
- Utility bill stuffers
- Videotape
- Inserts into community newsletters
- Ethnic media



EXAMPLE: LEARNING FROM THE PRIVATE SECTOR

Sometimes planners can learn techniques from the private sector for reaching certain racial or ethnic groups. For example, community-based organizations in Fresno have pointed out that American Indian casinos are experts at marketing to specific ethnic groups, and the casinos make it their business to learn which newspapers, radio programs, or television programs are favored by each group.

Language

It should go without saying that public outreach must be done in the languages spoken by the communities being addressed. According to the 2000 Census, 31 percent of Californians speak a language other than English at home, and fully 11 percent do not speak English well or do not speak it at all. These percentages are much higher in some areas of the state, as shown in Table 3.1.⁷²

**Table 3.1
Non-English Speakers in California, 2000**

Metropolitan Area	Total Population	Speaks English "not well" or "not at all"	Percent of Total
Bakersfield MSA	606,633	58,801	10%
Chico--Paradise MSA	191,504	5,822	3%
Fresno MSA	846,144	101,468	12%
Los Angeles--Riverside--Orange County CMSA	15,115,523	2,024,765	13%
Merced MSA	192,259	27,110	14%
Modesto MSA	411,833	35,976	9%
Redding MSA	153,584	1,873	1%
Sacramento--Yolo CMSA	1,673,889	85,262	5%
Salinas MSA	370,950	63,577	17%
San Diego MSA	2,617,718	191,069	7%
San Francisco--Oakland--San Jose CMSA	6,591,573	551,266	8%
San Luis Obispo--Atascadero--Paso Robles MSA	234,524	7,395	3%
Stockton--Lodi MSA	519,445	48,874	9%
Visalia--Tulare--Porterville MSA	335,395	46,893	14%
Yuba City MSA	128,660	10,437	8%
California Total	31,416,629	3,356,910	11%

To involve non-English speakers, written and spoken outreach materials must be produced in the languages that are appropriate to the particular region. Translations of outreach materials should not necessarily be done in the formal or standard form of a language, because many non-English speakers use a vernacular form of their native tongue. Table 3.2 provides a sample of the

incredible diversity of languages spoken by Californians—over 12 million speak a language other than English at home, nearly 40 percent of the state’s population five years and older.⁷³ To address this diversity, sometimes written materials even need to be presented with more pictures and graphics for cultures that do not traditionally use writing to communicate.

Table 3.2
Major Foreign Languages Spoken at Home in California, 2000

Language Spoken at Home	Population
Spanish or Spanish Creole	8,105,505
Russian	118,382
Armenian	155,237
Persian	154,321
Hindu or Urdu	107,722
Chinese	815,386
Japanese	154,633
Korean	298,076
Mon-Khmer, Cambodian	71,305
Miao, Hmong	65,529
Vietnamese	407,119
Other Asian languages	157,300
Tagalog	626,399
Arabic	108,340
Other languages	1,056,502
California Total	12,401,756

Effective Public Meetings

Public meetings are a major component of public involvement. Public meetings allow face-to-face interaction between agency staff and the public. They are critical for conveying information, gathering input, and building trust. Public meetings are informal gatherings. They differ from public hearings, which are more formal events designed to collect public comments that are often required by the state and federal law before a decision can be made.

Public meetings can take a variety of forms. Each of these alone would not constitute sufficient public involvement—they are complementary and appropriate at different stages in transportation planning and project development processes.

- **Brainstorming** involves gathering individuals to freely generate ideas without evaluation of the ideas. By encouraging participants to bring out any idea that comes to mind, brainstorming can produce creative solutions to

seemingly intractable problems. After generating as many ideas as possible, a facilitator usually assists in grouping the ideas and moving toward some evaluation and consensus.

- **Visioning** is used to develop long-range goals. Visioning exercises typically involve a large, diverse group of participants. Opinions are solicited from all, and facilitators help participants to find common ground among them. This process is often used in developing long-range transportation plans. Its role in the transportation planning process is discussed more extensively in Chapter 4.
- A **charrette** is a public meeting focused on resolving a problem or issue. Charrette participants work together intensively for a specified time (e.g., one day, one afternoon, one evening) to create a solution to a specified problem. Supporting staff defines the problem and the limitations, and provide data and other resources. For example, a charrette might be used to design a new transit line, station-area plan, formulate alternatives for a roadway project, or to develop a plan to improve pedestrian and bicycle safety in a specific neighborhood.
- **Small group techniques** include a variety of public engagement activities for groups with approximately 20 or fewer members. They include workshops, seminars, roundtables, community juries, focus groups, study circles, dialogue facilitation, and delphi processes. These techniques are designed to encourage active participation and reach conclusions on specific issues. They can be conducted independently or as a breakout group from a larger meeting. Each technique is structured somewhat differently and may be more or less useful in a given circumstance.⁷⁴

Public meeting organizers should carefully consider every element of the meeting logistics in order to minimize barriers to participation. These considerations, discussed in detail in other publications, include the following:

- **Location:** Is it accessible by public transit? Is free parking available? Is it close to the communities? Is it in a familiar location that people will not find intimidating? Is the location considered safe?
- **Time:** Does the meeting conflict with other important community events? Will working people be able to come?
- **Services:** Is child-care needed? Should food and drink be provided? Should other incentives, such as transit passes, be provided?

Language can be a major barrier to participation by minority groups. Even those who speak and understand English may not have sufficient fluency to feel comfortable speaking out publicly. For large meetings, wireless translation headsets can be used, although these may carry a stigma for non-English speakers. If only two languages are in use at a meeting (e.g., Spanish and English), it is preferable to present the entire meeting in both languages as a way to affirm publicly the importance of the non-English speaking group to the process.



EXAMPLE

OUTREACH TO LATINO FARMWORKERS IN TULARE COUNTY

Tulare County Redevelopment Agency and the non-profit Local Government Commission recently organized a community design charrette in the rural, unincorporated towns of Cutler and Orosi. Walkable Communities, Inc. of High Springs, FL conducted the charrette. The California Department of Transportation funded the charrette through a Community Based Transportation Planning grant. One of the primary issues addressed in the charrette was making State Route 63, which intersects the two towns, safer for all users (including automobiles, pedestrians, and bicycles). Both towns have large populations of Latino farm workers.

To attract participants, LGC and the County turned the charrette into a festive evening event, with mariachis and free food and beverages. To ensure that low-income and minority people participated in the charrette process, the organizers partnered with a number of community-based organizations, that enjoy a high level of familiarity and trust in the community, including Catholic Charities, Community Services and Employment Training, Inc., the Family Health Care Network, and Self Help Housing. Focus group locations were carefully chosen to maximize participation from Latino residents, especially farm workers. For example, one of the focus group meetings was held at the community hall of Villa de Guadalupe, a multi-family housing project comprised of current and former farm workers. All events were conducted in both English and Spanish.

A variety of proactive methods were used for getting the word out about the charrette. One was to contact pastors and priests in the area about the charrette and ask them to announce the charrette events at church services. Advisory committee members made personal phone calls to community and political leaders. They provided the churches and community partners with fliers in Spanish, and a notice of events appeared in both English and Spanish-language newspapers. The Cutler Orosi Unified School District sent a bi-lingual flyer home with every student in the district. Finally, the Department agreed to post two portable road signs announcing the charrette events on SR-63 in the two towns.

The results of this dedicated effort were clearly successful – over 125 people attended each of the two large community events, and over 40 attended the focus groups. For more information, contact Steve Hoyt at the Local Government Commission, Jim Brown, Division Manager at the Tulare County Redevelopment Agency, or James Heinrich, Transportation Planner at the Department's District 6 office.

If No One Comes

Poor turnout at a well-promoted, well-timed meeting does not necessarily mean that a community does not care about the topic under discussion. If an agency finds that a community is not participating in a planning effort, yet is confident that members of the community were aware of the meeting and had the ability to attend (i.e., the meeting was at an accessible location and at an appropriate time) then the question becomes whether the issue is a concern to the community. The experience and judgment of the planner is important here, but there should be, at a minimum, some consultation with several community leaders. Direct calls to several stakeholder representatives and involvement of local elected officials can inform whether the decision at hand should be a concern to community-members.

In some cases, planners may learn that the issue is considered important to a community, and that there are other explanations for why people did not attend the meeting. For example:

- Community members may not have attended public meetings before and feel uncomfortable about doing so;

- Community members may have participated before in government decision-making and their work did not make a difference in the ultimate agency decision, thereby fostering a lack of faith in the process;
- Community members may not have enough knowledge about the issue to feel they can contribute meaningfully; or
- Community members may not understand the extent to which they will be affected by an upcoming transportation decision.

Community organizers point out that a complete lack of community response may be a sign of a more serious problem: a community that does not have the capacity to respond. Consequently, low turnout may be an indication that more work, not less, is required from transportation professionals. Public agencies may need to consider assisting CBOs with building the capacity of low-income and minority communities to become more involved in transportation decision-making.

Operating Support for Community-Based Organizations

Community-based organizations (CBOs) play a critical role in developing the public's capacity to influence the planning process. Many public agencies rely on CBOs to serve as a bridge to low-income and minority populations. Some organizations have expressed concern that, while they may be well suited to this task, they often do not have the resources to function as outreach coordinators for public agencies, particularly given their own busy agendas.

Some community-based organizations have suggested that transportation agencies need to invest in more expertise in reaching low-income and minority communities themselves, possibly by hiring professional organizers or community development experts.

Given the vital role CBOs currently play in the planning process, and in helping agencies meet their mandate to involve environmental justice communities, a number of community-based organizations have suggested that transportation agencies should provide them with financial support. This is a controversial position, as others have suggested that consistent financial support from government could compromise, or be perceived as comprising their integrity. A middle ground may be well-defined grants to community-based organizations for capacity building. Offering them more formal seats at the decision table may be another way to encourage their involvement. The bottom line is that public agencies that rely on CBOs for outreach must recognize that their ability to assist in planning will also depend on their available resources.

Relations with Native Americans

There are 109 federally recognized tribes in California. There are approximately 55 terminated or unacknowledged tribes, as well as urban Indian communities. Terminated tribes, unacknowledged tribes, and urban communities are not recognized by the Federal government as belonging to a governmental entity;

however, they comprise a socially, economically, culturally, and politically significant group of California's minority citizens.

Federally recognized tribes have a unique sovereign status. Transportation planning by the State, and any other agency/organization responsible for satisfying transportation planning requirements, must include a leader-to-leader consultation with the Native American Tribal Governments having jurisdiction over lands within boundaries of the State.

Public participation provides for involvement of all citizens, including Native Americans as individual citizens, regardless of whether they are members of federally recognized tribes. They belong to a minority and they may be low income. Within public participation forums, as individuals, they are not representing Tribal Governments.

RESOURCE



Caltrans has produced a *Transportation Guide for Native Americans* that describes how transportation planning is conducted by state and local governments, and also how tribes fit into the transportation planning picture. The document is available on the Internet at http://www.dot.ca.gov/hq/tpp/offices/orip/na/native_american.htm.

The Department of Transportation maintains a Native American Liaison Branch that can provide advice to local and regional agencies concerning relations with tribes and outreach to American Indians. The Branch maintains an Internet site that lists all tribes in California and contact information, and also includes Caltrans Director's Policy on Working with Native American Communities. http://www.dot.ca.gov/hq/tpp/offices/orip/na/native_american.htm.

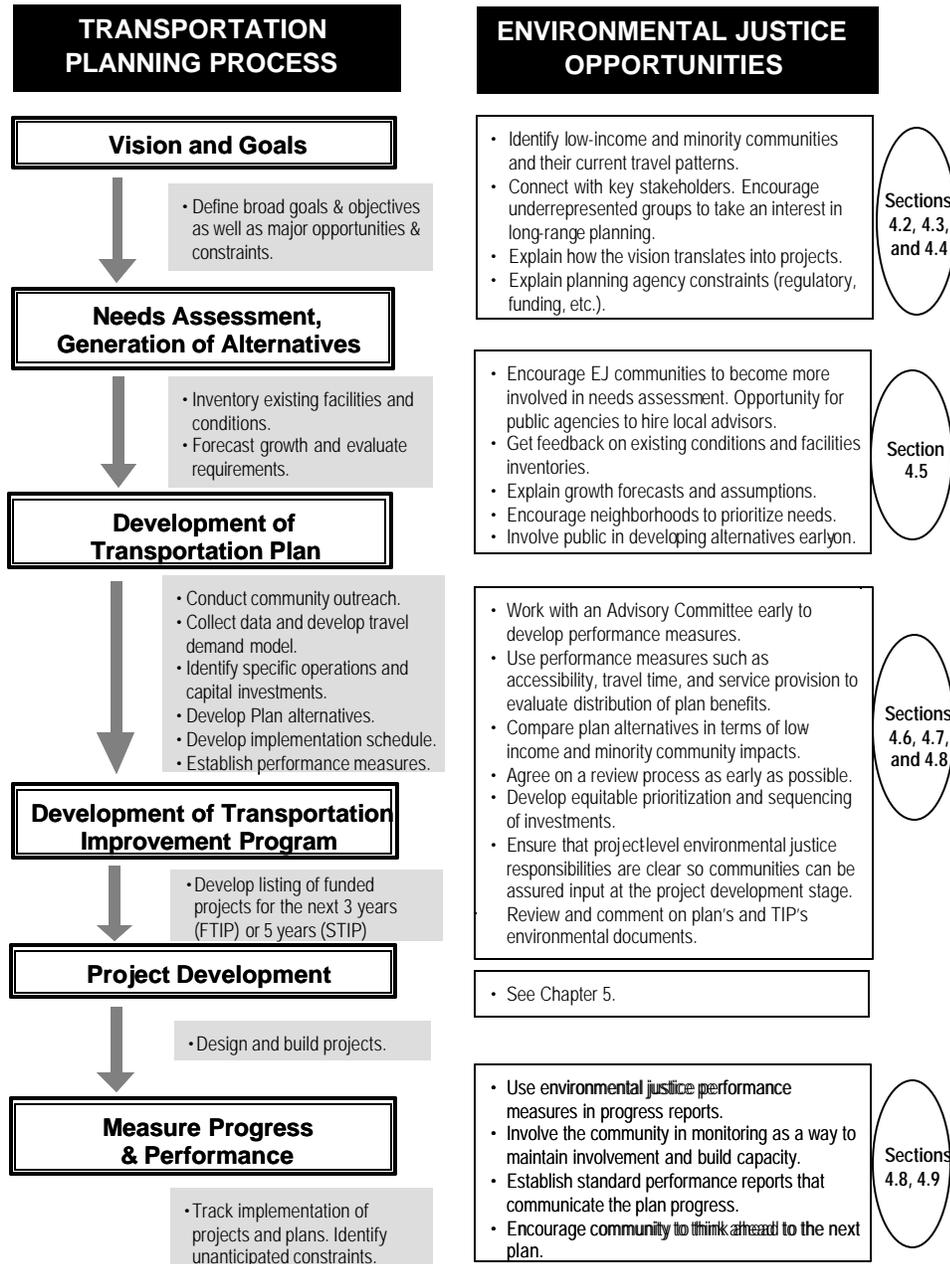
Resources on Public Involvement

Because there are so many resources on the topic of public involvement, this guide includes only an overview of the fundamentals. Below are listed some excellent resources that are focused more specifically on public involvement techniques in the transportation planning and project development process.

- FHWA/FTA jointly sponsored the development of an extensive guidebook on public involvement. Called *Public Involvement Techniques for Transportation Decision-making*, the 280-page publication is available on the Internet at <http://www.fhwa.dot.gov/reports/pittd/cover.htm>.⁷⁵
- Many small and medium-sized transportation agencies have demonstrated effective, inexpensive public outreach techniques. Although good public involvement requires adequate resources, success is often more a result of focused attention by committed staff than simply budget. A paper describing inexpensive but effective public involvement techniques is available on the Internet at <http://trb-pi.hshassoc.com/publicationsandarticles.htm>.
- The Transportation Research Board Committee on Public Involvement is a source for many up-to-date resources on the topic. The Committee maintains an Internet site with conference papers, publications, Internet links, and upcoming conferences, available at <http://trb-pi.hshassoc.com/publicationsandarticles.htm>.

- The California Department of Transportation has developed an annotated bibliography on public participation. Contact the Division of Transportation Planning for more information.
- The Minnesota Department of Transportation's Public Involvement Guide includes a useful discussion about general principles of outreach to non-traditional transportation stakeholders, as well as specific techniques targeted at traditionally underrepresented communities, available at <http://www.dot.state.mn.us/pubinvolve/partner.html>.
- The National Environmental Justice Advisory Council (NEJAC), a policy group made up of EPA senior managers and policy analysts, has developed a public participation model based on brown-field revitalization. The model is useful for broad urban planning applications, and available on the Internet at <http://www.epa.gov/swerosps/ej/html-doc/pub05.htm#A28>.
- MPOs will find helpful suggestions in an evaluation of the Metropolitan Transportation Commission's public participation practices that was done as part of the agency's federal certification review. (Section 4.10 describes more detail on the certification process.)
<http://www.mtc.ca.gov/projects/rtp/findings.htm>
- A document called *Communicating with Persons with Disabilities in a Multimodal Transit Environment* describes current North American transit practices in information and communication technologies, as well as operations, implementation, and human factor issues. Attention is given to information and communication technologies related to planning, customer service, marketing, and training that can improve the travel experience for all persons traveling by public transit. The focus is on the communication techniques and technologies for persons with sensory and cognitive disabilities. Available at <http://www.nationalacademies.org/trb/publications/tcrp/tcrp37/>.

Figure 4.1
Transportation Planning and Environmental Justice Opportunities



4.2

Defining Population Groups

Identifying low-income and minority populations is necessary both for conducting effective public participation and for assessing the distribution of benefits and burdens of transportation plans and projects. Depending on the particular task, planning agencies will sometimes focus on all low income and minority people together but sometimes will need to distinguish between different groups. To identify target groups to involve in public participation, planners should focus on characteristics that will shape outreach tactics, such as languages, gathering places, information sources, etc. For example, a community of recent Latino immigrants should be distinguished from an African American community because the outreach materials and techniques will be different. Similarly, defining “Asians” as a single category would not be particularly useful to determine languages in which materials should be made available. Consider also economic differences among members of ethnic groups and their different transportation needs and concerns.

Defining populations raises different questions when the population categories will be used for the purpose of assessing the distribution of benefits and burdens. In this case, most agencies conduct analyses that consider minorities in aggregate. This makes sense, unless there is some reason to suspect substantial disparities between minority groups. Defining minority and low-income populations for long-range plans often requires flexibility, keeping in mind that the goal is to prevent certain groups from being denied benefits. On the other hand, when analysis is being conducted to determine negative impacts, such as the environmental review of a specific project, it is more important to adhere to regulatory definitions that apply to environmental justice. Of course, this does not prevent agencies from conducting additional analyses with tailored population definitions as needed, or as requested by particular communities.

Regulatory Definitions

As discussed in Chapter 2, definitions of “minority” and “low-income” individuals have been provided in federal guidance. Minority individuals are defined as Black, Hispanic, Asian American, American Indian, or Alaskan Native. Low-income individuals are defined as those with income below the poverty threshold as defined by the U.S. Department of Health and Human Services.⁷⁶ In 2002, the poverty threshold is \$18,100 for a family of four.

Analysis of the impacts for regional transportation plans often relies on comparing impacts across transportation analysis zones (TAZs). Thus, depending on the analysis approach, MPOs and RTPAs may need to identify the zones to be considered “minority” or “low-income.” According to the CEQ guidance (see Chapter 2), minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

Current Practice in California

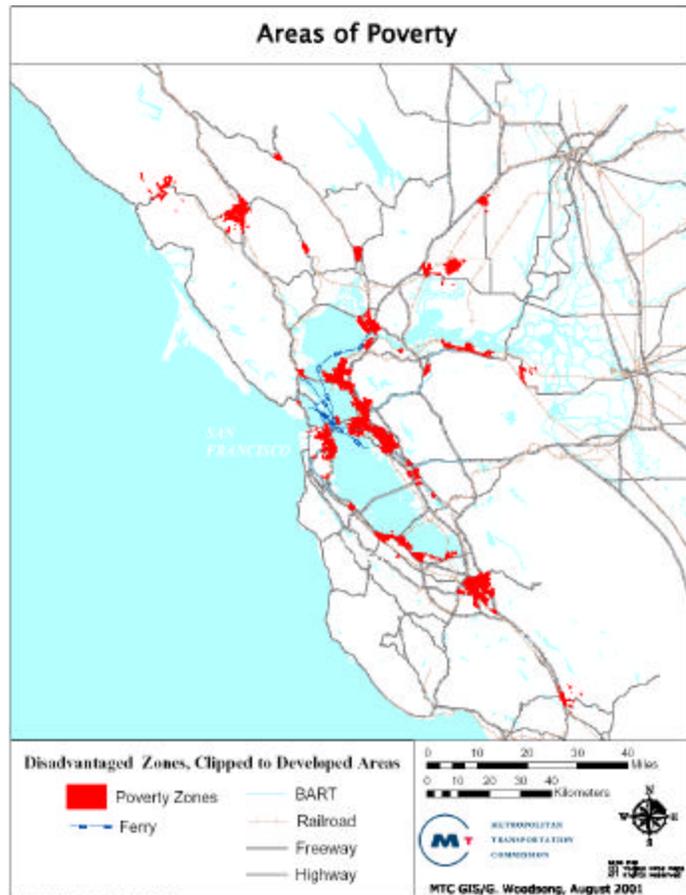
Transportation agencies, particularly those in a state as diverse as California, may need to adapt the regulatory definitions of low-income and minority in order to conduct a meaningful analysis. In regions with high minority populations, for instance, use of the standard definitions to define a minority zone could result in selection of most of the region. Similarly, some agencies have found it necessary to alter the low-income threshold to reflect particularly high living expenses. For example, in conducting the environmental justice analysis of the Bay Area’s transportation plan, MTC defined “communities of concern” as zones with more than 70 percent minority residents. Low-income zones were defined as those in which more than 30 percent of residents had income below twice the federal poverty level (see boxed example).



EXAMPLE MTC’S DEFINITION OF MINORITY AND LOW-INCOME COMMUNITIES

MTC’s analysis of the environmental justice implications of the regional transportation plan serves as an example how population definitions can be adapted to suit the particular characteristics of the region. In order to evaluate the distribution of plan benefits, MTC sought to identify “communities of concern,” or zones with higher populations of minorities and/or low-income residents. Planners initially identified zones that had minority populations in excess of the regional average. However, because of the way minorities are distributed in the Bay Area, this threshold would define half the zones as “communities of concern.” In consultation with the Environmental Justice Advisory Group (EJAG), MTC decided that 70 percent minority population would be a more useful threshold for determining whether the proposed plan provides equal benefits to minority populations.

MTC also modified the standard definition of low-income populations in order to reflect local circumstances. Acknowledging that the cost of living in the Bay Area is much higher than the national average, MTC used twice the federally defined poverty level to define low-income communities. Using this threshold, MTC determined that by selecting zones where at least 30 percent of the population was low-income, an appropriate number of zones would be highlighted for the benefits distribution assessment. Again, these decisions were made in consultation with the advisory group.



The low-income or minority threshold may also be adapted in order to make use of available data. For example, the census reports household incomes by ranges that are unlikely to align precisely with the poverty threshold, so some flexibility



is necessary. As long as planners maintain the goal of identifying groups whose interests are traditionally under-represented, and as long as planners involve members of the environmental justice community in decisions about the methodological approach, the regulatory definitions above can be adapted to make the analysis possible and functional.



EXAMPLE IDENTIFYING MINORITY AREAS IN SAN JOAQUIN COUNTY

The San Joaquin Council of Governments, the MPO for the Stockton region, conducted an equity assessment of their 2001 Regional Transportation Plan. To assess current travel patterns of minority populations, SJCOG used census data to group all census tracts into quintiles based on the minority share of population. Tracts in Quintile I have the lowest minority share, less than 9.5 percent. Tracts in Quintile V have over 45 percent minorities. SJCOG then examined automobile and transit mode share according to these groupings.

Inclusion of Other Groups in Environmental Justice Assessments

Some agencies have included in their environmental justice analysis other populations that may require special attention to ensure that their transportation needs are met. For example, disabled and elderly populations face many of the same barriers as low-income and minority populations. Special consideration may be required to ensure that the public participation process is convenient and accessible to them. Similarly, they may rely on public transit service to access jobs, health care, shopping, etc. Some environmental justice advocates, while recognizing these concerns, believe that inclusion of these other population groups is not needed because they have separate regulatory protections that ensure their fair treatment. Generally, agencies have found that inclusion of these other groups in environmental justice analysis is acceptable as long as it does not obscure or dilute the findings of inequities for minority and low-income groups.



EXAMPLE INCLUDING OTHER DISADVANTAGED POPULATION GROUPS IN ANALYSIS

The Delaware Valley Regional Planning Commission (DVRPC), the MPO for the Philadelphia region, conducted an environmental justice assessment of their long-range transportation plan by considering not just low-income and minority populations but also carless households, elderly (age 85 and older), and disabled.

4.3 Data Sources

Data availability is often an important limiting factor in environmental justice analysis of transportation plans, so an agency should survey the full range of available information and understand its capacity to gather or purchase additional

data before beginning to evaluate transportation plan impacts. And after such a preliminary survey, the agency should expect to conduct additional research on data availability based on discussions of evaluation needs with the environmental justice community.

U.S. Census

The Decennial Census of Population and Housing is a fundamental source of information for environmental justice analysis. The Bureau of the Census gathers detailed data on population demographics and socio-economics every 10 years, most recently in 2000. This information is made available on the Internet over the course of the two to four years following the census.

All census data is collected via one of two surveys. Five of every six households answer the “short form,” which requests only basic information such as sex, ethnicity, race, and housing tenure (own versus rent). The census “long form” is sent to a sample of one in six households (17 percent) and requests additional information including income, employment status, education level, place of work, commuting travel mode and trip length, disability, language, and housing conditions.

Census data is reported at a variety of geographic levels:

- A **block** is the smallest census geographic unit. In urban areas, blocks often correspond to individual city blocks bounded by streets. In rural areas, blocks may include many square miles and may have some boundaries that are not streets. The short form data (100 percent of households) is reported at the block level and higher.
- A **block group** is made up of a set of blocks. A block group consists of all the blocks within a census tract with the same beginning number. The long form data (17 percent sample) is reported at the block group level and higher.
- A **tract** is a statistical unit designed to average about 4,000 inhabitants. census tracts are intended to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions at the time of establishment.
- A **traffic analysis zone (TAZ)** is an area delineated by state and/or local transportation officials for tabulating traffic-related data, especially journey-to-work and place-of-work statistics. TAZs usually consists of one or more census blocks, block groups, or census tracts. TAZ layers are not available for the entire nation, but are available for most major urban areas. The 2000 Census is the first to report data at the TAZ level.
- Census data are summed and reported at higher geographic levels, such as the city (called “place” by the census), county, state, and nation.

Census Data for Environmental Justice Analysis

For transportation and environmental justice analysis, three census reports are noteworthy:

- Summary File 1 (SF 1) contains data reported on the short form, including household relationship, sex, age, race, Hispanic or Latino origin, and housing information related to tenure (own vs. rent), occupancy, and vacancy status.
- Summary File 3 (SF 3) contains data from the long form (including income), expanded to represent the total population. SF 3 also includes all the short form data.
- Census Transportation Planning Package (CTPP) is a special set of tabulations assembled by the census specifically to assist with transportation planning. It includes data on place of residence, place of work, vehicle availability, and the journey to work (travel mode, number of vehicle occupants, time of departure, duration of trip). The CTPP includes many 2-way and 3-way tables that combine race/ethnicity, income, and commute patterns, and are particularly useful for environmental justice analysis.

The following table summarizes some of the key information needed for environmental justice analysis, the scale at which data are available, and the date that data will be released. A more detailed discussion on the use of census data for environmental justice analysis can be found in NCHRP Report 8-36 (11).⁷⁷ Extensive explanations are available on the census Internet site, <www.census.gov>.

Table 4.1
Basic Environmental Justice Information Available from the Census

	Population and Age	Race and Hispanic Status	Income	Commute Characteristics
Name of Census Source	Summary File 1 (SF 1)	Summary File 1 (SF 1)	Summary File 3 (SF 3)	SF 3 (limited tabulations) Census Transportation Planning Package (CTPP)
Smallest Level Available	Census Block	Census Block	Census Block Group	Census Block Group (for SF 3); TAZ (for CTPP)
Date Available	Released in 2001	Released in 2001	Fall 2002	Spring 2003

To analyze the distribution of regional transportation plan benefits (using the methods presented in Section 4.6 and 4.7), data at the TAZ-level is generally adequate. As discussed in the following section, many measures of transportation plan benefits are based on travel time, and the TAZ is the appropriate unit to consider travel time changes. However, examining other types of impacts, particularly project impacts (discussed in Chapter 5), often requires a finer scale of analysis.

Census GIS Files

The census also delivers packages that can be used to develop GIS databases. GIS tools are often the most useful for evaluating and communicating the information above. A standard desktop computer with GIS software is now capable of extensive environmental justice evaluation using 2000 Census data. A

growing number of examples are available to demonstrate GIS applications in assessing environmental justice in transportation, as discussed in Section 4.8.

Other Data Sources

The American Community Survey

The American Community Survey (ACS) currently provides detailed demographic, economic, and housing profiles for 31 locations including San Francisco and Tulare Counties in California.⁷⁸

ACS data is expected to be available for every county beginning in 2004. By 2010 it will replace the Decennial Census long-form (the more detailed survey), and it will be conducted on a continuous basis thereby eliminating some of the challenges of excessively old census data. Beginning in 2004, ACS information will be updated annually for areas over 65,000, and less frequently for smaller areas.

RESOURCE

More details on the shift from the Decennial Census to the ACS and the impact on population data are available on the Internet at www.trbcensus.com/acs.



American Housing Survey

Every year, the American Housing Survey collects detailed data on housing stock, which includes race, income, household size, and work trip information.⁷⁹ The data is gathered for the same 55,000 housing units nation-wide. In addition to this broad national sample, the survey is conducted for 47 metropolitan areas every 4 years, including the following seven metropolitan areas in California: Anaheim-Santa Ana, Los Angeles-Long Beach, Oakland, Sacramento, San Diego, San Francisco, and San Jose. In these areas, the American Housing Survey can be helpful to update older census data.

RESOURCE

The most recent American Housing Survey data can be found at the following Internet site: <http://www.census.gov/hhes/www/ahs.html>.



National Household Transportation Survey

Formerly the National Personal Transportation Survey, this data source is useful for non-work transportation trips, and detailed information about travel modes.⁸⁰ Most recent (2001) data for this survey are expected to be available starting in January 2003. For information on adapting this information to a more local level see the following Internet site: <http://www-cta.ornl.gov/npts/1995/Doc/transfer.html>.

Statewide Integrated Traffic Records System (SWITRS)

SWITRS is a database of all reported traffic accidents in the state, including information about the mode of travel used in the accident. Although information about race and income status is not included, planners can use this accident data to identify neighborhoods with disproportionate numbers of auto, bicycle, and/or pedestrian accidents. At the planning level, this may be most useful for needs

assessments.

Non-Traditional Public Data Sources

Planners involved in environmental justice analysis have pointed out that the traditional data sources listed above often leave critical gaps in information.

Below are listed some additional possible data sources that require coordination with other regional and local offices. These are useful when census data are out of date or when information is sought that is not available through the census (e.g., more particular employment barriers, specific destinations that are difficult to access, neighborhood-specific recreation activities, or advertising preferences).

- *Elected officials* have extensive understanding of their constituency. On occasion, they will have policy aides who focus directly on transportation issues and may have conducted surveys or compiled data on the specific obstacles facing local residents.
- *Community and social services agencies* focus on low-income residents. Often, they have their own records on income, service provision, and employment. For example, MTC obtained some data on low-income residents from CalWorks (California's welfare to work program) because census data was too old to be useful.
- *Health agencies and organizations* sometimes have neighborhood-based health trends and statistics that can inform transportation analysis regarding health access needs, as well as safety and pollution concerns. In addition, health assistance data may be useful for identifying low-income populations.
- *Community economic development agencies*, with their focus on job development and other forms of capacity building, may have data on particular transportation-related obstacles faced by various disadvantaged communities.
- *Transit Agencies* may have ridership data that includes income and minority status information. Note, however, that many transit agencies lack the funds to conduct regular ridership surveys.
- *Businesses* may have information about what advertising media are most suited to reaching particular income and ethnic groups. Some businesses may be willing to share such information with government agencies seeking to promote environmental justice.



RESOURCE

Information on the SWITRS data can be found at the following Internet site: <<http://www.chp.ca.gov/html/switrs2000.html>>. To obtain local accident data, contact the local highway patrol office; the following Internet site provides these contacts: <<http://www.chp.ca.gov/html/offices.html>>.

Commercial Data Sources

A combination of the data sources above can be used to generate estimates of current demographic and travel information. Some transportation agencies do these extrapolations themselves, while other purchase estimates from private companies. For example Claritas Corporation updates census data each year at the block group level.⁸¹ Another private provider of demographic data is Applied Geographic Solutions.⁸² Detailed employment data, with occupation type and business addresses, can be purchased from companies like Dun & Bradstreet or American Business Information. Because most basic employment data identifies only the industrial classification of the employer and not the job type, some MPOs and RTPAs have used commercial employment databases to help identify what types of jobs are accessible to low-income and minority populations.

4.4 Developing Vision

Transportation planning should support a community's vision for its future. The early stages of the long-range planning process are designed to open a public discussion about the region's transportation priorities over the period of the plan. This process should consider visions of what the regional transportation system would be like at the end of the plan period, and what objectives must be achieved to bring about such visions. These objectives can include general goals for the transportation system (e.g., a more comprehensive transit network), as well as policies and performance objectives (e.g., improved access to jobs, or reduced average commute time).

Since regional transportation plans are renewed every three years (or four years in rural areas), this vision and goal setting process does not start from scratch. The existing 20- or 25-year transportation plan often provides a starting place to discuss progress toward visions that were previously outlined. The baseline plan also presents an opportunity for groups to consider alternative visions, which may eventually evolve into alternative scenarios to be evaluated later in the planning process.

Visioning and goal setting is a critical part in the planning process, because all other steps should follow from the broad objectives established in this initial phase. This is a challenging stage to involve low-income and minority populations because the discussion covers such a long-time horizon. Similarly, groups that feel they have been treated unfairly by the process may be particularly suspicious of discussions that paint grand visions to be achieved over several decades. For these reasons, it is very important to solicit participation by low-income and minority populations during this early stage. Focused and creative approaches are needed to educate target communities about the extent to which their lives will be affected by the plans, and thoughtful arrangements are needed to accommodate the frenetic schedules of people who are struggling to make ends meet. Engaging these communities at the outset of the planning process will help to ensure that the result of the visioning stage will facilitate an equitable plan. (See Section 3.4 for ideas to assist with outreach to low-income and minority communities.)

Generating Interest in Long-Range Plans

The best way to build interest in long-ranging planning is by establishing ongoing programs that work with the community to maintain and improve the local transportation system long before the planning process is a focus. As one community organization put it: “Education motivates involvement.” When the time comes to update a long-range plan, members of the community who have been engaged with these ongoing efforts are likely to appreciate the importance of setting the long-term agenda. Planners should also keep this in mind as the planning process winds down, when there is a tendency to reduce communication with the public and stop holding regular citizen advisory committees meetings.

Most transportation agencies have few publicized efforts to monitor and report on regional planning in place, and the MPO and RTPA will need a substantial campaign to publicize and build interest in the planning process. A number of strategies can be employed to generate interest in the process. Whatever approaches are used, the transportation agency must communicate how the plan can generate tangible improvements in transportation services. Some strategies for generating interest include:

- Inviting local elected officials and other community leaders to speak at and participate in planning meetings. Such figures are effective spokespeople for the opportunities presented by the planning effort and can inspire community members to take an interest.
- Within the long-term planning effort, creating opportunities for a variety of immediate short-term local programs.
- When transportation decision-makers are present at the planning meetings, participants can feel more confident their concerns are being heard by those who can make changes.

There is a delicate balance between generating interest in the plan and creating unrealistic expectations. Community groups have repeatedly cautioned that planners must be clear about the limitations of a plan’s impact, and the extent to which each community can influence the plan’s overall direction. In fact, the very reason that some groups are skeptical of the planning process is because they feel they have been led astray in the past about what can actually be accomplished within a region’s long-range transportation planning structure. If the potential for a low-income or minority community group to influence the plan’s outcome truly is insufficient to justify their participation, then the problems with the decision-making process may need to be addressed before successful planning efforts can proceed.

4.5

Assessing Needs and Identifying Investment Alternatives

The needs assessment stage of long-range planning encompasses several steps. One step is to build an inventory of existing transportation facilities and determine the extent to which they satisfy current needs. Gathering this

information involves rigorous public outreach, as well as technical analysis. Analysis may include the following actions:

- Determine the current use of each element of the transportation system.
- Determine whether each element is being operated efficiently and identify where changes to systems operations can facilitate greater capacity without new infrastructure.
- Assess the condition of transportation infrastructure and equipment—the stage in its lifecycle and how its performance differs from new technology and equipment.
- Assess the satisfaction of users with each element of the current transportation system, and determine what other services might be used if they were made available.

Much of this information is available from ongoing planning efforts by regional agencies, but the long-range planning process offers an opportunity for the public and other agencies to evaluate the data and consider needs together.



EXAMPLE
MTC'S LIFELINE TRANSIT NETWORK

The Bay Area's planned Lifeline Transit Network is the result of the Metropolitan Transportation Planning Commission's (MTC) effort to identify which public transit services are most vital to disadvantaged neighborhoods. MTC's Regional Welfare-to-Work Transportation Plan, adopted by the Commission on July 25, 2001, identified the need to answer some fundamental questions: Where are low-income communities located? Where do people living in low-income communities need to go? How well does the existing public transportation network serve the needs of those communities? How can we do a better job addressing the deficiencies? The Lifeline Transit Network planning effort sought to answer these questions.

During the course of this effort, MTC identified both spatial and temporal gaps in the transit services to low-income communities. Throughout this planning effort, MTC staff consulted with a variety of stakeholders, including the Regional Welfare-to-Work Transportation Working Group, the Environmental Justice Advisory Group, staff from transit agencies and Congestion Management Agencies, and representatives of community-based or social service organizations.

Another important step in needs assessment is to forecast changes in population and demographics, economic activity (jobs), and travel patterns for people and goods. This usually involves projections based on current local, state, and national trends. Ideally, this stage should begin to incorporate some of the outcomes of the vision process. A separate but essential element of needs assessment consists of evaluations and forecasts of funding sources (e.g., federal funds, state funds, transit and toll revenues, and local sales or property taxes allocated for transportation).

The final step in needs assessment is to determine infrastructure and policy needs based on population, demographic, and travel changes. This process often begins to incorporate financial constraints.

Using Community Groups in Needs Assessment

Assessing community needs is an excellent opportunity to engage community groups in the planning effort. Planners are most credible if they are familiar with existing needs assessments as a starting place for the discussion. Some low-income and minority communities have been surveyed repeatedly about their most pressing needs, and community groups have expressed frustration and skepticism over what is being done with all of this information. Local social service providers, elected officials, transit agencies, schools, colleges and universities are some good places to investigate what has already been done to assess needs.

In order to build on any existing information, planners should consider working with local groups and their constituents. Many groups have suggested that planners should attend various organizations' regular meetings in order to gather information about community needs. (See Section 3.4) In other cases, planning agencies have had success working with a local organization to host a meeting that is focused specifically on identifying priorities for the planning effort. Some planning agencies have arranged a partnership in which the local community organization hosts the meeting and helps facilitate, while the planning agency provides background materials and support services such as childcare and refreshments.

Involving the Public Early to Generate Real Alternatives

At some point in the process, most transportation plans compare two or more alternative investment scenarios and evaluate which one best addresses the goals and needs identified by the community. Ideally, this comparison incorporates some environmental justice performance measures such as the ones discussed later in this chapter. While such comparison is a critical part of the planning process, its value hinges on having meaningful and feasible alternatives to compare.

Some environmental justice advocates have expressed frustration with the development of plan alternatives because an evaluation frequently shows that various alternatives would perform nearly the same. When a plan's alternatives produce virtually identical results, members of the public may raise questions about whether the alternatives were meaningfully different. Such concerns are particularly important for environmental justice analysis, where comparing between various alternatives is a critical evaluation tool. Involving the public in crafting the various alternatives is a way to demonstrate that alternative perspectives are being truly considered. Public involvement at this stage may also encourage the public to consider multiple perspectives. Involving low-income and minority groups in crafting alternatives does not always yield substantially different environmental justice outcomes, but it will help to prevent a narrow approach.

The obstacles to crafting feasible alternatives for regional transportation plans increase the importance of beginning a discussion of alternatives early in the process. One of the challenges is the extensive limitations on how various restricted sources of money can be used. For example, revenue generated by

voter-approved sales taxes usually must be spent on projects listed as part of the ballot initiative. Other funding categories often have specific limitations on the transportation modes for which they can be used and the proportions of matching funds required from different tiers of government. There are also legal requirements related to service provision, such as congestion management performance requirements and ADA mandates to increase disabled access. In the face of these constraints, developing a viable slate of projects that satisfies the spirit of the alternative can require considerable effort.

4.6 Performance Measures

A central component of long-range plan development is measuring how well the plan is able to achieve the goals of a community. Performance measures provide a way to quantitatively assess progress toward planning goals. Most of the performance measures discussed in this section focus on measures of transportation plan benefits, rather than negative impacts. This is because long-range plans typically do not define projects in sufficient detail to adequately understand where the negative impacts will occur. Note that some of the performance measures discussed in this chapter may also apply to transportation projects. Chapter 5 includes other important evaluation techniques that apply more exclusively to projects.

Accessibility

In the context of performance measures for a transportation plan, the term “accessibility” refers to the number and types of destinations available to people. It is usually measured as the number destinations by type (e.g., jobs, commercial centers, hospitals) that can be reached within some designated travel time. Auto and transit accessibility are typically measured separately since this permits comparison between modes and better informs potential planning solutions. Pedestrian and bicycle modes cannot usually be measured at a regional scale because many such trips occur within travel analysis zones (TAZ). But analysis of these modes would be appropriate at a finer scale, or in evaluation of transportation service provision as discussed below.

Most of the data required for accessibility measures come from travel demand models. Data needed for accessibility measures include:

- Travel times between each possible pair of origins and destinations zones, by travel mode;
- TAZ-level population data (including minority and low-income status); and
- TAZ-level employment data (or other types of destinations for which accessibility is being measured).

With this information, an analyst can calculate the number of destinations reachable within a given time from each origin zone, by each travel mode. For example, an accessibility measure might be the number of jobs that can be reached by transit in 30 minutes from each origin zone.

particularly important in regions where there are concentrations of professional jobs without accompanying service jobs that provide opportunities for low-skilled workers.

Table 4.2
Performance Measures for Accessibility

	Employment Access	Access to Other Activities
Basic Measure	<ul style="list-style-type: none"> • Number of job opportunities within reasonable travel time 	<ul style="list-style-type: none"> • Number of activity sites within reasonable travel time (e.g. shopping, health care)
Improvements to Basic Measures	<ul style="list-style-type: none"> • By mode • By type of transit (all vs. low-cost) • By type of job (professional vs. service) • Calculate for several travel time thresholds 	<ul style="list-style-type: none"> • By mode • By type of transit (all transit vs. low-cost)
Data Requirements	<ul style="list-style-type: none"> • Population by zone • Jobs by zone • Zone-to-zone travel time estimates by mode 	<ul style="list-style-type: none"> • Population by zone • Location of activities by zone • Zone-to-zone travel time estimates by mode
Examples of Application	<ul style="list-style-type: none"> • Job accessibility by auto and transit • Job accessibility by low-cost transit and by different types of jobs 	<ul style="list-style-type: none"> • Hospitals, colleges, retail destinations
Alternatives	<ul style="list-style-type: none"> • Index of Accessibility: Number of jobs weighted by travel time 	

Access to Other Activities

Agencies have evaluated the accessibility to other destinations that are particularly important to environmental justice analysis. The location of destinations other than jobs may not be readily available to the transportation agency, but other agencies, institutions, or commercial associations may maintain such information. For example, county community service agencies may keep records on the size and location of all hospitals and clinics; economic development departments or a major commercial property developer may have records about the location of retail centers over a particular size.

Access to major retail centers is sometimes used as a proxy for availability of a variety of goods and services, as well as a concentration of employment opportunities, particularly employment for youth and for people that have limited trade or professional training. Measuring access to important resources like

hospitals, education centers, and recreational facilities will also inform the environmental justice analysis.

Accessibility measures are valuable because the outcome of such analysis not only identifies possible problems, it also informs potential solutions. Although conducted in the context of the transportation planning process, the best solutions are not necessarily transportation investments. Where access deficiencies are identified for environmental justice communities, planners should examine options in partnership with other government agencies. For example, where access to a hospital is identified as a problem, planners should consider options for new or expanded community health facilities, in addition to options for improving access to existing facilities.

Travel Time

Travel time performance measures indicate the average time needed for trips that people actually take, or in the case of future travel time, for trips that people are predicted to take. This measure is often more useful than accessibility when there are a smaller number of more central destinations. For example, environmental justice advocates may be more interested in the average time it takes for minorities to reach the closest major commercial center than the number of major commercial centers accessible within a given amount of time.

Average travel time may also be more meaningful than accessibility in assessing actual travel needs. If the jobs that exist near a low-income community require a high degree of professional training, the community could show a high degree of jobs accessibility. But the average travel time would better reflect the reality that those low-income individuals must travel long distances to reach jobs for which they are qualified.

A disadvantage to the travel time measure is that it is derived from trips that people actually take, and therefore will only measure travel for employed individuals. In areas with high unemployment, the measure may not capture the travel needs of those seeking jobs. This highlights the need for planners to consider multiple environmental justice performance measures, tailor the measures to local conditions, and understand each measure's shortcomings.

Important travel time measures for environmental justice analysis include the following, each of which can be measured by mode:

- Work trip travel time
- Non-work trip travel time
- Travel time to key destinations
- Travel time for some specific trip types (shopping, recreation)
- Travel time to specific major activity centers

**Table 4.3
Travel Time Performance Measures**

	Work Trips	Non-Work Trips
Basic Measure	<ul style="list-style-type: none"> • Average travel time for work trips 	<ul style="list-style-type: none"> • Average travel time for non-work trips
Measure Improvements	<ul style="list-style-type: none"> • By mode • By type of transit (all vs. low-cost) • By type of job (professional vs. service) • Calculate for several time thresholds 	<ul style="list-style-type: none"> • Travel time to: • Shopping Centers • Colleges • Hospitals
Data Requirements	<ul style="list-style-type: none"> • Regional travel demand modal work-trip forecasts • Zone-to-zone travel times by mode • Demographics by zone 	<ul style="list-style-type: none"> • Zone-to-zone travel times by mode; Peak and off-peak • Locations of activities by zone • Demographics by zone
Examples of Application	<ul style="list-style-type: none"> • MTC: Travel time to major CBDs 	<ul style="list-style-type: none"> • Columbus, OH, and Milwaukee, WI: hospitals, colleges, retail destinations
Alternatives	<ul style="list-style-type: none"> • Generalized travel cost 	

Transportation Service Provision

The actual provision of transportation service is another valuable measure for environmental justice analysis. This measure is useful because it addresses conditions under the direct control of transportation agencies. Where service gaps are identified, it is transportation agencies that are most directly responsible. Measures of service provision are also among the most tangible and easy-to-understand performance measures. They should, however, be combined with other measures such as the accessibility measure described above, since accessibility is the goal of service provision. Table 4.4 summarizes measures of service provision for several different transportation modes.

**Table 4.4
Performance Measures for Transportation Service Provision**

Type of Measure	Transit Service	Other Modes	Examples
Availability of Service	<ul style="list-style-type: none"> • Average distance to the nearest transit stop • Availability of nighttime service • Availability of low-cost transit options 	<ul style="list-style-type: none"> • Existence of bike lanes • Existence of sidewalks pedestrian crossings for restricted access roadways 	MTC’s Lifeline transit service identified which low-income zones had transit available by various times of day
Proximity of Service	<ul style="list-style-type: none"> • Characteristics of people near new or improved transit facilities 		Boston and Seattle transit agencies measured the percent of the population near transit stations that are low-income and minority
Quality of Service	<ul style="list-style-type: none"> • Frequency of service • Degree of crowding • Number/quality of bus shelters 	<ul style="list-style-type: none"> • Levels of congestion • Intersection delay 	The Chicago Area MPO measured transit frequency and density in low-income and minority areas relative to the regional average
Infrastructure Maintenance & Quality	<ul style="list-style-type: none"> • Age of transit vehicles 	<ul style="list-style-type: none"> • Road surface conditions 	Georgia Regional Transportation Authority compared bridge and pavement conditions between low-income/minority zones and other zones

Other Performance Measures

Other performance measures (such as traffic fatalities per million vehicle miles traveled or carbon monoxide levels between neighborhoods), sometimes reflecting unique characteristics and situations, are used for the analysis. While they may not always reflect the common categories above, carefully defined, they might also be employed. The limit to using such measures is the limited experience with and availability of the data, along with possible disagreements over whether such measures are sufficiently reliable to direct long-term investments in transportation.

Safety Outcomes

Traffic safety issues are critical for minority and low-income communities because they often rely more on walking and bicycling and may be more likely to live in close proximity to streets with heavy traffic volumes. Long-range plans do not define projects in enough detail to predict safety impacts from the plan. But there may be value in measuring the distributional impacts of current accidents.

If safety impacts seem to accrue to particular groups, such a measure can be used to inform qualitatively how transportation safety investments should be targeted.



EXAMPLE

SAFETY PERFORMANCE MEASURE IN OAHU

The Oahu Metropolitan Planning Organization (OMPO) measured the risk of traffic injury and compared this risk between low-income neighborhoods and non-low-income neighborhoods. The analysis was based on crash injury data from the highway patrol, such as might be obtained from California's SWITRS data described in Section 4.3. The results of this analysis can be viewed in the environmental justice analysis of OMPO transportation plan.

<http://www.eng.hawaii.edu/~csp/OMPO/T6EJ/Final2001/EJ_update111601.html>

Environmental Impacts

Measuring the distribution of environmental impacts like air pollution and noise can be done at the plan level, as well as at the project-level. Air and noise impact studies performed for plans will contain less detail than for projects. Some agencies have succeeded in evaluating local scale pollution impacts of plans. (See SCAG Case Study in Section 6.2.) Such analysis is conducted for pollutants that have impacts in the region immediately surrounding the transportation sources. This usually includes particulate matter (PM-10) and carbon monoxide (CO). Common approaches include evaluation of average pollutant concentrations in communities that are predominantly low-income and minority relative to the average concentrations in the region. Some assessment efforts have also considered the demographics of zones where pollution standards are exceeded and compared these against average demographics for the region.



EXAMPLE

MEASURING AIR POLLUTION IMPACTS OF SCAG'S REGIONAL TRANSPORTATION PLAN

SCAG estimated the average concentration levels of carbon monoxide (CO) and coarse particulate matter (PM-10) resulting from the regional transportation plan (RTP), and compared these air pollution levels for minority and low-income populations versus non-minorities populations and the region as a whole (See Section 6.2). Details are available in the appendix of SCAG's RTP, on the Internet at <<http://www.scag.ca.gov/rtp/mainrtp.html>>.

Distribution of Investments

Some environmental justice advocates call for assessing the distribution of transportation funding as a long-range plan performance measure. This presents a challenging issue for both transportation agencies and citizens involved in the planning process. While inequitable funding is certainly the cause of much environmental injustice, funding levels cannot be equated with service. Providing access to jobs and services may cost more in some communities than in others;

demonstration that low-income and minority communities get an equitable distribution of transportation investments does not necessarily mean that environmental justice has been achieved. For this reason, investment measures should not be used in place of more fundamental measures such as accessibility. However, measuring the distribution of transportation investments can be an important complementary measure, particularly in cases where improved accessibility cannot be provided to low-income and minority communities because of a shortages of funds.



EXAMPLES
MEASURING INVESTMENT DISTRIBUTION

SCAG measured the distribution of investments to minority and low-income populations based on investments in each type of travel mode, and the extent to which each minority and income class use each travel mode. (See Section 6.2)

The Georgia Regional Transportation Authority (GRTA) has proposed measuring the demographic characteristics of populations that actually use new or improved transportation facilities. Using these figures and the costs of each investment, GRTA plans to measure the benefits that accrue to each population group.

4.7

Evaluating Disproportionate Impacts

Spatial Distribution versus Area Wide Analysis

Approaches to assessing distributional impacts can be grouped into two broad categories. One focuses on the areawide distribution of impacts between demographic groups, i.e., performance measures that evaluate how a plan affects minorities or low-income individuals regardless of where they live in the region. This contrasts with a spatial approach that considers the distribution of impacts between geographic sub-areas. The spatial approach requires agencies to define communities that are low-income or minority, and then compare them to areas that are not.

Both approaches have pros and cons, and the choice should be made by considering local concerns and in consultation with an advisory group. Using a combination of the two approaches will often maximize disclosure to the public, and best inform planners about the extent to which a plan meets the community's needs. The table below briefly summarizes the advantages and disadvantages of each approach, and supports the notion that most plan evaluations would benefit from a combination of the two.

Table 4.5
Comparing Between Communities Versus Comparing Between Demographic Groups

	Advantages	Disadvantages
Spatial Evaluation <i>(Example: most portions of MTC's 2001 RTP equity analysis)</i>	<ul style="list-style-type: none"> Identifies areas that have a high concentration of traditionally underrepresented residents and that rate poorly for any performance measure. <i>By identifying the location of these areas, the analysis can inform where particular transportation investments should be prioritized. This may also further inform public involvement strategies.</i> Results can be shown on a map for more effective communication of distributional impacts. 	<ul style="list-style-type: none"> May fail to identify the needs of underrepresented groups if they live in an area that does not meet the threshold for an environmental justice community. <i>Low-income or minority residents scattered around the region (as opposed to those living in clusters) may not be identified as needing attention, and performance measures may not be applied to these residents.</i> Requires that specific geographic areas be labeled as "disadvantaged," "communities of concern," or some other term. This has raised concerns about stigmatizing and possibly creating other problems for a neighborhood.
Non-Spatial Evaluation <i>(Example: SCAG's 2001 RTP equity analysis)</i>	<ul style="list-style-type: none"> Compares average transportation plan impacts for all individuals meeting the designated criteria, regardless of where they live in the plan area. Analysis is often easier to perform and to understand since there are fewer arbitrary thresholds. 	<ul style="list-style-type: none"> Results cannot be shown on a map, although graphical representation of results is still possible. Analysis results may be more difficult to translate to specific project needs, since there is no spatial component to the findings.

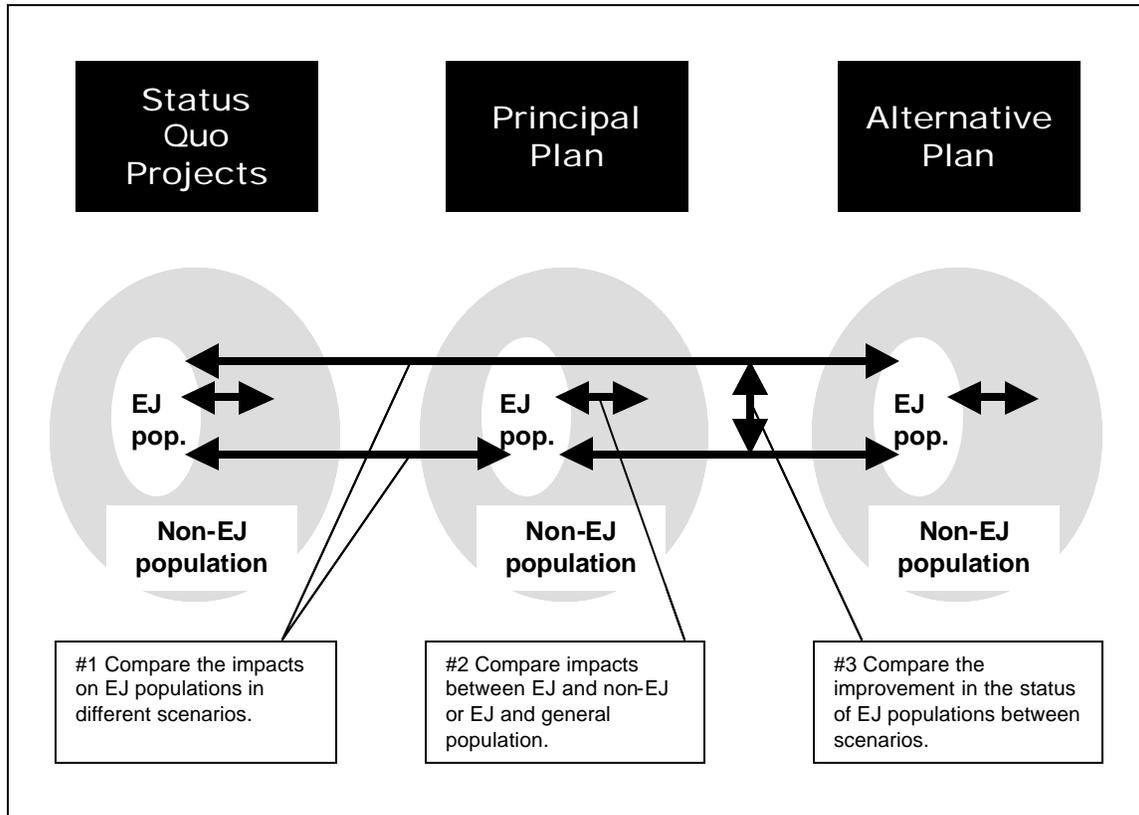
Appropriate Comparisons

The performance measures described in Section 4.6 allow transportation plans to be compared in a number of ways as part of an environmental justice assessment. Comparing present conditions to future conditions for low-income and minority populations is a direct measure of how well a plan serves these communities. But for assessing future conditions there are often several useful options. On one level, an agency can compare, for a particular future plan scenario, the benefits gained by low-income and minority communities versus those gained by the rest of the population. On another level, agencies can compare how low-income and minority communities fare under different future plan scenarios. The appropriate comparison depends on the specific question that needs to be answered; in many cases, it is appropriate to make several comparisons. It is important for public agencies to explain the options to stakeholders and consult with stakeholders in making decisions about which comparisons are suitable.

What Situations Should Be Compared?

There are three principal options in making transportation plan comparisons, as illustrated in Figure 4.2.

Figure 4.2
Options for Plan Comparison Using Environmental Justice Performance Measures



- (1) **Comparison of conditions for environmental justice populations between the status quo and the various future options** . This would be done to understand any areas where the conditions might be worse for low-income and minority populations because of plan implementation. However, because the plan usually represents a substantial investment in the transportation network, low-income and minority groups are often better off than without the plan under many measures. This comparison can also indicate how much each alternative improves conditions for environmental justice populations under various performance measures. Although measures that compare present versus future conditions within low-income and minority populations are not tests of disproportionate impact, such measures are inevitably of interest to these communities.
- (2) **Comparison of plan and alternatives between environmental justice and non-environmental justice populations** . This comparison would indicate whether the proposed projects do more to improve low-income and minority communities than the rest of the population. This most directly addresses the questions of disproportionality. For example, if non-environmental justice groups are found to experience a greater increase in the number of jobs accessible to them than low-income and minority groups, this might be considered a disproportionate impact.

4.9

Maintaining Community Trust and Involvement

Successful long-range planning efforts build relationships. For example, consideration of environmental justice in transportation planning may result in any or all of the following outcomes:

- Community members, planners, and public officials build a common vocabulary and understanding of each other's needs and concerns.
- Different low-income or minority communities build connections with one another and recognize common interests and the importance of participation.
- Planners from different public agencies get to know each other, possibly improving coordination in helping communities participate in planning.
- Public officials from different jurisdictions come to understand better the different ways officials and communities can cooperate for future planning.

All of these connections help to build public trust, encourage citizen involvement, and help the public appreciate the trade-offs inherent in transportation policies and investment priorities. Public agencies need to take proactive steps to ensure that once a plan is finalized, it is not followed by endless outreach efforts and publicity campaigns. If this is allowed to happen, many of the communication channels and trust that were developed through the planning process can be lost.

Maintaining Relationships

In some regards, regional transportation planners face fewer challenges in maintaining relationships with CBOs as compared to other planners because regional transportation plans must be reviewed relatively frequently. For example, most regional transportation plans in California are reviewed every three years, while most elements of the city General Plan are reviewed no more frequently than every ten years. This also means that transportation planners can more easily bridge this period between plans with ongoing community meetings to evaluate progress. Yet absent public agency efforts, even the down time in a three-year planning cycle is sufficient to lose much of the trust and understanding that is developed through a planning effort. It is also sufficient time for significant turnover in planning staff and in the leadership of community organizations.

Maintenance of the relationships that develop through the planning process is particularly important for underrepresented populations. Planners can best maintain this trust over time by treating the planning process and the public involvement component as ongoing, even though an official plan is only required at some designated time interval. Investing time in plans that are not in the process of being updated may initially require additional resources, but the savings will be tremendous when the next official planning phase begins. For example, if planners hold interim meetings with local community groups to assess how proposed programs or mitigations listed in the plan are progressing,

members of the public will better understand how the plan is affecting decisions on a daily basis, and will therefore appreciate the value of influencing the plan.

Monitoring Programs

Performance monitoring is necessary to measure progress toward environmental justice policies and implementation of the actual investments that support those policies. As part of the planning process, planners should work with low-income and minority communities to define transportation performance benchmarks against which actual transportation system performance can be compared. Benchmarks provide low-income and minority communities, as well as policy makers, with a framework for evaluating progress toward implementing adopted regional policies.

Even the act of designing a monitoring program sets the tone that involvement in transportation issues is an ongoing process and adjusts expectations about timelines and plan outcomes. Meeting performance benchmarks is a shorter-term benefit that can be more easily appreciated by low-income and minority communities. Performance monitoring can also make clear that certain actions are the direct result of the most recent plan, thereby providing greater incentive for the public to take an interest in the future planning processes.

4.10

Certification Review and Environmental Justice

The larger Metropolitan Planning Organizations (9 of the state's 43 regional agencies) undergo a certification review by the federal government every three years to assess how well the MPO is meeting federal requirements, including cooperation with other transportation agencies, local governments, and citizens within its planning area. However, all Overall Work Programs (OWPs), including rural RTPAs, include a self-certification. As discussed in Chapter 2, the U.S. DOT Order on environmental justice and clarifying memoranda specify that this review is the appropriate time to assess whether an MPO is complying with Title VI and E.O. 12898. District representatives of the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) conduct these certifications. The California Department of Transportation also receives a certification review by FHWA.

The MPO certification process can result in four outcomes:

1. Full certification.
2. Certification subject to corrective action: requires corrective action, often times with re-examination prior to the next certification cycle.
3. Limited certification: some projects are postponed until corrective action is taken.
4. Withheld certification: may trigger a withholding of federal formula funds that are allocated to the metropolitan area.

In the October 1999 clarifying memorandum, FHWA and FTA identified the following specific issues to be discussed as part planning certification reviews to aid to reviewing and verifying compliance with Title VI requirements.

Overall Strategies and Goals:

- What strategies and efforts has the planning process developed for ensuring, demonstrating, and substantiating compliance with Title VI?
- Has the planning process developed a demographic profile of the metropolitan planning area or State that includes identification of the locations of socio-economic groups, including low-income and minority populations?
- Does the planning process seek to identify the needs of low-income and minority populations? Does the planning process seek to utilize demographic information to examine the distributions across these groups of the benefits and burdens of the transportation investments? What methods are used to identify imbalances?

Service Equity:

- Does the planning process have an analytical process in place for assessing the regional benefits and burdens of transportation system investments for different socio-economic groups? Does it have a data collection process to support the analysis effort? Does this analytical process seek to assess the benefit and impact distributions of the investments included in the plan and TIP (or STIP)?
- How does the planning process respond to the analyses produced? Imbalances identified?

Public Involvement:

- Does the public involvement process have an identified strategy for engaging minority and low-income populations in transportation decision-making? What strategies have been implemented to reduce participation barriers for such populations? Has their effectiveness been evaluated? Has public involvement in the planning process been routinely evaluated as required by regulation? Have efforts been undertaken to improve performance? Have organizations representing low-income and minority populations been consulted as part of this evaluation? Have their concerns been considered?
- What efforts have been made to engage low-income and minority populations in the certification review public outreach effort? Does the public outreach effort utilize media (such as print, television, radio, etc.) targeted to low-income or minority populations? What issues were raised, how are their concerns documented, and how do they reflect on the performance of the planning process in relation to Title VI requirements?

will cover cities, the county and transit. There are specific county transportation plans, but as with regional plans they should also involve the public and diverse communities throughout the plan development. Sometimes Congestion Management Programs are done in lieu of county plans, but this is done in only about 20 of the 58 counties.

Where MPOs cover multiple counties, the counties' individual plans are often an important source of project priorities. Although MPOs are responsible for prioritizing critical region-wide programs, they rely heavily on counties' own plans for more local projects. This is based on the assumption that these plans were generated with appropriate public outreach and consideration of broad county goals. This has been a challenging area with regard to the increased focus on environmental justice requirements. For example, MTC relies on county Congestion Management Agencies to provide local county priorities, a process that came under fire during the 2001 regional planning process. Environmental justice advocates complained that MTC was responsible for ensuring equitable public outreach and that some counties did not provide this. As a consequence, MTC issued special guidance to these agencies regarding what is expected of them in their own local project prioritization processes (see boxed example).



EXAMPLE

MTC GUIDANCE TO COUNTIES REGARDING ENVIRONMENTAL JUSTICE

MTC has provides the following guidance to counties developing transportation plans and programs:

Consult with Title VI communities - It is critical to make a special effort to hear comments from low-income and minority communities covered under Title VI of the Civil Rights Act. As mentioned above, MTC will be organizing a series of targeted workshops for various stakeholder groups, including Title VI Communities. We will invite you to attend these meetings. However, your agency should directly seek out the views and concerns of Title VI communities regarding candidate projects in your county.

Set the context in plain language - It is critical to provide clearly written materials for people not versed in transportation jargon. This material should include a discussion of what is in play in your county with respect to RTP project submittals, including any competing alternatives. MTC can provide you with a "tool kit" of displays that set the context for the RTP, and assist in tailoring additional displays about projects in your county. If you are consulting a group whose primary language is something other than English, be sure to provide for translation services.

General Plans

Counties that do not prepare a countywide transportation plan will, at a minimum, include some discussion of transportation issues in a general plan. General plans usually consider a 20-year time horizon, so they have many of the same challenges as metropolitan long-range plans with regard to engaging low-income and minority communities. Since general plans are typically updated every 10 years or more (with the exception of the Housing Element, which must be updated every five years), they have the additional challenge of a longer time period between updates during which many community advocacy groups will lose the institutional experience needed to participate most effectively.

Very few general plans currently address environmental justice issues in their circulation element. As described in Chapter 2, the Governor’s Office of Planning and Research (OPR) is currently preparing guidelines on how cities and counties can best incorporate environmental justice considerations into their planning efforts. OPR conducted four public hearings around the state to hear comments about what should be included in the draft guidelines. Updates on this process can be found on OPR’s Internet site at <http://www.opr.ca.gov/ejustice/overview.shtml>.

Transit Agency Strategic Plans

Transit services are generally discussed at length in both regional transportation plans and countywide plans, particularly in urban areas. However, transit agencies have plans of their own, usually described as strategic plans. Like countywide transportation plans, these plans feed into the regional planning process. Transit planning efforts usually involve more targeted public involvement focused on current transit riders. These planning efforts often require difficult trade-offs in prioritizing service improvements. However, transit agencies have fewer competing interests. In many areas, these agencies serve mainly low-income, disabled, youth, and elderly communities. While there may be disagreements over route priorities, there is usually a great deal of agreement over what constitutes quality service. Much of the public involvement from this community is focused on securing more resources for the agency in general.

One of the most prominent transportation and environmental justice legal cases concerned the investment strategy for the Los Angeles County Metropolitan Transit Authority (MTA). In this case, environmental justice advocates charged that MTA disproportionately allocated resources to rail transit over bus ridership, and that this expenditure pattern discriminated against low-income minorities (see discussion in Section 2.2). Many of the accusations for this case were built on measures of equitable investment. For example, the plaintiffs alleged that although 94 percent of MTA’s ridership was using buses, the agency was spending 70 percent of its budget on the 6 percent of riders using rail transit. Similar evidence regarding disparities in spending on security, overcrowding conditions, and service frequency made a compelling case. MTA agreed to arbitration that led to a settlement involving expanded investments in the bus network.

Since the time of the initial settlement of the MTA lawsuit, substantial guidance has been developed relating to equitable provision of transit service. Within the SCAG region itself, for example, the Regional Transportation Plan’s inclusion of equity performance measures (see Section 6.2) specifically for “low-cost transit” is likely to ensure that local transit agencies cannot repeat the practices for which MTA was sued.



RESOURCE

The Public Transit Office of the Florida Department of Transportation has produced a reference guide for transit agencies seeking to better incorporate environmental justice in their activities. It is available from the University of South Florida’s National Center for Transit Research, on the Internet at <http://www.nctr.usf.edu/pdf/CIAandEJforTransit.pdf>.

Statewide Transportation Plan and the STIP

States also periodically develop long-range transportation plans. The California Department of Transportation, in partnership with regional and local agencies, is currently developing a 20-year state transportation plan. The California Transportation Plan (CTP) will provide strategies for meeting future transportation needs for the entire state and will identify priorities for spending limited transportation funds. The plan will also serve as a framework for linking state, regional, and local transportation plans. The state transportation planning process considers the entire transportation system including roadways, rail, transit, seaports, airports, bikeways, and pedestrians. Because California allocates an unusually high level of autonomy to individual regions for long-range planning, by law the California Transportation Plan is more as a visionary document. Environmental justice efforts for such plans should be directed to inclusive public involvement and also the development of environmental justice objectives and strategies that can inform funding priorities.

The Department has taken steps to make the outreach process inclusive by developing materials in multiple languages and by holding meetings in diverse communities, and using RTPA and MPO resources for outreach when possible. Background materials suggest that the plan will specifically address a range of environmental justice issues such as job access, personal costs of transportation, equitable funding of transit services, the high cost of housing, and land development patterns that create greater challenges for those who use alternative modes. The final plan should establish concrete goals for improving transportation services for minority and low-income groups, and strategies for how this can be achieved.

In addition to long-range planning efforts, the Department prepares the state's Interegional Transportation Strategic Plan (ITSP) and the biennial Interregional Transportation Improvement Program (ITIP). The ITIP is listing of projects outside of metropolitan areas to receive funding, including the interregional road system and intercity rail system. At this time, public involvement does not play the same prominent role in the development of the ITSP and ITIP as it does in the California Transportation Plan.

Projects within metropolitan areas are programmed for funding by the respective regional planning agency (usually the MPO). Programming in a few instances is done at county transportation commissions and RTPAs through the development of Regional Transportation Improvement Programs (RTIPs).

The Department assembles the RTIPs together with the ITIP to form the Statewide Transportation Improvement Program (STIP). The STIP is essentially a listing of all state or federally funded projects in California for a five-year period. The STIP is approved or disapproved by the California Transportation Commission (CTC), a body appointed by the Governor. For flow charts and more information on this process see the Internet site of the Department's Programming Division at <<http://www.dot.ca.gov/hq/transprog/index.htm>>.

By the time projects are included in the STIP, they should already have been considered from an environmental justice perspective within long-range

transportation plans. There is currently no evaluation of distributional impacts of the STIP and ITIP in California. A number of states, including Michigan, Ohio, and Minnesota, have issued initial guidance on conducting environmental justice outreach for STIPs. A few states have also analyzed the distribution of impacts and investments. For example, the Michigan DOT evaluated all STIP projects that were not included within the RTIPs. This analysis examined both the number of projects and the total project costs for “environmental justice zones” relative to the total projects and investments for the entire state.⁸³ The Ohio DOT draft environmental justice policies state that, “In order to comply with Environmental Justice, ODOT STIP staff are expected to...conduct a disproportionate impacts test on the projects identified in the final STIP.”⁸⁴

Environmental Justice and Transportation Project Development

This chapter describes strategies for promoting environmental justice within the transportation project development process in California. An overview of the project development process is provided first, with references to the role of environmental justice at each stage. This is followed by a description of analytical approaches that may be useful in addressing environmental justice during project development.

Because there has thus far been little definitive guidance on how to incorporate environmental justice into the transportation project development process, the intent of the following discussion is to suggest for the reader those techniques that may be effective and to direct the reader to additional materials that may be helpful in finding solutions – defined in the “Resources” text boxes below. While no single method or set of resources will satisfactorily address the potential environmental justice issues of every project, this chapter seeks to outline the typical approaches that have been successfully applied in various settings, and to identify other tools that may be helpful to tailor an environmental justice analysis to transportation projects that require a creative and individualized treatment.

5.1

Overview of the Transportation Project Development Process

Project Types

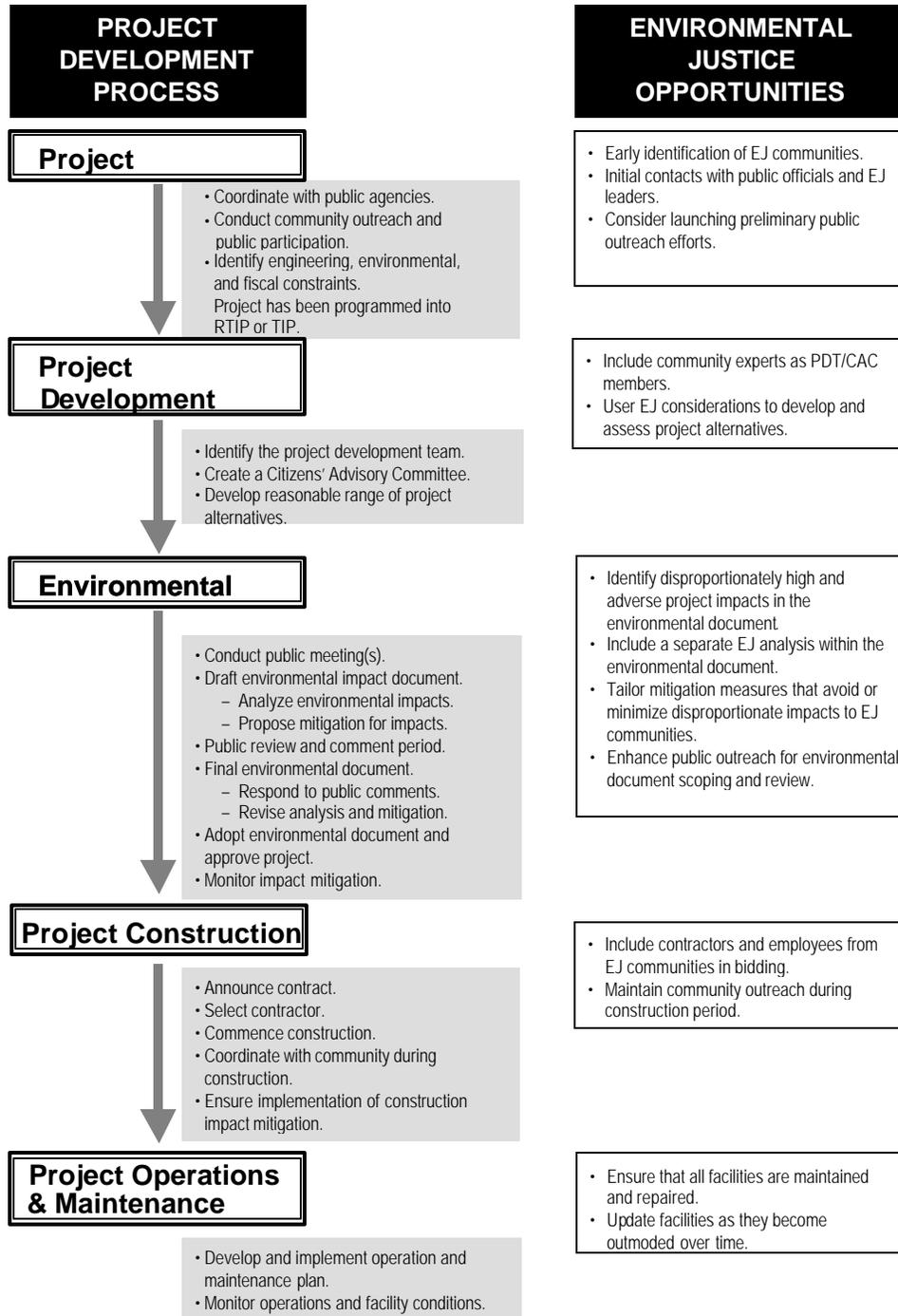
The transportation project development process in California is generally similar across transportation modes (i.e., highways and roads, mass transit, airports, and seaports), although some differences in nomenclature and documentation requirements exist. As such, it is important to be familiar with project development guidance materials issued by the relevant modal agency. In addition to the type of transportation mode, the level of involvement by federal, state, and local authorities in a project will also affect the project development process, as will the scope of a particular project. Thus, for purposes of this discussion, a typical transportation project development process that would apply in most situations is assumed. Figure 5.1 illustrates the steps in a traditional transportation project development process and opportunities to achieve environmental justice goals at each step.

RESOURCE



For project development requirements applicable to a particular mode and public agency, the guidance materials promulgated by the appropriate state and federal modal agencies should be consulted (e.g., Federal Highway Administration [FHWA], Federal Transit Administration [FTA], Federal Aviation Administration [FAA], Federal Railroad Administration [FRA], and California Department of Transportation).

Figure 5.1
Project Development and Environmental Justice Opportunities



The Project “Life Cycle”

All transportation projects, regardless of mode, agency involvement, or scope, tend to follow a similar “life cycle” of phases from their commencement to eventual operation. At each stage or phase through which a project passes, there are opportunities to consider and incorporate environmental justice concerns. Indeed, it is a comprehensive, project life span approach that can best achieve environmental justice in the project development process.

Planning and Needs Assessment

A transportation project in its earliest inception is the product of considerable planning at the regional and systems levels. In brief, the planning process typically identifies transportation needs, considers various means of addressing those needs, and recommends transportation investments – or “projects” – to at least conceptually meet the transportation needs. This process, and the many opportunities it provides to integrate environmental justice issues, is described in Chapter 4.

Environmental Justice Opportunities: Perhaps the most important element of transportation planning that can contribute to whether a transportation project successfully achieves environmental justice is an accurate assessment of transportation problems (i.e., “needs”) and the transportation solutions that are proposed (i.e., “investments”). A common complaint voiced by community members during the development of these guidance materials was that transportation planners failed to meaningfully consider communities’ own assessments of their transportation needs and the investments that would meet them. *At this earliest transitional stage from planning to project development, agencies should be inquiring whether the project purpose and need have adequately taken into account community needs-- just as engineering, corridor capacity, safety, and cost issues have been considered. There ought to be a clear connection between the identified needs and proposed solutions.*

Project Initiation Studies

Project programming always begin with some form of project initiation studies. Both the Department and the regional agencies begin the process for highway projects with a “Project Initiation Document” (PID). Such documents usually include preliminary engineering efforts, alternatives analyses, and information related to the project cost, schedule, and scope. The purpose of project initiation studies is to preliminarily analyze feasibility of construction, financing, project operations, interagency coordination, environmental constraints, and public involvement. It is particularly in the latter two areas that environmental justice concerns should be considered.

Environmental Justice Opportunities: Although purposefully abbreviated and limited in detail, project initiation studies can provide a critical early opportunity to identify potential environmental justice issues associated with a proposed transportation project. For example, this early stage of project evaluation is an

appropriate time to identify whether the project would be located in or near low-income and minority communities, and whether it would be likely to impose adverse environmental effects or really meet their needs. This is also an important stage for project staff to initiate contacts with key community constituencies to make them aware of the project and gather their concerns. At a minimum, planners should inform community leaders (e.g., government, religious, educational, and civic leaders) on proposed projects so that they can pass this information along to the public in a manner that is consistent with community norms. Questions may arise regarding where the project proposal originated. It will be important to identify whether and how low-income and minority communities were represented in the process that led to the project initiation study. *While it can be a significant challenge to describe a project conceptually to nearby communities, such early involvement is a vital element of building trust that is a prerequisite to meaningful input as the public involvement process proceeds.* Additionally, project staff can begin to consider early community feedback as an important measure of whether project alternatives are feasible.

Advisory Committees

Beginning with the project initiation phase, and for the duration of the project development process, a Citizens Advisory Committee (CAC) is often identified to provide a form of ongoing public oversight. A CAC is typically comprised of members from different disciplines and agencies who meet on a regular basis. The CAC can assist project managers with such project development tasks as gathering data, conducting project studies, meeting with other agencies and the public, and providing an interdisciplinary oversight to the process. The CAC also provides a very useful forum for including environmental justice issues in the project development process. (See Chapter 3 for additional discussion of CACs.)

Environmental Justice Opportunities: A CAC that aims to successfully develop a transportation project with community support will include among its diverse membership those persons and organizations who can effectively advocate for community concerns, especially where low-income and minority communities are likely to be affected. Team members could include the community and environmental impacts analysis specialists of the involved agencies, public involvement and community outreach staff, and community members themselves. It is in this respect (i.e., actual community representation) that CACs have traditionally fallen short. Whether due to agency perceptions about the capacity of community members to effectively participate, or simply an institutional tendency to “look within,” the failure to include those persons who are most affected by a project will substantially impair the achievement of environmental justice in the project development process. Just as transportation agencies have numerous “experts” in planning, design, and engineering, so too, do communities have their own “experts.”



RESOURCE

Many times, separate databases of community-based organizations (CBOs) will be maintained by state, regional and local agencies. Planners should consult available lists in order to identify persons and organizations who may be affected by a proposed project or who can speak for particular low-income or minority populations.

Alternatives Analysis

The alternatives analysis phase of transportation project development requires that planners identify and evaluate alternative means of satisfying the goals of the project. Alternatives can be generated on the basis of mode, location, design, cost, and project impacts. Consideration of what transportation mode the project will serve is generally limited during project development phase, since those types of choices are usually made at the regional and systems planning levels. In the case of corridor developments and multi-modal projects, however, there may be more flexibility to consider a diversity of modes in the alternatives analysis.

Location alternatives can be similarly limited by earlier planning decisions, especially where the proposed project's purpose is to meet a transportation need in a certain geographic area or where the project involves modification of an existing facility. In this case, alternatives may simply consist of relatively modest alterations in location within a limited area. Transportation agencies have increasingly considered design variations as a means of developing project alternatives. Especially in those instances where modal and location alternatives are less feasible, design modifications can contribute to the creation of a wide range of project alternatives. Finally, using preliminary information gathered during the project initiation studies, project staff can form alternatives that avoid or minimize potential adverse impacts and maximize project benefits.

Environmental Justice Opportunities: The development and analysis of project alternatives offers numerous opportunities to promote environmental justice in the project development process. This requires that project staff are cognizant of environmental justice concerns and are willing to give them as much deliberative weight as such factors as constructability or cost. The primary advantage of bringing environmental justice concerns into the alternatives analysis phase of project development is that this phase typically provides the final chance to significantly alter a project's scope and effects. Mitigation measures included in subsequent phases of environmental review (discussed below) can also be helpful, but tend to be viewed with skepticism by environmental justice advocates as being "too little, too late." When project staff can point to early and consistent and sincere efforts to address environmental justice issues, particularly during the alternatives phase of project development, there will likely be more support for the ultimate project and proposed mitigation measures and enhancements.

Environmental Studies

Nearly all California transportation projects are subject to the requirements of the California Environmental Quality Act (CEQA). Most must also comply with the National Environmental Policy Act (NEPA). During this environmental review phase of project development, project staff must document the purpose of and need for the project, describe the proposed project (and, where required, the range of reasonable and feasible alternatives to the project), assess the potential environmental effects of the project, and then propose mitigation measures to avoid, reduce, or otherwise minimize any adverse effects associated with the project.

The role that CEQA and NEPA play in promoting environmental justice has been discussed in section 2.5 and 2.7 respectively. Also, as discussed above, Senate Bill 115 (passed in 1999) required that the CEQA Guidelines specifically address the appropriate consideration of environmental justice within the CEQA process. However, this guidance had not been incorporated as of July 2002.

Environmental Justice Opportunities: The great paradox of the environmental review process with regard to environmental justice is that, on one hand, environmental assessment can be an incredibly powerful analytical tool in the consideration of environmental justice issues, while on the other hand, the scope of legally-mandated review of social and economic effects underlying environmental justice is constrained by the relevant environmental quality laws. Nonetheless, environmental documents and the public involvement process that is part of their review continue to be an important forum for environmental justice analysis. The analysis within environmental documents can, and should, document the basis for determining whether a project has disproportionately high and adverse environmental effects, especially when those effects are clearly tied to physical environmental effects (e.g., air and water pollution, noise, use of hazardous materials).

The public involvement component of the environmental review process can also provide opportunities to include low-income and minority communities in project development. Public meetings and the public review period required for environmental documents are the obvious existing means of reaching out to environmental justice communities, but should not generally be the only means of community outreach. Although transportation agencies have historically viewed the community outreach part of the CEQA and NEPA process as sufficient to meet environmental justice requirements, there are clear limitations to this approach. First, environmental justice communities often perceive this as being too late in the process, since important decisions about project scope and status have often been made. Earlier and more extensive public outreach, well before the environmental documentation phase, is advised in order to avoid such perceptions. Second, and related to the first concern, is the fact that community involvement that takes environmental justice matters into consideration earlier in the project development process can benefit from the greater degree of flexibility available to agencies with respect to decisions on project mode, location, and enhancements.

The mitigation measures proposed as part of environmental assessment of a project can certainly provide a means of handling environmental justice concerns, but should not necessarily offer the only way to do so, particularly so late in the project development process. Finally, if environmental justice issues are addressed prior to the environmental documentation phase, there may be considerably more community support for the project. The community as a whole, and low-income and minority populations specifically, may see the resulting project as having better balanced the burdens of development with the benefits that accrue from increased mobility.

Operations and Maintenance

Once transportation projects have been approved and constructed and the project development process is considered complete, ongoing operation and maintenance occur for the lifetime of each particular facility. The activities that constitute operations and maintenance range from the day-to-day functioning of a facility to the routine repair and upkeep of the facility. Operations and maintenance issues can also form the basis for new transportation investments as outmoded facilities require improvement and expansion over time.

Environmental Justice Opportunities: The operations and maintenance of transportation facilities should not be overlooked as an important place for including environmental justice considerations. Activities that agencies may view as mundane and routine can frequently form the basis of many environmental justice communities' distrust of and anger toward those agencies. Communities in proximity to transportation facilities are often the first to experience the adverse effects of deteriorated, poorly maintained, or obsolete facilities. Activities as simple as installation and upkeep of landscaping, litter removal, graffiti control, and context-sensitive architectural and aesthetic treatments to structures can all better integrate transportation projects into communities over their lifetime.



EXAMPLE

FACILITY MAINTENANCE AS A PREREQUISITE FOR TRUST

One activist from Oakland explained that Caltrans staff cannot expect to win the community's trust until Caltrans properties are maintained in a way that reflects respect and sensitivity toward those living and working around the facilities. If the community perceives a lack of concern for the neighborhood's well-being reflected in a public agency's property maintenance, community members may see little point in going to a public meeting sponsored by the agency.

Another activist pointed out the importance of considering community concerns when controlling vegetation along rural highways. Some American Indians collect grasses growing in the highway right-of-way for basket weaving. When public agencies use herbicides to control the vegetation, they may expose those gathering the grasses to high levels of toxic and possibly carcinogenic substances. Caltrans has an internal policy of not spraying toxic herbicides to control roadside vegetation, but it is not always consistently enforced.

5.2

Effective Project Impact Analysis

Linking Public Involvement and Technical Analysis

When approaching environmental justice in the context of project development, it is important that environmental justice issues be addressed through more and better public involvement as well as a technical assessment of environmental and human health effects. Although enhanced public involvement has probably been the most visible approach to environmental justice in the project development setting, agencies are increasingly establishing technical methods to measure the

distribution of burdens and benefits of transportation projects. Key to this combined outreach and analytical effort is that the finding that, by actively engaging and involving environmental justice communities as early as possible in the project development process, agencies can be more confident that subsequent technical analyses address the issues that communities consider important.

The public involvement and community outreach methods that transportation agencies may utilize in project development include the concepts previously described and referenced in Chapter 3. These techniques would include, but not be limited to, public workshops and meetings with increased accessibility (e.g., provision of child care, language translation services, and convenient times and locations for meetings), as well as alternative means of involvement (e.g., design charrettes and focus groups, Internet-based and other multi-media outreach, and joint notices and meetings with existing community-based organizations).

The technical analysis methods available to transportation agencies to incorporate environmental justice into the project development process are increasing in both number and sophistication. The following sections of this document outline the important issues to be addressed in assessing environmental justice during project development, and suggest a range of methods that can be used for such assessments. A key component of this discussion is the proposed “Model Environmental Justice Analysis for Transportation Projects” described below. This model, based on current law, regulations, transportation agency guidance, and the reported experiences of various federal and state transportation agencies, is intended to focus the reader on the basic issues that must be addressed as part of an environmental justice analysis for transportation projects.

Defining and Identifying Affected Populations

An effective impact analysis of environmental justice in transportation project development begins with the definition and identification of affected population groups. The regulatory definitions of low-income and minority populations were first presented in Chapter 2. This section reviews those definitions, highlighting where guidance differs from agency to agency, and note which definitions are used most widely. As discussed below, some agencies and community organizations have considered expanding the types of affected populations to such groups as the elderly, the disabled, and other mobility-impaired or transit-dependent persons.

Minority Populations

As defined in Executive Order 12898 (E.O. 12898) and subsequent agency guidance, the term “minority” includes any individual who is an American Indian or Alaskan Native, Asian or Pacific Islander (including Native Hawaiian), Black/African American (not of Hispanic origin), or Hispanic/Latino. The definition of what constitutes a “minority population” has varied over time and from agency to agency.

Council on Environmental Quality Federal Interagency Working Group on Environmental Justice: Minority populations should be identified where either: (a) the minority population of the affected area

exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. In identifying minority communities, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a geographically dispersed/transient set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect. The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds.

U.S. Department of Transportation/FHWA/FTA Guidance:

A “minority population” means “any readily identifiable groups of minority persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed program, policy, or activity.

FHWA Western Resource Center: “Population” means any readily identifiable groups or clusters of minority persons . . . who are in the project study area.

According to the recent National Cooperative Highway Research Program study on technical methods for environmental justice analysis, the U.S. DOT definition of “minority population” appears to be gaining favor among transportation agencies, despite its less quantitative approach than the initial proposal from the CEQ.⁸⁵ In fact, the underlying analytical premise for determining minority (and low-income) populations has largely shifted from an evaluation based on the size of population groups to an assessment of the comparative effects of a transportation project among different population groups regardless of their relative proportions of the total population. However, as detailed below in the model analysis, there may still remain a role for quantitative measures of population groups when determining the comparative effects of transportation impacts.

Low-Income Populations

The term “low-income” is defined in accordance with E.O. 12898 and agency guidance as a person with household income at or below the Department of Health and Human Services (HHS) poverty guidelines. As with the definition of “minority population,” the definition of “low-income population” has evolved and differed among agencies.

CEQ Federal Interagency Working Group on

Environmental Justice: Low-income populations in an affected area should be identified with the annual statistical poverty

thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as community either a group of individuals living in geographic proximity to one another, or a geographically dispersed/transient set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.

U.S. Department of Transportation/FHWA/FTA Guidance:

A "low-income population" means "any readily identifiable groups of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed program, policy, or activity.

FHWA Western Resource Center: "Population" means any readily identifiable groups or clusters of . . . low-income persons who are in the project study area.

As with "minority population," agencies appear to be settling on the U.S. DOT definition as the favored one.⁸⁶ Rather than relying on the size of low-income population groups, agencies are urged to focus on a comparative analysis of transportation projects on different groups. Accordingly, even where a group is relatively small, there still may exist a disproportionately high and adverse effect.

While census data on minority status is available at the block level (the smallest unit of census data analysis), income is available only at the block group level. For some analyses, it may be desirable to know the number of low-income households at a smaller scale. Some analysts have used regression techniques to estimate low-income populations at the block level, taking advantage of the fact that income is often correlated with other variables reported on the census short form. A regression equation should be developed to predict the percentage of low-income households at the block group level, using short form variables such as age and housing tenure. Once the best fitting equation has been developed, it can then be applied to block level data to predict low-income households by block. To illustrate, the following equation was developed for the Waterloo, Iowa region:⁸⁷

$$P = 69.8865 - 0.0002651v - 0.5318h - 0.4800e$$

where:

P = percentage of persons in households with incomes below the poverty level

v = median home value (not available from the census at the block level, but often available from other sources)

h = percentage of homes that are owner-occupied

e = percentage of population over 65 years old.

Other Populations of Concern

The legal, regulatory, and administrative guidance on environmental justice has, so far, been limited to the consideration of only minority and low-income populations. There has nevertheless been some degree of openness to a more inclusive view of what population groups fall within environmental justice protections. For instance, the FHWA/FTA Internet site on environmental justice now recognizes that additional groups may be considered in environmental justice assessments:

“Within the framework provided by Executive Order 12898 on Environmental Justice, the U.S. DOT Order (5610.2) addresses only minority populations and low-income populations, and does not provide for separate consideration of elderly, children, disabled, and other populations. However, concentrations of the elderly, children, disabled, and other populations protected by Title VI and related non-discrimination statutes in a specific area or any low-income group ought to be discussed. If they are described as low-income or minority, the basis for this should be documented.

“...All impacts on sectors of the community, including minority and low-income populations as well as impacts on the community as a whole, should be routinely investigated, analyzed, mitigated, and considered during decision making, similar to investigations of impacts on minority populations and low-income populations.”

As a matter of practice, and to the extent permitted by agency policy, transportation staff might consider other population groups beyond those specifically protected by the current guidance, especially where characteristics unique to a particular community or project exist (e.g., the presence of readily identifiable groups that are historically known to be marginalized and could be affected as a group in a similar manner).

Data Sources

The principal source of data to identify and define environmental justice communities has been the decennial U.S. Census of Population and Housing (U.S. Census). For the 2000 U.S. Census, data on race and ethnicity are provided in the Summary File 1 (SF1), while data for income levels and poverty status are detailed in Summary File 3 (SF3). Depending on the scope and complexity of a proposed transportation project, agencies should generally acquire U.S. Census data at the census tract level for the project area. Where a more focused study is warranted, data at the block group and individual block levels may also be appropriate.

Census data, though a powerful and uniform source of information on environmental justice populations, cannot and should not always be sufficient. The “Resources” box below lists additional demographic data sources that should be considered for transportation projects in California.



Besides government demographic data sources, transportation agency staff should also not overlook non-technical sources of data to identify and define environmental justice population groups. Field surveys of the affected project area can provide numerous indicators of community characteristics (e.g., businesses and public facilities catering to particular cultural groups or non-English language signage). Consultations with local government staff can also be helpful in determining the presence and location of affected population groups. Finally, direct contact with community-based organizations serving the area will often afford project development staff with detailed, current information about the composition of neighboring communities.

RESOURCE

Sources of data to identify and define environmental justice population groups:

- U.S. Census, Summary Files 1 and 3
- U.S. Department of Health and Human Services, Poverty Guidelines
- California Department of Finance, Demographic Research Unit
- California Department of Education, Educational Demographics Office, DataQuest
- County and city general plans
- County health departments - vital statistics and social services offices
- Local school districts

Determining Disproportionately High and Adverse Impacts

The determination of whether a transportation project will have a disproportionately high and adverse impact is at once perhaps the most critical yet least well-defined aspect of environmental justice assessment. Neither E.O. 12898 nor Title VI defines “disproportionately high and adverse impact.” The federal CEQ Interagency Working Group advanced the following definition:

“When determining whether environmental effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable:

- “(a) Whether there is or will be an impact on the natural or physical environment that significantly (as employed by the National Environmental Policy Act) and adversely affects a minority population, low-income population, or Indian tribe. Such impacts may include ecological, cultural, human health, economic, or social impacts on minority communities, low-income communities, or Indian tribes when those impacts are interrelated to impacts on the natural or physical environment; and
- “(b) Whether environmental effects are significant (as employed by the National Environmental Policy Act) and are or may be having an adverse impact on minority populations, low-income populations, or Indian tribes that appreciably exceeds or is likely to appreciably exceed those on the general population or other appropriate comparison group; and
- “(c) Whether the environmental effects occur or would occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.”

Subsequent guidance and policy documents from the U.S. DOT have not adopted the CEQ definition, and they have not proposed an alternative. Consequently, as the recent NCHRP report on environmental justice technical methods observes, “judgments about what constitutes a ‘disproportionate’ distribution of impacts (or of benefits) must be made on a case-by-case basis.”⁸⁸ Bearing in mind this rather indefinite status for determinations of disproportionately high and adverse impact, the following section outlines a “Model Environmental Justice Analysis for Transportation Projects” that agencies might consider in the absence of further formal guidance.

Model Environmental Justice Analysis for Transportation Projects

This analytical model for addressing environmental justice considerations arising from transportation projects is intended only to establish a general framework. The reader is cautioned that the model analysis is a recommended approach that seeks to highlight the typical kinds of environmental justice issues applicable to most transportation projects. As with all environmental justice analysis methods, the model analysis is not a “one size fits all” solution for all projects and all communities, nor should it be considered the definitive word on the subject. Environmental justice efforts at all levels of transportation project development remain in the relatively early stages of evolution and continue to be extremely fluid. Thus, in addition to constantly remaining abreast of the characteristics of the communities they serve, transportation staff should always consult their updated agency guidance along with the current legal and regulatory requirements governing environmental justice in transportation planning and project development.

The model analysis follows the format of most NEPA and CEQA environmental documents (i.e., Setting/Affected Environment, Impacts, Mitigation); however, this is not to suggest that the environmental documentation phase is always the only appropriate stage of project development to analyze environmental justice issues. As noted earlier, environmental justice considerations can and should be incorporated throughout the project development process. In addition, an environmental justice analysis can be part of an environmental document, a supplement to such a document (e.g., a technical study), or an entirely separate document prepared in support of other project development phases.

ANALYTICAL STEP 1: Introduction and Project Description

The environmental justice analysis should commence by briefly summarizing the legal and factual basis for an environmental justice assessment. This involves a citation to the appropriate legal, regulatory, and/or administrative requirements (e.g., E.O. 12898, Title VI, and any applicable agency guidance or policy statements). A project description should then follow, with the level of detail commensurate with the relative scope of the proposed project. At a minimum, the project description should include the project location, its physical components, and the justification for it (i.e., the project purpose and need). Where a more

thorough and detailed project description has already been provided elsewhere, incorporation by reference would be appropriate.

**ANALYTICAL STEP 2:
Setting/Affected Environment**

Establish a Project Study Area - The project study should encompass a geographic location where the potential environmental and human health effects of the proposed project would be reasonably foreseeable for environmental justice population groups.

Identify Existing Population Groups - As outlined above, the characteristics of the population in the project study area should be described in terms of race/ethnicity, income, and poverty status. Additional demographic variables, such as age, disability status, and housing occupancy and tenure may also be provided as indicators of whether environmental justice populations are present.

In those instances where it can be documented that no minority or low-income populations (or other environmental justice populations, where deemed appropriate) are present, the environmental justice analysis may conclude at this point.

Summarize Public Involvement/Community Outreach - The public involvement and outreach efforts that have been (and will be) conducted for the proposed project should be documented. To the extent possible, the public involvement associated with each phase of project development should be stated. This discussion should also summarize the issues that have been raised through public outreach and the measures that are proposed to address those concerns.

**ANALYTICAL STEP 3:
Impact Analysis and Mitigation**

Identify Impacts to General Population - Wherever possible, the impact analysis discussion should provide an overview of the environmental impacts of the proposed project that have been previously detailed in either a CEQA and/or NEPA environmental document or as part of independent technical studies. If no such other impact analyses have been conducted, then an analysis of project impacts should be incorporated into the environmental justice analysis itself. The types of issues that should be examined in such an impact assessment are outlined below.

Identify Impacts to Minority and Low-Income Populations - The impacts of the proposed project on minority and low-income communities should be evaluated in comparison to the impacts on the general population. The determination of whether an impact is adverse should not turn solely on the size of the affected population, since a disproportionately high and adverse impact can exist for even very small minority and low-income population groups.

Identify Measures to Avoid or Minimize Impacts to General Population - When adverse impacts on the general population are found to exist, the measures that are proposed to avoid and/or minimize those impacts should be specified. Related transportation enhancements associated with the project can be described here as

well. Project components that demonstrate sensitivity to population groups, neighborhoods, and/or communities would also be relevant to this discussion.

Assess Efficacy of Mitigation for Minority and Low-Income Populations - If the impact analyses indicate that there are minority and/or low-income populations that will be affected by the project, then the relative efficacy of the proposed mitigation measures should be evaluated. There should be a determination of whether impacts to minority and low-income populations will or will not remain adverse after taking into consideration mitigation measures and project benefits.

Conclusion - Based on the foregoing analysis, two possible conclusions may be drawn: (1) the proposed project *will not* cause disproportionately high and adverse impacts on any minority and/or low-income population groups because all impacts have been found to be less than adverse after consideration of mitigation measures and project benefits; or (2) the proposed project *will* result in adverse impacts to minority and/or low-income population groups even after consideration of mitigation measures and project benefits. The first conclusion would require no further environmental justice analysis. Under the second conclusion, however, the additional analysis in Step 4 below should be documented.

ANALYTICAL STEP 4: Disproportionately High and Adverse Impact Analysis

Although there presently exist no definitive guidelines for determining what impacts should be considered disproportionately high and adverse, two general issues should be weighed at this point in an environmental justice analysis for transportation projects: (1) whether the adverse impact(s) of the proposed project will be predominately borne by a minority or low-income population group; or (2) whether the adverse impact(s) of the proposed project will be appreciably more severe or greater in magnitude than the adverse impacts to non-minority and/or non-low-income population groups even after mitigation measures and offsetting project benefits are considered. For those projects where neither of these issues arise, no additional analysis would be necessary. In the event that one or both issues can be documented, then the findings in Step 5 below must be made.

ANALYTICAL STEP 5: Findings

The U.S. DOT environmental justice guidance has established the findings that must be met in order for transportation agencies to approve a project with a disproportionately high and adverse effect on minority and/or low-income population groups. The findings for groups protected under E.O. 12898 (i.e., both minority and low-income populations) differ from those for groups protected by Title VI (i.e., minority populations only).

Findings for E.O. 12898 Groups - Transportation agencies “will ensure that any of their respective programs, policies, or activities will only be carried out if further mitigation measures or alternatives that would avoid or reduce the disproportionately high and adverse effect are not practicable. In determining

whether a mitigation measure or alternative is ‘practicable,’ the social, economic (including costs), and environmental effect of avoiding or mitigating the adverse effects will be taken into account.”

Findings for Title VI Groups - Transportation agencies “will ensure that any of their respective programs, policies, or activities that will have a disproportionately high and adverse effect on populations protected by Title VI (‘protected populations’) will only be carried out if: (1) a substantial overall need for the program, policy, or activity exists, based on the overall public interest; and (2) alternatives that would have less adverse effects on protected populations and that still satisfy the need identified in (1) above, either i) would have other adverse social, economic, environmental or human health impacts that are more severe, or ii) would involve increased costs of extraordinary magnitude.”

Analysis of Social and Economic Impacts

The analysis of social and economic impacts to support environmental justice assessments for transportation projects should, depending on the nature of the projects and the communities in which they are located, consider the effects outlined in the checklists below. Data requirements and general analytical tools for each impact group are suggested below, but should be supplemented by the more comprehensive resources expected in the forthcoming NCHRP Project 8-41, *Effective Methods for Environmental Justice Assessment*. More detailed guidance on the analysis of these types of impacts can be found in the materials cited in the “Resources” box that follows the checklists.

Land Use and Development Impacts

DATA REQUIRED	ANALYTICAL TOOLS
<ul style="list-style-type: none"> • Local and regional plans and maps. • Zoning ordinances and maps. • New development trend reports. • Proposed project right-of-way drawings. • Inventory of partial and full property acquisitions. • Assessor data on property characteristics. 	<ul style="list-style-type: none"> • Field surveys and direct observation. • Geographic Information Systems (GIS). <ul style="list-style-type: none"> ⇒ Source: ArcView/ArcInfo, ESRI Inc. Available from private software vendors. ⇒ Caltrans Office of GIS maintains an extensive library of transportation facility files; see <http://www.dot.ca.gov/hq/tsip/TSIPGSC/library/libdatalist.htm>.

- _____ Consistency with Plans and Policies
- _____ Property Acquisition and Displacement
- _____ Growth Inducement
- _____ Indirect and Secondary Impacts

Population and Housing Impacts

DATA REQUIRED

- U.S. Census of Population and Housing.
- MPO/RTPA demographic projections and estimates.
- State demographic projections and estimates.
- Locations of neighborhoods.
- Description of construction scenario, including access disruptions and detours.

ANALYTICAL TOOLS

- Field surveys and direct observation.
- Geographic Information Systems (GIS).
- Spreadsheet analysis of demographic data, including calculation of proportionate distribution.
- Photographs and visual simulations of new facility aesthetic characteristics.

- _____ Property Acquisition and Displacement
- _____ Access to Neighborhoods
- _____ Community Cohesion
- _____ Safety and Security
- _____ Visual and Aesthetic Quality
- _____ Property Values and Gentrification
- _____ Indirect and Secondary Impacts

Fiscal and Economic Impacts

DATA REQUIRED

- U.S. Census of Population and Housing.
- Employment projections and estimates.
- Chamber of Commerce information on local businesses and economic conditions.
- Property tax and sales tax data.
- Local and regional economic multipliers.

ANALYTICAL TOOLS

- Field surveys and direct observation.
- Geographic Information Systems (GIS).
- Spreadsheet analysis of employment and income data.
- RIMSII model for calculation of multiplier effects.
⇒ Source: U.S. Bureau of Labor Statistics.
Available at <<http://stats.bls.gov/>>.

- _____ Property Acquisition and Displacement
- _____ Access to Businesses and Farms
- _____ Employment and Income
- _____ Tax Revenues
- _____ Indirect and Secondary Impacts

Public Facilities and Services Impacts

DATA REQUIRED

- Inventory of community services and facilities (i.e., police, fire, hospitals, schools, places of worship, parks, community centers).
- Description of construction scenario, including access disruptions and detours.

ANALYTICAL TOOLS

- Field surveys and direct observation.
- Geographic Information Systems (GIS).

- _____ Property Acquisition and Displacement
- _____ Access to Facilities and Emergency Services
- _____ Indirect and Secondary Impacts

Analysis of Physical and Human Health Impacts

Physical and human health impacts analyses that are conducted as part of environmental justice assessments for transportation projects should, depending on the characteristics of the projects and neighboring communities, consider the effects outlined in the checklists below. More detailed guidance on the analysis of these types of impacts can be found in the materials cited in the “Resources” box that follows the checklists.

Air Quality Impacts

DATA REQUIRED	ANALYTICAL TOOLS
<ul style="list-style-type: none"> • Air quality management plan and RTP/FTIP. • National and state ambient air quality standards. • Air monitoring station reports. • Construction scenario, including peak day and week staff and equipment. • Traffic operations data. 	<ul style="list-style-type: none"> • CALINE4 model. ⇒ Source: Caltrans; available from Caltrans Division of Environmental Analysis at <http://www.dot.ca.gov/hq/env/air/index.htm>. • Conformity analysis. • Pollutant dispersion models. • Health risk assessments.

- _____ Consistency with regional air quality management plan
- _____ Consistency with national and state ambient air quality standards
- _____ Localized air emissions (CO “hotspots” and PM10 “fugitive dust”)
- _____ Short-term construction emissions (PM10, NOx)
- _____ Air toxics emissions
- _____ Health risks

Noise and Vibration Impacts

DATA REQUIRED	ANALYTICAL TOOLS
<ul style="list-style-type: none"> • Ambient noise measurements. • Federal and state noise abatement criteria. • Inventory of sensitive receptors. 	<ul style="list-style-type: none"> • CA SOUND 2000 model. ⇒ Source: Caltrans; available from Caltrans Division of Environmental Analysis at <http://www.dot.ca.gov/hq/env/noise/index.htm>. • FHWA TNM model. ⇒ Source: U.S. Department of Transportation, Federal Highway Administration; available at <http://www.fhwa.dot.gov/environment/index.htm> • Noise abatement determination (CaTNAP model). ⇒ Source: Caltrans; available from Caltrans Division of Environmental Analysis at <http://www.dot.ca.gov/hq/env/noise/index.htm>.

- _____ Presence of sensitive receptors (residences, schools, churches, hospitals, parks)
- _____ Short-term construction noise and vibration
- _____ Operational noise and vibration
- _____ Single-event noise events (SEL) versus cumulative average noise levels (Ldn/CNEL)
- _____ Effects of noise barriers and/or residential acoustical treatments

Water Quality Impacts

DATA REQUIRED	ANALYTICAL TOOLS
<ul style="list-style-type: none"> • Locations of watersheds, waterways, groundwater aquifers, and/or wells. • Amount of new impervious surface created. • Storm Water Pollution Prevention Plans. • Local and regional Total Maximum Daily Load (TMDL) values. 	<ul style="list-style-type: none"> • NPDES permit process. • Surface run-off flow projection. • Groundwater sampling and analysis.

_____ Surface water quality

_____ Groundwater and aquifer quality

Hazardous Materials Impacts

DATA REQUIRED	ANALYTICAL TOOLS
<ul style="list-style-type: none"> • Inventory of potentially hazardous materials disturbed or used (e.g., asbestos, lead-based paint, yellow thermoplastic paint, aerially-deposited lead). 	<ul style="list-style-type: none"> • Air, water, and soil sampling and analysis.

_____ Air, water, and soil contamination

_____ Removal and disposal of hazardous materials (asbestos-containing materials and lead)

_____ Use of hazardous materials (fuels, paints, solvents)

Impact Analysis Models

As noted above for many of the impact analysis categories, computer models (e.g., CA SOUND 2000 and CALINE4) can provide an invaluable, and often required, source of data about the potential impacts of a transportation project. These models are generally available to the public, but are typically only used by federal, state, and local transportation agencies and the private consultants that often assist them. It is not uncommon, however, for some community-based organizations to seek training in the use of these models. Regardless of the user, it is essential that planners and others conducting impact analyses select the correct software for these models. This can generally be accomplished by consulting with the impact specialists at whatever agency (e.g., California Department of Transportation, FHWA, or FTA) has oversight authority for environmental review of the proposed project.

- Distinguish between measures incorporated into the project and those proposed by project proponents;
- Identify who is responsible for implementation of each measure;
- Discuss why a particular measure has been chosen when several measures are available; and
- Discuss any indirect environmental impacts that would result from implementation of the mitigation measures (e.g., aesthetic impacts from construction of noise barriers).

Adequacy of Mitigation

In order to be adequate, mitigation measures should typically fall within at least one of five specific actions:

- *Avoid* – Avoid the impact by not taking certain actions or parts of actions;
- *Minimize* – Minimize impacts by limiting the degree or magnitude of the action and its implementation;
- *Rectify* – Rectify the impact by repairing, rehabilitating, or restoring the affected environmental resource;
- *Reduce/Eliminate* – Reduce or eliminate the impact over time by preservation and maintenance during the lifetime of the project; or
- *Compensate* – Compensate for the impact by replacing or providing substitute resources.

The mitigation measures that are proposed for the project should also be specific and detailed enough to permit the public and decision-makers to understand what is being mitigated, why it is being mitigated, who will be responsible for the mitigation, and the place and time the mitigation will occur.

Adoption of Mitigation

Mitigation measures that are part of a CEQA document must be adopted by the project lead agency as part of the project approval findings.⁹⁰ NEPA, in contrast, only requires that mitigation measures be discussed in an EIS, but not necessarily that they be approved as part of the project.

Mitigation Monitoring and Reporting

When mitigation measures are included in a CEQA environmental document, then a program to monitor or report on the implementation of those measures must also be adopted.⁹¹ For NEPA environmental documents, if the project lead agency has decided to commit to adopting certain mitigation measures, then a monitoring and enforcement program must also be adopted.⁹²

Project Enhancements

With the enactment of the ISTEA and TEA-21 legislation in the last decade, transportation project development staff has had an important new tool available to better incorporate facilities into communities, especially where environmental justice concerns may exist. Transportation enhancements, as described in FHWA guidance, are intended to “improve the transportation experience in and through local communities.”⁹³ Unlike mitigation activities described above, transportation enhancement actions are not always the result of an identified environmental impact. Rather, they tend to go beyond what is ordinarily considered to be mitigation, and can often consist of activities that are not immediately connected to a project that is also being mitigated. In accordance with the applicable legislation, the types of activities that can be considered transportation enhancements are:

- **Pedestrian and bicycle facilities** - New or reconstructed sidewalks, walkways or curb ramps; bike lane striping, wide paved shoulders, bike parking and bus racks; off-road trails; bike and pedestrian bridges and underpass.
- **Pedestrian and bicycle safety and education activities** - A new activity under TEA-21, it includes programs designed to encourage walking and bicycling and make these transportation modes safer.
- **Acquisition of scenic or historic easements and sites** - Acquisition of scenic land easements, vistas and landscapes; purchase of buildings in historic districts or historic properties; preservation of farmland.
- **Scenic or historic highway programs including tourist and welcome centers** - Construction of turnouts and overlooks; visitor centers and viewing areas; designation signs and markers.
- **Landscaping and scenic beautification** - Improvements such as street furniture, lighting, public art and landscaping along streets, historic highways, trails and interstates, waterfronts and gateways.
- **Historic preservation** - Preservation of buildings in historic districts; restoration and reuse of Historic buildings for transportation-related purposes.
- **Rehabilitation and operation of historic transportation buildings structures or facilities** - Restoration of railroad depots, bus stations and lighthouses; rehabilitation of rail trestles, tunnels and bridges.
- **Conversion of abandoned railway corridors to trails** - acquiring railroad rights-of-way; planning, designing and constructing multi-use trails; developing rail-with-trail projects; purchasing unused railroad property for reuse.
- **Control and removal of outdoor advertising** - Billboard inventories or removal of illegal and nonconforming billboards.

- **Archaeological planning and research** - Research, preservation planning and interpretation.
- **Environmental mitigation of runoff pollution and provision of wildlife connectivity** - Soil erosion controls; detention and sediment basins, river clean-ups; wildlife underpasses.
- **Establishment of transportation museums** - Construction of new museums or additions may include the conversion of railroad stations or historic properties to museums with transportation themes.

5.4 Transportation Decisions and Neighborhood Revitalization or Decline

This document has focused primarily on environmental justice as it relates to transportation decisions. Planners should not forget that transportation systems are interwoven with other urban processes. So while some transportation decisions may directly affect an area's environmental and economic health, other transportation decisions may play a more indirect role by reinforcing existing cycles of neighborhood revitalization or neighborhood decline.

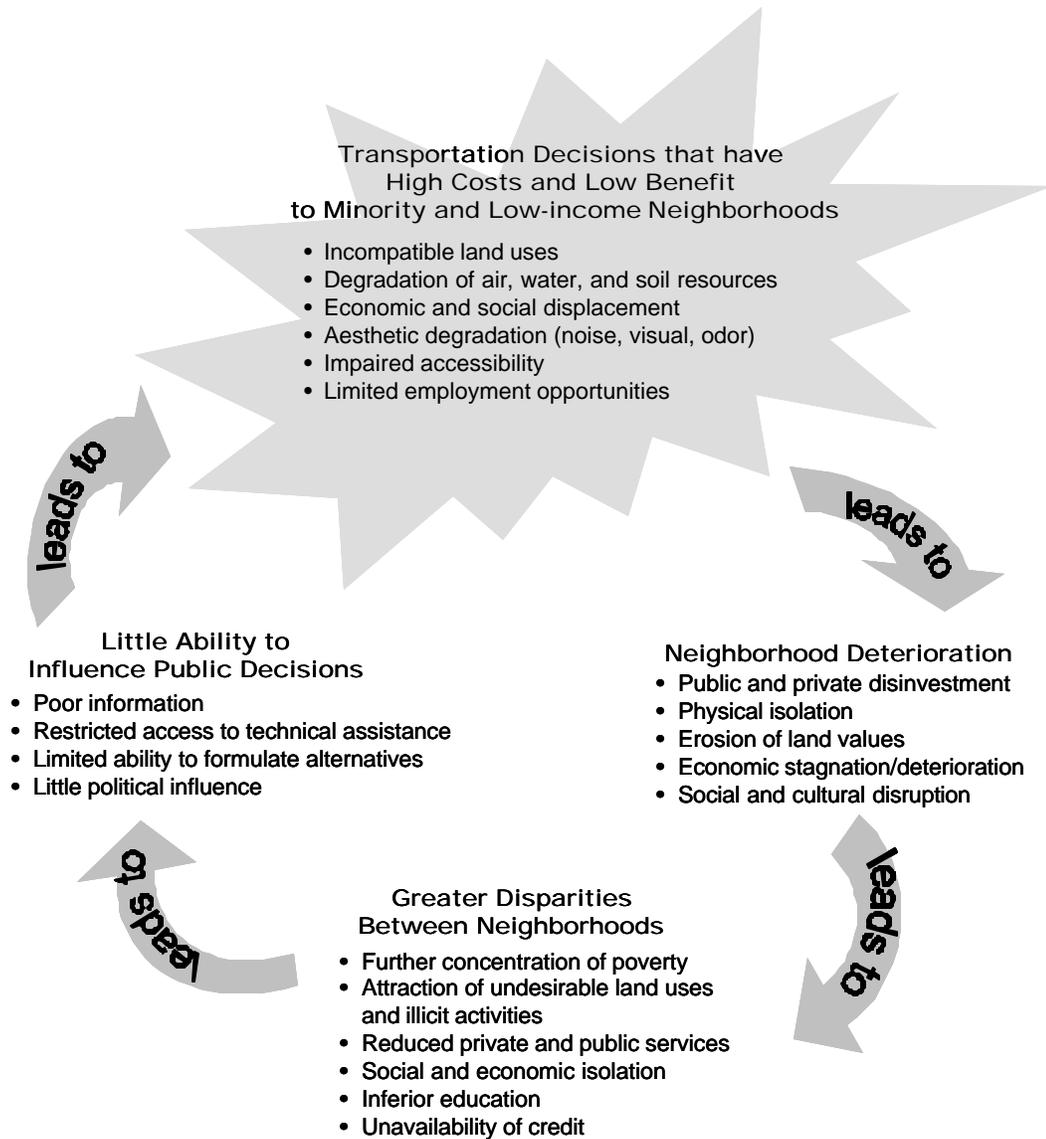
Cycle of Neighborhood Decline

If transportation decisions that are poorly planned impose pollution, noise, and unsightly structures on already-disadvantaged neighborhoods, displace community residents and businesses, disperse jobs to locations that are more costly or time-consuming to reach, or divert funding to travel modes that are inaccessible to the poor, those decisions reinforce poverty and sense of isolation--which may subject the neighborhood to further environmental degradation.

The impact on a neighborhood of a major project is compounded when residents and businesses that can afford to move away do so. Their exodus brings about decline in needed services—supermarkets, banks, pharmacies, dry cleaners, etc., become non-viable, the tax-base declines, and the neighborhood becomes increasingly depressed. This further erodes the neighborhood's political and economic influence, which in turn increases its vulnerability to possible, future adverse impacts.

A subsequent round of high impact decisions may be specifically linked to the first. For example, after a freeway ramp has been built, the city may encourage the siting of businesses with high volumes of truck traffic—creating noise and safety impacts. Or the environmental and economic impact caused by the project may invite other unrelated, detrimental uses—such as a chemical or medical waste facility—simply because such uses are considered unacceptable in a more pristine and valued environment. Figure 5.2 portrays this cycle of how negative environmental fallout both *causes* and *is caused by* inequitable transportation decisions that affect highly vulnerable communities.

Figure 5.2
The Reinforcing Cycle of Disparate Impacts



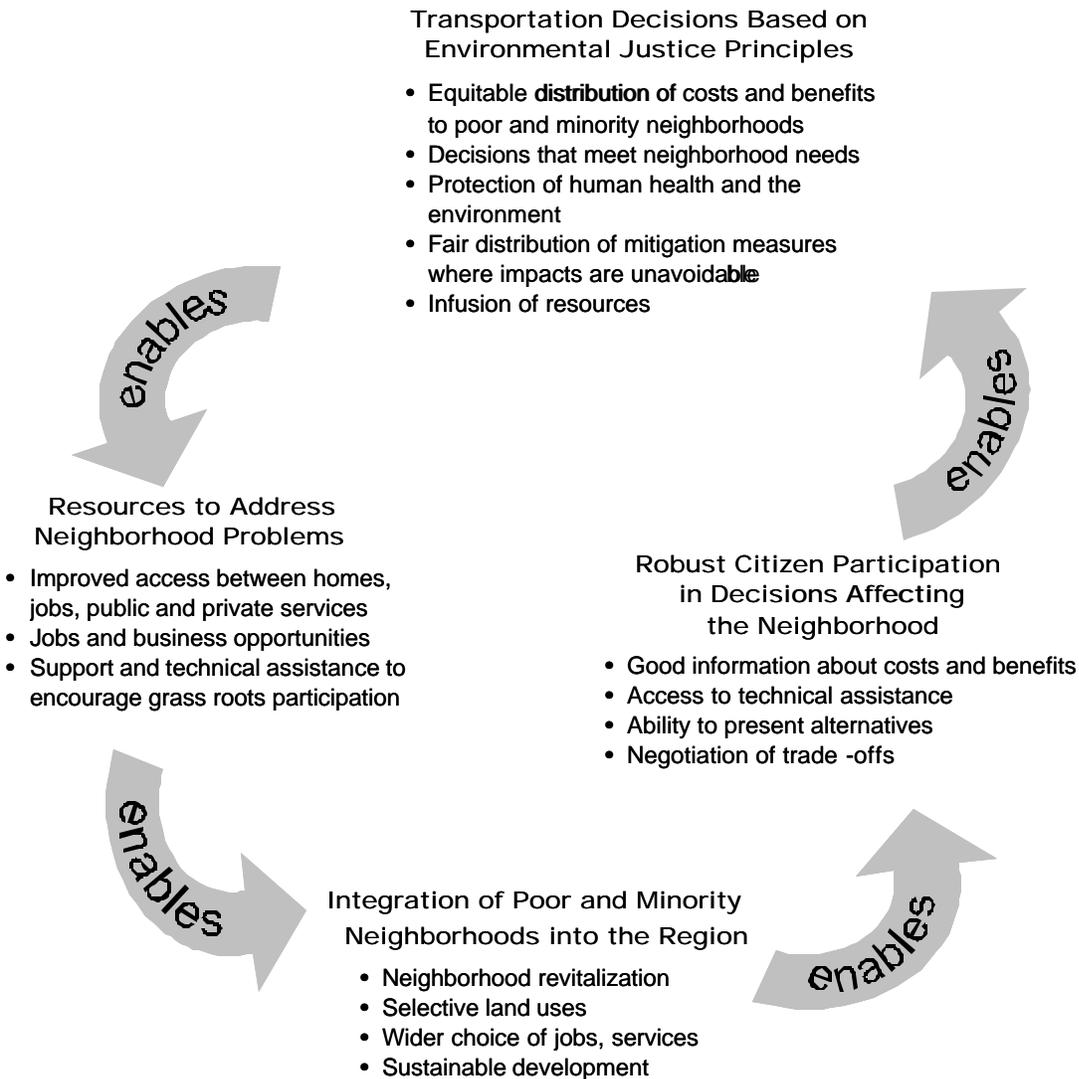
Cycle of Neighborhood Revitalization

Through the same economic, social, and political relationships, transportation investments shaped by standards of environmental justice can play a strong role in neighborhood revitalization. Beyond avoiding a concentration of negative effects through sensitive design, transportation decisions typically offer important opportunities to create benefits for disadvantaged communities. Direct benefits may result from strategies to create an attractive destination for people from beyond the neighborhood, using the transportation project as an anchor. In addition to contributing income, the “outsiders” become new stakeholders, who share an interest in the future of the community.

Environmental justice benefits may result when neighborhood residents are better able to navigate the region. Transportation systems that provide efficient transit can enable neighborhood residents to take advantage of employment opportunities without the high expense of an automobile, and without the need to spend several hours a day in transit. Transportation investments may also infuse resources into the neighborhood economy, in the form of jobs, business opportunities, training programs, environmental remediation.

Figure 5.3 portrays how a transportation decision can trigger and be part of a cycle of neighborhood revitalization. The combined effects of new resources, improved connections to the rest of the region, and an expanded ability to hold public officials accountable are likely to invite additional decisions that distribute costs and benefits fairly.

Figure 5.3
Enabling Revitalization Through Environmental Justice



6. Case Studies

This section reviews practices that demonstrate effective and innovative means of achieving environmental justice, using examples that are diverse in terms of geography, community demographics, and the types of government agencies involved. The cases highlight some best practices in public participation and assessment methods. Of course, the circumstances under which environmental justice is considered can vary dramatically, and these methods must always be tailored to the situation at hand.

6.1 Public Process and Participation

This section presents case studies from California, Wisconsin, South Carolina, and Arizona to describe some best practices in public input processes and participation. Portions of this section were taken from the booklet *Transportation and Environmental Justice: Case Studies*, released by FHWA and FTA in December 2000.

Arterial Corridor Needs Assessment in Madison, Wisconsin⁹⁴

In 1997, Wisconsin DOT began a transportation needs assessment study of Verona Road and the West Beltline, two of the City of Madison's most heavily traveled corridors. The Verona Road and West Beltline Highway are essential corridors to the economic well being of the Madison area. However, traffic congestion on these roads is at or near capacity, causing safety hazards for vehicles, public transit, bicycles, and pedestrians. The configuration at the intersection of the two roads isolates a predominantly minority community, Allied Drive, from the rest of Madison. This community has been characterized as a place where low-income, mostly minority families face open-air drug markets and street violence. Approximately 80 percent of the residents in the community do not own a car, and only one bus line serves the area, contributing to the community's economic isolation.

Proactive and Comprehensive Outreach

An extensive public outreach process was carried out between 1997 and 1999. Approximately 70 meetings were held with neighborhood organizations, local businesses, elected officials, and other stakeholders. On-street interviews were conducted to help identify pedestrian and bicycle deficiencies throughout the study area, and local schools and children were engaged to help identify pedestrian needs. And a design meeting was conducted in order to explore needs, present study findings to the public, obtain feedback, and identify solutions. In the public outreach component of the study, participating Allied Drive residents voiced concerns about safety and accessibility, noting that the section of Verona Road adjacent to the Allied Drive community had no sidewalks, although residents pointed to the presence of well-worn footpaths as evidence of pedestrian traffic. Allied Drive residents found it difficult to cross Verona Road

to access retail establishments on the west side of the street, frequently finding themselves stranded on the median of the seven lane highway since the traffic light changed before they had time to reach the other side. Traffic and pedestrian issues presented a serious safety threat to the residents, with a young girl having recently been struck and seriously injured by a hit-and-run driver.

One important aspect of the Wisconsin DOT's outreach to the Allied Drive neighborhood was a partnership with Akira Toki Middle School, attended by children from Allied Drive and other West Madison neighborhoods. Wisconsin DOT staff worked with students and teachers to develop a transportation and land use curriculum, which included having students prepare a pedestrian needs assessment for the Verona Road corridor. Students, as part of the project, conducted traffic counts and speed studies, interviewed community residents, and inventoried facilities. Students presented their findings to parents, Wisconsin DOT staff, and city and county officials.

Community-Led Needs Assessments

While NEPA does not require a needs assessment for highway projects, given the political sensitivity of implementing major public works undertakings in this progressive community, the Wisconsin DOT decided to undertake a needs assessment before looking at an actual project. This study was intended to analyze the Verona Road/West Beltline corridors from several road user perspectives, including drivers, pedestrians, cyclists and transit users, as well as perspectives of neighborhood residents and businesses. Several challenges were overcome in this process. One of the most difficult was due to the transient character of the area, which made it difficult to identify leadership with well-established community roots. Three different representatives served on the Mayor's Advisory Committee in just over a one-year period. Many community residents had no long-standing commitments to the area and were not eager to become involved.

Study findings were introduced to the community during a meeting at the Akira Toki Middle School in June of 1999. This meeting served as a bridge to the second part of the project—identifying solutions. Participants brainstormed about short- and long-term solutions, and their ideas were presented to the Verona Road/West Beltline Mayor's Advisory Committee. Some short-term improvements identified by the participants at this meeting were implemented the following year, including a new pedestrian-activated signal at the median in order to facilitate road crossings and improved accessibility to a pedestrian signal that previously could be activated only by stepping over a guardrail.

While public participation at this stage of the process was vitally important, the needs identification is only the first step in planning and developing transportation improvements in the study area. In order to satisfy the requirements of Title VI and E.O. 12898, Wisconsin DOT and others involved in the process must continue to act with sensitivity and creativity in subsequent project development and environmental review, preliminary and final design, right-of-way acquisition, construction, and operations and maintenance.

Road Widening in Calhoun Falls, South Carolina⁹⁵

In 1999, the South Carolina Department of Transportation (SCDOT) proposed widening about 15.5 miles of the two-lane SC72 through the town of Calhoun Falls. It was hoped that upgrading the road would improve access to Calhoun Falls, making it a more attractive area for manufacturing and distribution facilities. Calhoun Falls (as of 1990) had a population of 2,300, distributed almost evenly between African Americans and whites. The median household income for the town was \$17,000, with cotton industries providing most jobs in the town.

The environmental justice issue arose from the fact that least one of the six proposed alignments for the road widening project would cut through a minority community in Calhoun Falls: the community of Bucknelly. Bucknelly is located in southeastern Calhoun Falls, along the eastern side of one railroad and south of Seneca Street. Middle class whites historically lived north of Seneca Street. The only elementary school in town was sited about 1.5 miles from Bucknelly, and a sewage treatment plant (with associated sewage lagoons) and substation for a local electric utility were built in Bucknelly. Seneca Street remains the dividing line between the African American and white communities, and the railroad marks the line between middle-class Calhoun Falls and the mill village.

Proactive and Comprehensive Outreach

In order to attract residents, it was decided that workshops would be held at the Calhoun Falls town hall (at the western end of the project area) as well as the eastern end (at the Abbeville County Council chamber). Since Wednesday is a traditional church night, and Friday marks the beginning of the weekend, Tuesday and Thursday were chosen. Workshops were held between 4 and 9 PM to meet the needs of elderly residents who might wish to leave before dark and also to accommodate late shifts of workers from the mill.

In February 2000, when the first series of workshops were held, only 11 African Americans were among the 126 residents who attended. These residents favored the “yellow brick road” alternative (a route north of the African American community), but were generally unconcerned about whether this alternative cut through Bucknelly. It was then decided to hold an additional meeting in Bucknelly. At each workshop, residents were asked to sign in, received a comment sheet and newsletter, and were escorted to the displays. Members of the project team explained the displays and asked for comments.

In June 2000 a workshop was held in the Ellison Community Center in Bucknelly. Only the members of the Bucknelly community were invited, and the meeting was scheduled from 5-9 PM on the day after Easter Sunday with the hopes that announcing the meeting at the pulpits would increase workshop attendance. Bucknelly residents were sent a first-class letter signed by the mayor inviting them to attend and stressing the importance of their participation. The mayor hand-delivered letters that were marked undeliverable to the residents of Bucknelly. Seventy-seven of the Bucknelly residents attended the meeting (as well as four white residents who wanted to see if the Bucknelly residents were receiving different information from the information they had been given) at the

Ellison Community center. This time the “yellow brick road” alternative (north of the African American community) was the overwhelming favorite, since the residents made it clear to SCDOT that they did not want their community divided. Throughout the process, the public was informed of the potential options and was continually kept aware of how the decision was being made and which options were favored.

Diverse Means of Gathering Information

Numerous means of gathering information were used in this example. The consultant that SCDOT hired in 1999 took great pains to conduct a variety of field studies. Informal discussions with local residents provided crucial details for some of these studies. For example, the project team’s architectural historian drove around the region with a longtime resident and photographer to help in dating the age of buildings and identifying who had lived or worked there. Data also came from a retired mill employee at a local hardware store, who provided information about two cotton mill landfills that was not recorded elsewhere. More conventional means of gathering information were used, such as targeted meetings with the town’s black and white populations. At these meetings, surveys and comments were taken regarding which proposed transportation alternative members of the communities preferred. At the meetings, members of the project team individually explained the displays. Project team members took care to ensure that input was received from all segments of the population by being sensitive to illiteracy issues in the area, and thus were willing to write down comments for those residents. Finally, the team provided a tape recorder to capture oral comments. The project team’s reliance on the diverse ways of information gathering helped contribute to this project’s success.

Intersection Rebuilding in Yavapai County, Arizona⁹⁶

The junction between Interstate 17 and State Route 69 in Yavapai County, Arizona, now carries much more traffic than it was originally designed to accommodate. Because of this, the interchange needs to be redesigned and rebuilt. FHWA and the Arizona Department of Transportation (ADOT) initiated an Environmental Assessment process to develop alternatives to improve the interchange. The redesign issue is a sensitive one since Native American cultural materials have been discovered nearby. Because of this, tribal participation in the process is required and will be reflected in the project’s environmental impact documents.

Many tribes in Arizona trace their ancestry back to earlier groups. For these tribes, the handling of archeological artifacts is important in that it protects their heritage and provides continuity in maintaining their way of life.

It is important to remember that Native American tribes differ from other minority groups affected by transportation projects because tribes are sovereign governments, and are analogous to state governments in some ways. Interactions between the tribes and FHWA, state DOTs, and regional planning agencies should be structured as a government-to-government relationship.

Incorporation of Public Input

Letters were sent to seven tribes in the area that have ancestral associations to the area. Several tribes responded to these letters, noting that ADOT and FHWA had an obligation to carefully document and protect the cultural resources in the area. Most tribes simply wanted to be able to review and comment on any reports or decisions related to these historical resources. Later, the Hopi and Salt River Pima-Maricopa Indian Community wished to become more involved in the project and toured the site with an archeologist from the ADOT Environmental Planning Office. The visits were intended to encourage tribal representatives to directly communicate their thoughts and concerns about the historic resources at the site. FHWA and ADOT also made more formal efforts to communicate with the tribal governments. Tribal elders were paid for taking time to visit the site. The tribes were concerned about cultural resources, and particularly human remains. Tribal representatives suggested that the sites be tested further and also recommended that the Arizona State Museum prepare a burial agreement to define how human remains would be handled and buried if found at the site.

After the site visits, ADOT's staff archeologist discussed the day's events with each group of tribal representatives. The specific concerns were verbally repeated to the tribes. Later, these points were documented in writing and copies of letters outlining the tribes' concerns were sent to them.

While NEPA and other laws give formal rights of participation and consultation to tribes, those formal rights must be put into practice in effective ways. Tribal participation in this project resulted in several changes, including redrawing the affected areas, decisions about how recovery of remains will be handled, and changing the design and alignment of the interchange itself. This example illustrates how public input can be incorporated and also how historically negative relationships can be improved.

6.2 Assessment Methods

This section illustrates the assessment of transportation environmental justice. It includes three case studies from California that show how performance measures have been used effectively to consider the distribution of benefits and burdens in regional transportation planning. The last example discusses regional planning and environmental justice in Columbus, Ohio.

Southern California Association of Governments 2001 Regional Transportation Plan

With a population more than half that of Canada (16 million), and a minority population expected to exceed 70 percent by the year 2025, the Southern California region presents an interesting and challenging context in which to consider environmental justice. The centrality of the transportation network to everyday life in the region adds to the importance of such analysis.

SCAG applied numerous environmental justice performance measures in their draft 2001 Regional Transportation Plan (RTP) that informed decision-making for the final plan. For the most part, the performance measures focused on the incremental impact of the plan's projects, rather than the overall conditions once the plan is implemented. These analyses consider the Plan's distribution of benefits and burdens in several areas:

- Travel time – measured as the average travel time for all trip purposes
- Accessibility – measured as the number of jobs reachable in a given time period
- Distribution of the plans costs and expenditures
- Environmental impacts – including air and noise pollution

Generally, the analyses found that the share of the benefits for low-income and minority groups was in line with or greater than the costs borne by those groups. The environmental justice analysis also indicated that minority and low-income residents would be treated fairly with regard to environmental effects such as air pollutant emissions and highway noise. The analysis did, however, predict a continuation of disproportionately high aviation noise impacts on minority and low-income groups. Ultimately, this finding informed the decision to limit the expansion of the Los Angeles International Airport, with its high relative concentration of minority and low-income residents. SCAG's Regional Council instead favored a more regionally balanced airport expansion plan. A summary of the specific performance measures used in SCAG's analysis is described below.

SCAG's analysis did not define particular areas as being minority or low-income communities based on demographic criteria. Instead, SCAG estimated the share of plan benefits and burdens for low-income and minority populations for each traffic analysis zone (TAZ). This approach may be particularly appropriate in regions like SCAG with a minority population over 50 percent.

Demographic Trends for Low-Income and Minority Communities

Before applying specific transportation performance measures, SCAG reviewed the current and forecast minority and low-income population figures, shown in Table 6.1 for 1997 (the plan baseline year) and 2025 (the plan horizon). Table 6.1 SCAG Region Low-Income and Minority Population

Category	1997 (base year)		2025	
	Population	Percentage	Population	Percentage
Total Population	16,043,496	100%	22,460,126	100%
Minority	9,024,254	56.2%	16,039,033	71.4%
Latino	6,043,117	37.6%	11,635,598	51.8%
Asian/Pac. Islander	1,636,898	10.2%	2,937,648	13.1%
Below Poverty	629,196	12.2%	926,144	12.6%

Figure 6.1
SCAG Low-Income Population Density, 2025



Travel Time Performance Measure

As one measure of environmental justice, SCAG assessed the distribution of travel time savings expected to result from the Plan's implementation. By comparing current conditions with the year 2025 conditions predicted by the travel demand model, planners determined the total travel time savings by travel mode for each traffic analysis zone (TAZ). Using the demographics of each zone, planners then estimated the time savings for each race/ethnicity and income group. These travel time savings by group were reported as a proportion of the total travel time savings for each mode. SCAG conducted this analysis for automobile, transit, and low-cost transit (a subset of transit).

Table 6.2 presents some results of this analysis. Note that the share of total trip-making by mode (low-cost transit, in this example) is also shown, since one would expect a group's share of time savings for a given mode to be roughly proportional to how much that group uses the mode. For example, if Latinos made 50 percent of all low-cost transit trips in the region, one would expect them to reap about 50 percent of the travel time savings from improvements. If this analysis found that Latinos would experience only 25 percent of the time savings planned for low-cost transit modes even though they account for 50 percent of transit trips, this might be cause for concern, even if 25 percent of the total time savings is more than other groups.

Table 6.2
Time Savings for Low-Cost Transit Use

Race/Ethnicity	Share of Total Time Savings (Person Hours Traveled)	Share of Total Trip Making
White	28.0%	20.1%
Black	7.7%	7.6%
Native American	0.3%	0.2%
Asian/Pacific Islander	14.1%	18.7%
Other	0.2%	0.3%
Latino	49.6%	53.1%

Accessibility Performance Measure

SCAG measured the increase in the number of jobs forecast to be accessible to each group when the plan is fully implemented (as a percent of base year jobs). This measure used 30 minutes by auto and 45 minutes by transit to define the range of accessible jobs. SCAG conducted separate analyses for service jobs, retail jobs, and total jobs. They reported these findings by income quintile and by each minority group. The entire analysis was conducted for all modes combined, and then separately for low-cost transit. Table 6.3 presents the analysis results by income quintile for all low-cost transit, showing that low-income groups will experience gains in jobs accessibility equal to or greater than higher income groups.

Table 6.3
Increase in Job Accessibility Due to 2001 RTP Projects for Low-Cost Transit

Income Quintile	Retail Jobs	Service Jobs	All Jobs
I (lowest)	1.5%	2.7%	2.9%
II	1.5%	2.7%	2.9%
III	1.5%	2.7%	2.9%
IV	1.5%	2.6%	2.8%
V (highest)	1.5%	2.6%	2.7%

Expenditure Distribution

SCAG reported expenditure distribution in several ways. First, SCAG estimated the share of total RTP expenditures allocated to each category of household income. This was done by totaling expenditures on each type of mode (bus, HOV lanes, commuter/high speed rail, highways/arterials, and light/heavy rail). These expenditures were then allocated to income categories based on each income group's use share of these modes. Since there are a number of privately funded

transportation projects in the SCAG region, private and public projects were considered separately. A sample result is shown in Table 6.4.

Table 6.4
Share of Expenditures by Income Category

	Less than \$12,000	\$12,000- \$25,000	\$25,000- \$50,000	\$50,000- \$70,000	More than \$70,000
Total Expenditures	29.7%	19.3%	18.6%	13.0%	19.5%
Publicly Funded Portion	34.2%	21.4%	17.7%	11.3%	15.3%

Along with this assessment of expenditure distribution, SCAG included some discussion of the different sources of transportation funds and the distribution of these sources among income categories. This indicated the extent to which each income category is burdened with funding the plan improvements and provided some insight to which types of transportation funding sources are more equitable.

Air Pollution

SCAG evaluated air quality impacts for particulate matter (PM₁₀), carbon monoxide (CO) and diesel particulates. These pollutants were chosen because they affect air quality in relatively close proximity to the emissions source, making a demographic analysis more relevant. For each pollutant, SCAG estimated the reduction in emissions per day across demographic groups. A separate heavy-duty vehicle analysis was conducted for particulate matter because these vehicles are a major source of PM emissions. The example in Table 6.5 shows the incidence of particulate matter emissions reductions that are estimated to result from the proposed projects. Minority and low-income populations benefit from a greater reduction in PM-10 emissions than the population as a whole.

Table 6.5
Particulate Matter Emissions Reductions Due to 2001 RTP Projects

Demographic Group	PM10 (kg/day/km ²)	PM10 from Heavy-Duty Vehicles (kg/day/km ²)
Non-minority	-0.04	-0.009
Minority	-0.06	-0.016
All Households	-0.07	-0.014
Below Poverty	-0.10	-0.024

Noise Pollution

SCAG evaluated the distribution of noise impacts from both highway vehicles and aircraft. The highway noise analysis identified TAZs in which proposed new projects were expected to have significant noise impacts. SCAG compared the

demographics of these zones with average demographics for the region. This provided only a coarse estimate of distributive impacts since TAZs are relatively large (often several thousand feet across) while significant noise impacts usually extend only 100-200 feet from the highway. An analysis of this sort does not obviate the need for more specific project level noise analyses, but it does provide an estimate of impacts at a scale that is commensurate with what is known about the project details during the long-range planning phase.

The airport noise analysis was conducted in somewhat greater detail. SCAG identified the portion of each TAZ that would have residences within the area significantly impacted by airport noise. SCAG assumed that forecast growth in these areas would have the same demographic composition as growth forecast for the entire TAZ. The findings of this analysis are summarized in Table 6.6, with the right-most column indicating the distribution of residents that would be impacted by airport noise.

Table 6.6
Low-Income and Minority Residents in Airport Noise Areas

Demographic Group	SCAG Region in 2025	Within Airport Noise Impact Areas
Non-minority	28.6%	11.2%
Minority	71.4%	88.8%
Below Poverty	12.6%	10.1%

These findings indicate that minority populations would be disproportionately affected by the proposed airport expansion plan—88.8 percent of the forecast population in the airport noise impact areas are minority, compared to 71.4 percent in the region as a whole. This analysis contributed to the decision to limit the expansion of the Los Angeles International Airport. SCAG’s Regional Council instead favored a more regionally balanced airport expansion plan.

Metropolitan Transportation Commission 2001 Regional Transportation Plan

The Metropolitan Transportation Commission (MTC), the MPO for the San Francisco Bay Area, used a wide range of performance measures in their analysis of the 2001 Regional Transportation Plan. MTC’s environmental justice analysis applied three main performance measures in order to compare the current transportation situation and five different alternatives for the year 2025. Travel characteristics for both minority and low-income zones were compared against travel characteristics for the rest of the region.

In order to apply these performance measures, MTC needed to define minority and low-income zones (referred to as “communities of concern” in the analysis). In collaboration with an Environmental Justice Advisory Group, planners identified thresholds that defined these communities in a way that would create the most meaningful analysis. Minority zones were defined as those areas having

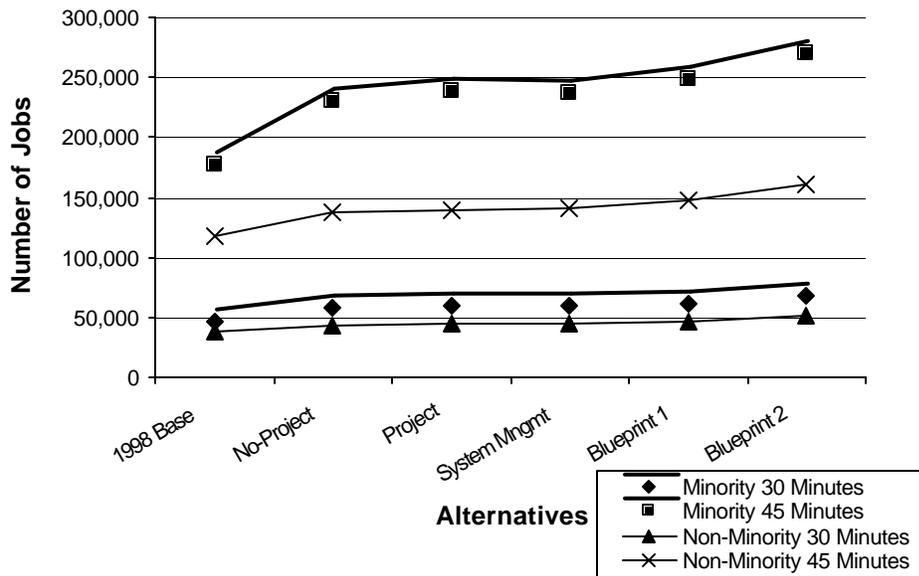
more than 70 percent minority population (using 2000 Census data). Low-income zones were defined as those areas having more than 30 percent low-income population (because of the region’s high housing costs), where low-income individuals were defined as people living in households making at or below 200 percent of poverty level income (using 1990 Census data, the most recent available at the time of the analysis).⁹⁷

MTC applied three types of performance measures to assess the distribution of impacts on these communities of concern. These are briefly described below.

Measure 1: Accessibility to Jobs

For each zone, MTC calculated the percent of all regional jobs accessible within 30 and 45 minutes. This measure evaluated auto travel and transit travel separately. Figure 6.2 shows an example of this analysis—in this case, minority job accessibility by transit. Minority zones fare better than non-minority zones across all scenarios in this example. Jobs access within a 45-minute transit trip improves more for minorities than non-minorities relative to baseline conditions.

**Figure 6.2
Transit Access By Alternative**

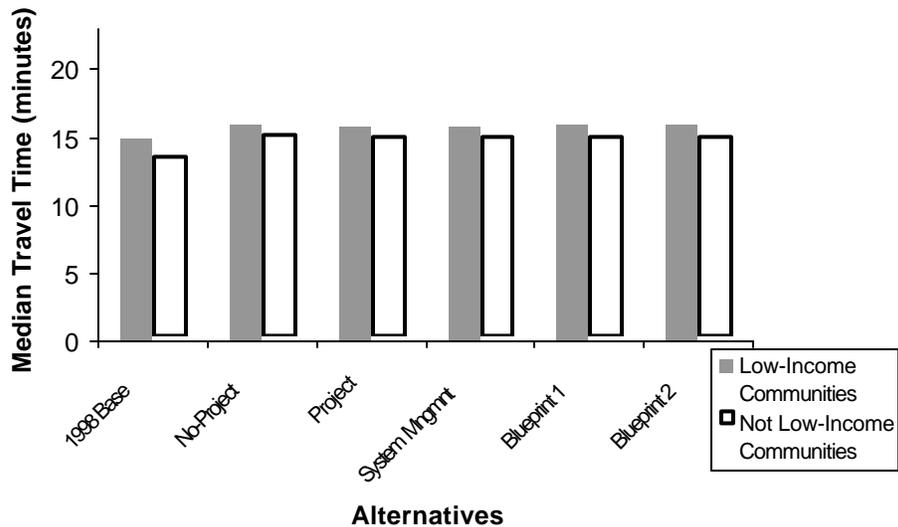


Measure 2: Median Travel Time

For each zone, MTC calculated average travel time for both work and non-work trips. This measure compared the average travel time for the identified minority and low-income zones with the average travel time for rest of the region. An example of the results for this performance measure is shown in Figure 6.3, indicating travel time for work trips for low-income communities. In this

example, low-income communities have a shorter average work travel time across all scenarios, and the difference between low-income and non-low-income communities is similar for all scenarios.

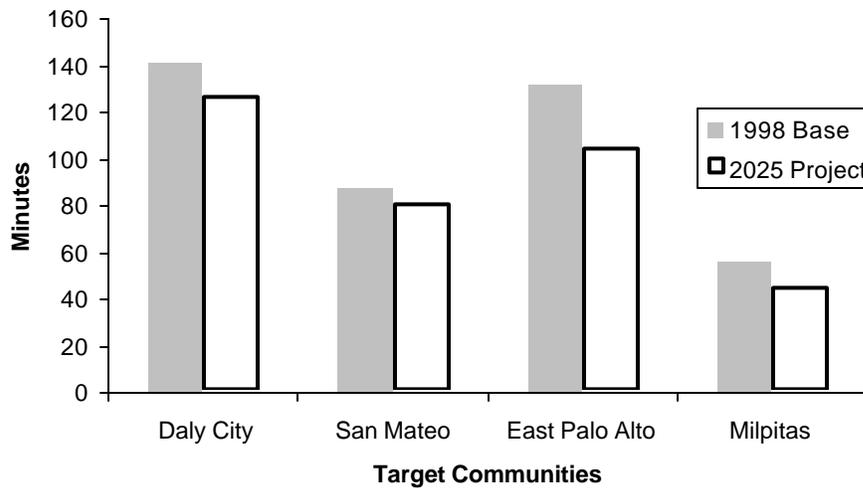
Figure 6.3
Median Travel Time for Work Trips



Measure 3: Transit Travel Time to Major Job Centers

MTC calculated travel times by transit from selected minority and low-income communities to key job centers. This measure was principally focused on comparing the “Project Alternative” with baseline conditions. The results in Figure 6.4 show access to the San Jose Central Business District from four surrounding target communities. Travel time is reduced under the Project Alternative for all target communities.

Figure 6.4
Transit Travel Times to San Jose Central Business District



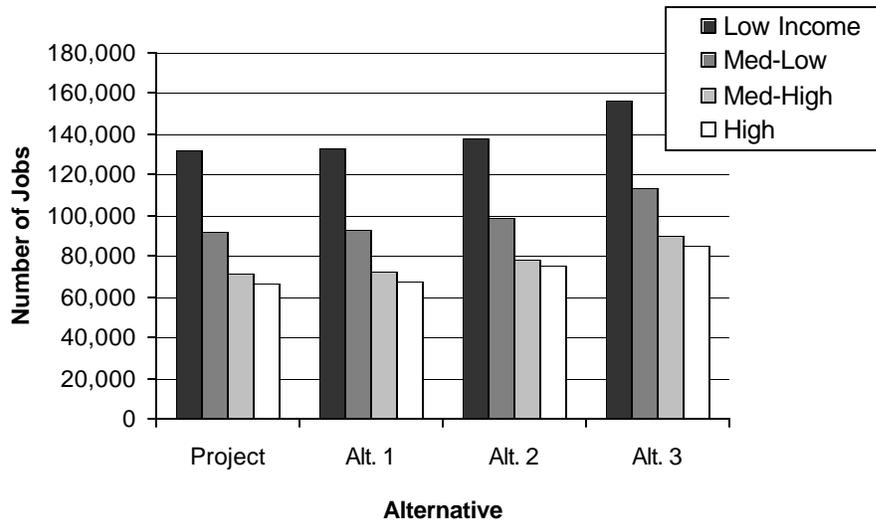
Test Evaluation Measure:
Job Accessibility by Household Income Quartile

Across the entire region, MTC measured the number of jobs accessible by income group.⁹⁸ In order to align with census data, MTC defined the approximate quartiles as follows:

- Quartile #1: household income < \$25,000
- Quartile #2: household income of \$25,000 to \$50,000
- Quartile #3: household income of \$50,000 to \$75,000
- Quartile #4: household income > \$75,000

Figure 6.5 shows an example of the outcome of this test performance measure.

Figure 6.5
Job Access by Income Quartile using Transit



General Analysis

To aid in the interpretation of these performance measures and to present a broader picture of the region, MTC also developed the following region-wide statistics:

- Change in population by race/ethnicity over the plan period
- Auto ownership by income quartile
- Mode split differences between minority and non-minority and between low-income and not low-income populations.

Conclusion

MTC explains that the public expressed the greatest interest in the new programs that grew out of the equity discussions for the 2001 Regional Transportation Plan. These programs include the Low-Income Transit Fund, Transportation for Livable Communities, the Housing Improvement Program, and the Lifeline Transit Network. However, the analysis itself was important to many of the environmental justice organizations engaged with the planning process. It also informed MTC about the location of communities that are most in need of transportation improvements as the plan evolves.

Association of Bay Area Governments (ABAG) **Livability Footprint Equity Analysis**

A number of CBOs have praised ABAG's Smart Growth Strategy/Regional Livability Footprint Project, conducted in the nine-county San Francisco Bay Area, for its consideration of equity and environmental justice. Most notably, the process departs from a common model in which planners present the public with

a solution and request feedback. Instead, the process communicates the consequences of current practice, solicits ideas for alternatives from the public, and assesses the consequences of several substantially varied, publicly developed alternatives. These alternatives are then brought back to the public for further input and prioritization.

Several characteristics of the process are important in promoting environmental justice:

1. The project deals with transportation issues in the context of housing, open-space, employment, and equity issues. This is appropriate since all of these issues are closely linked.
2. The project involved the public at an early stage and constructed the subsequent stages of the process have been based on these initial public workshops.
3. The process explicitly incorporates equity analyses including measures related to accessibility and mobility.

CBOs expressed support for this process as the appropriate starting place for any transportation plan, suggesting that subsequent Regional Transportation Plans should develop their alternatives based upon the outcome of this process.

As part of the evaluation of alternatives, planners applied the following performance measures to a sampling of five diverse, low-income neighborhoods in the Bay Area. For each neighborhood, the analysis compared current conditions to each of the alternatives future scenarios. The performance measures were not focused specifically on transportation so they are not discussed in detail here, but they all relate closely to transportation:

- Basic jobs/housing balance
- Estimate of how well services match local demand
- Comparison of local education level with the anticipated types of job growth for each community

Regional Transportation Planning in Columbus, Ohio⁹⁹

In response to the challenge posed by Title VI of the Civil Rights Act, the Mid-Ohio Regional Planning Commission (MORPC), the MPO for Columbus, Ohio, developed a process to assess and ensure compliance with Title VI in their regional planning activities. This ultimately involved four steps: identify and map locations of low-income and minority populations; identify transportation needs of target populations; document and evaluate the agency's public involvement process; and quantitatively assess benefits and burdens of transportation plans with respect to target populations. The agency used GIS mapping to locate low-income and minority populations within the Columbus metro area. This information was then incorporated into a travel demand forecasting model to assess the benefits and burdens of existing and planned transportation system investments on target populations.

Identification of Low-Income and Minority Populations

Land development patterns in the Columbus metropolitan area mirror those of other urban centers during the last several decades. The Columbus area is growing rapidly, with most new development occurring away from the urban core in favor of outlying areas. Data from the 1990 Census indicates that low-income and minority populations within MORPC's planning area remain concentrated in the urban center. Of the 12 percent of the MORPC population who live below the poverty line, 63 percent are located in the City of Columbus. While 17 percent of the population within MORPC's planning area belongs to a minority group, 84 percent of those people live in Columbus.

MORPC's analysis began with a review of the racial, ethnic, and income distribution patterns provided by various census data sets. MORPC then calculated the percentages of low-income and minority populations for each TAZ within the planning area.

In determining whether a particular community should be considered predominantly minority or low-income, MORPC used the regionwide percentages of minority and low-income residents (respectively 17 and 11.8 percent). Any TAZ that met or exceeded this threshold was categorized as predominantly minority/low-income. After this classification was made, MORPC created GIS maps to provide a visual representation of these populations. This analysis demonstrated that the TAZs with the highest concentrations of minority or low-income residents were located in the central city.

The mapping exercise also considered the number and location of zero-car households and people with disabilities. The report found that about 85 percent of zero-car households were concentrated in TAZs with relatively greater numbers of low-income and minority populations. These maps also helped illustrate the mismatch between employment growth and population.

Identification of Transportation Needs

The second aim of the study was to identify the transportation needs of target populations. MORPC relied on several existing sources for this step. For example, a recent study had examined the travel patterns and transit accessibility of recipients of Temporary Assistance to Needy Families (TANF) in the region's central county. MORPC also used a census tract map with overlays showing minority tracts, transit routes and major destinations. In addition, MORPC staff periodically sampled census tracts and conduct analyses comparing population segments with the quality and level of transit service.

The needs assessment suggested several possible improvements to the region's public transit service:

- More responsive reverse commute transit service to link low-income communities with employment centers in outlying areas
- Safer and more user-friendly transit facilities

- Providing transit services that cross county lines and reach low-income residents in rural areas

Evaluation of Public Involvement Process

MORPC's third aim was to evaluate public involvement efforts. MORPC had created a citizens advisory committee (CAC), specifically charged with identifying and considering the transportation needs of low-income and minority neighborhoods. The public involvement evaluation identified a number of existing strategies and opportunities for public participation, including public meetings, task forces, a quarterly newsletter, direct mail, press releases, community presentations, and citizen involvement on various committees. The evaluation recommended the MORPC take further steps to publicize its activities to low-income and minority communities, and to make staff available to give presentations at community meetings.

Assessment of Benefits and Burdens

The final step in the MORPC process was to assess the benefits and burdens of the regional transportation plan on low-income and minority populations. MORPC expanded the travel demand modeling process to take into account the distribution of target versus non-target populations within each TAZ. A set of performance measures was developed to compare the benefits gained by target and non-target populations under the plan. These measures included

- Jobs accessibility – number of jobs within 20 minutes by auto and 40 minutes by transit
- Shopping accessibility – number of shopping opportunities accessible from home
- Transit accessibility to Columbus central business district
- Average travel time for work trips, shopping trips from home, and non-shopping trips from home
- Average travel time to Columbus central business district
- Highway investments

To assess the transportation plan alternatives, MORPC compared these performance measures under 1995 conditions and three 2020 scenarios. The results did not reveal significant disparities in the distribution of benefits between target and non-target populations. For each measure, low-income and minority populations were at least as well served as the general population.

MORPC's analysis revealed several challenges to quantifying the benefits of a regional transportation plan. One is the availability of current data. Because of the timing of the study, MORPC was forced to rely on census data that was nearly ten years old. As another option, it is often possible to use state labor department data to map emerging employment centers and illuminate the challenges presented by a spatial mismatch between job growth and population

growth. Another challenge is matching job type with worker skill sets. MORPC's analysis did not consider job type and the extent to which jobs represented viable employment opportunities for low-income and minority workers. Finally, MORPC's analysis of travel times and accessibility for public transit did not consider the frequency of service. In their analysis, all bus lines were assumed to have a uniform level of service, even if the lack of evening and weekend service prevented individuals from using certain routes at certain times.

Acknowledgement

This project benefited from the periodic input of an Advisory Panel, comprised of individuals working extensively on transportation and environmental justice issues in California. The members of this Advisory Panel are Eve Bach of Arc Ecology, James Corless of the Surface Transportation Policy Project, Joselito Laudencia of the Asian Pacific Environmental Network, Linda Lopez of the Great Valley Center, Jerilyn Mendoza of Environmental Defense, Joe Myers of the National Indian Justice Center, and Martha Olson. Additional review and input was provided by a national expert on the social and economic impacts of transportation investments, Professor David Forkenbrock, Director of the University of Iowa Public Policy Center. Professor Jonathon Zasloff and Andrea Driggs of the UCLA School of Law provided contributions to the legal and regulatory sections.

Appendix:

Glossary of Transportation Acronyms and Terms¹⁰⁰

ADA *Americans with Disabilities Act*: Federal civil rights legislation for disabled persons passed in 1990; calls on public transit systems to make their services more fully accessible; calls for design of doorways and sidewalks for wheelchair access, as well as to underwrite a parallel network of paratransit service.

AVO *Average Vehicle Occupancy*: The number of people traveling by private passenger vehicles divided by the number of vehicles used.

AVR *Average Vehicle Ridership*: The ratio of all people traveling by any mode—including cars, buses, trains and bicycles (or telecommuting)—in a given area during a given time period to the number of cars on the road. A key measure of the efficiency and effectiveness of a transportation network; the higher the AVR, the better you're doing in terms of energy consumption and air pollution.

CAA *Clean Air Act*: Federal legislation that requires each state with areas that have not met federal air quality standards to prepare a State Implementation Plan, or SIP. The sweeping 1990 amendments to the CAA established new air quality requirements for the development of metropolitan transportation plans and programs. The California Clean Air Act (or CCAA) sets even tougher state goals.

CAC *Citizens Advisory Committee*: A group community members designated to provide on-going feedback on plans or projects. The structure of such committees varies dramatically. They may be voting bodies or merely advisory; they might meet regularly or when a particular input is needed; members may be politically designated, assigned by category (geographic, demographic, modal, etc.), or the committee may be open to anyone interested in participating.

Caltrans *California Department of Transportation*: The state agency that operates California's highway and intercity rail systems.

Capital revenues: Monies dedicated for new projects to cover one-time costs, such as construction of roads, transit lines and facilities or purchase of buses and rail cars.

CEQ: *Council on Environmental Quality*, a federal body that advises US EPA and others on environmental policies.

CEQA *California Environmental Quality Act*: A statute established in 1970 that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. Environmental Impact Reports (EIRs) are one type of document done under CEQA.

CHP *California Highway Patrol*: State law enforcement agency responsible for highway safety, among other things.

CMA *Congestion Management Agency*: The countywide agency (in urbanized areas with 50,000 or larger) responsible for preparing and implementing a

county's Congestion Management Program. CMAs came into existence as a result of state legislation and voters' approval of Prop. 111 in 1990. Subsequent legislation made optional the requirement for counties to have a CMA.

CMAQ *Congestion Mitigation and Air Quality Program*: A federal funding source for projects and activities that reduce congestion and improve air quality, both in regions not yet attaining federal air quality standards and those engaged in efforts to maintain their recent attainment status.

CMP *Congestion Management Program*: CMPs are prepared by Congestion Management Agencies (see entry under "CMA," above) to meet eligibility requirements for certain state and federal funds. Updated biennially, CMPs set performance standards for roads and public transit, and show how local jurisdictions will attempt to meet those standards. CMPs were initially required of every county in California with a population of 50,000 or more, but 1996 legislation allows counties to opt out of CMP requirements under certain conditions.

CBO *Community-based organization*, groups formed by local communities for advocacy on a range of environmental, housing, transportation and economic issues. Though their structure and mission vary, they have relationships within their communities that may help promote community involvement in planning.

Conformity: A process in which transportation plans and spending programs are reviewed to ensure that they are consistent with the State Implementation Plan (SIP), the regional plan to comply with federal clean air requirements; transportation projects collectively must not worsen air quality.

CTC *California Transportation Commission*: A state-level transportation oversight agency that sets state spending priorities for highways and transit and allocates funds. The CTC members vote California's Statewide Transportation Improvement Program (STIP) projects. The nine-member commission is appointed by the Governor, while two ex-officio members are appointed by the Legislature.

Flexible funding: Unlike funding that flows only to highways or only to transit by a rigid formula, this is money that can be invested on a range of transportation projects. Examples of flexible funding categories include the Surface Transportation Program, Congestion Mitigation and Air Quality Improvement program.

HOV Lane *High-Occupancy-Vehicle Lane*: The technical term for a carpool lane, commuter lane or diamond lane (a lane reserved for vehicles with more than one occupant).

Intermodal: The term "mode" is used to refer to and to distinguish from each other the various forms of transportation, such as automobile, transit, ship, bicycle and walking. Intermodal refers specifically to the connections between modes.

ISTEA *Intermodal Surface Transportation Efficiency Act*: Pronounced "Ice Tea," this landmark federal legislation signed into law in 1991 made broad

changes in the way transportation decisions are made. ISTEA emphasizes diversity and balance of modes, as well as the preservation of existing systems before construction of new facilities. ISTEA expired in 1997, but much of its program structure is carried forward in new federal legislation (see TEA 21).

ITIP *Interregional Transportation Improvement Program*, a roster of projects funded by the Interregional Improvement Program (IIP) to address needs that cross metropolitan boundaries. Caltrans nominates and the CTC approves a listing of interregional highway and rail projects for 25 percent of the funds to be programmed in the STIP (75 percent is programmed in the Regional Improvement Program as the Regional Transportation Improvement Program (RTIP)).

LEP: *Limited English Proficiency*, describes persons or households where English is not the primary language spoken. California's increasing diversity challenges planners at all levels to develop outreach materials that are culturally appropriate.

LOS *Level of Service*: An "A" to "F" ranking system most often used to define the character of traffic operating on a road or street relative to the characteristics of the roadway. This is also frequently used to rank the degree of intersection delay. Generally, "A" represents light and completely undisrupted traffic, while "F" indicates congested stop-and-go traffic.

MPO *Metropolitan Planning Organization*: A federally required planning body responsible for the transportation planning and project selection in its region; the governor designates an MPO for urbanized areas with a population of over 50,000 people.

Multimodal: Refers to the availability of multiple transportation options, especially within a system or corridor. A multimodal approach to transportation planning focuses on the most efficient way of getting people or goods from place to place, be it by truck, train, bicycle, automobile, airplane, bus, boat, foot or even a computer modem.

NEPA *National Environmental Policy Act*: A federal act of 1969 requiring federal agencies to identify the predicted social and environmental impacts of a proposal in an Environmental Impact Statement (EIS).

NCHRP *National Cooperative Highway Research Program*, administered by the Transportation Research Board and funded by member departments of transportation, the Association of State Highway and Transportation Officials, and in cooperation with Federal Highway Administration, the NCHRP was created in 1962 to conduct research into acute problem areas in highway planning, design, construction, operation and maintenance.

NHS *National Highway System*: This approximately 160,000-mile network consists of the 42,500 miles of the Interstate system, plus other key roads and arterials throughout the United States. Designated by Congress in 1995 pursuant to a requirement of the Intermodal Surface Transportation Efficiency Act, the NHS is designed to provide an interconnected system of principal routes to serve major travel destinations and population centers.

Operating revenues: Monies used to fund general, day-to-day costs of running transportation systems. For transit, costs include fuel, salaries and replacement parts; for roads, operating costs involve maintaining pavement, filling potholes, paying workers' salaries, and so forth.

Program: (1) *verb*, to assign funds to a project that has been approved by the MPO, RTPA, the state or other agency; (2) *noun*, a system of funding for implementing transportation projects or policies, such as through the State Transportation Improvement Program (see STIP).

PID *Project Initiation Document:* a document required for all Caltrans proposed projects which identifies the scope, schedule, and budget for a project programmed for funding. The PID also identifies project purpose and need. This document often includes information on preliminary engineering and project alternatives. Every project must have an approved PID or equivalent prior to being programmed in a transportation improvement program.

RTIP *Regional Transportation Improvement Program:* A listing of highway and transit projects that the region hopes to fund; compiled by the MPO or RTPA every two years from priority lists submitted by local jurisdictions. The CTC must either approve or reject the RTIP list in its entirety. Once the CTC approves an RTIP, it is combined with those from other regions to comprise the regional portion of the STIP funding.

RTP *Regional Transportation Plan:* A blueprint to guide the region's transportation development for a 20-year period. Updated every three years in urban areas and every four years in rural areas, it is based on projections of growth and travel demand coupled with financial projections. Required by state and federal law.

RTPA *Regional Transportation Planning Agency:* A state-designated agency responsible for preparing the Regional Transportation Plan and the Regional Transportation Improvement Program, administering state transportation planning funds, and other tasks.

SIP *State Implementation Plan:* Here's a case where one term refers to two different -- albeit related -- documents. Non-attainment areas prepare regional SIPs showing steps they plan to take to meet federal air quality standards (outlined in the Clean Air Act). Several SIPs make up the statewide plan for cleaning up the air, also known as a SIP.

SOV *Single-occupant vehicle:* A vehicle with one occupant, the driver, who is sometimes referred to as a "drive alone."

STA *State Transit Assistance:* Provides funding for mass transit operations and capital projects.

STIP *State Transportation Improvement Program:* A listing of all state and federally funded projects in California for a five-year period. Every two years, Caltrans assembles the RTIPs together with the ITIP to form the STIP. The STIP is approved or disapproved by the California Transportation Commission (CTC).

STP *Surface Transportation Program*: One of the key federal funding programs. STP monies are “flexible,” meaning they can be spent on mass transit, pedestrian and bicycle facilities as well as on roads and highways.

TAZ: *Traffic Analysis Zone*, the smallest geographically designated area for the analysis of transportation activities.

TCM *Transportation Control Measure*: A strategy to reduce driving or smooth traffic flows in order to cut vehicle emissions and resulting air pollution. Examples of TCMs include roving tow truck patrols to clear stalls and accidents from congested roadways, new or increased transit service, or a program to promote carpools and vanpools.

TDA *Transportation Development Act*: State law enacted in 1971. TDA funds are generated from a tax of one-quarter of one percent on all retail sales in each county; used for transit, special transit for disabled persons, and bicycle and pedestrian purposes, they are collected by the state and allocated the MPO or RTPA to fund transit operations and programs. In non-urban areas, TDA funds may be used for streets and roads under certain conditions.

TDM *Transportation Demand Management*: Low-cost ways to reduce demand by automobiles on the transportation system, such as programs to promote telecommuting, flextime and ridesharing.

TEA *Transportation Enhancement Activities*: A federal funding category. Ten percent of STP monies must be set aside for projects that enhance the compatibility of transportation facilities with their surroundings. Examples of TEA projects include bicycle and pedestrian paths, restoration of rail depots or other historic transportation facilities, acquisition of scenic or open space lands next to travel corridors, and murals or other public art projects.

TEA 21 *Transportation Equity Act for the 21st Century*: Passed by Congress in May 1998, this federal transportation legislation retains and expands many of the programs created in 1991 under ISTEA. Reauthorizes federal surface transportation programs for six years (1998-2003), and significantly increases overall funding for transportation.

TIP *Transportation Improvement Program*: A generic term for spending plan for state and federal funding expected to flow to the region from all sources for transportation projects of all types. Each MPO prepares an FTIP (Federal Transportation Improvement Program) every two years with the assistance of local governments, transit operators and Caltrans. It covers at least a three-year period. The FTIP, together with Caltrans and rural projects with federal funding, constitute the FSTIP (Federal-State Transportation Improvement Program).

TOS *Traffic Operations System*: A coordinated network of equipment that monitors traffic flows, often by means of detectors embedded in pavement and closed-circuit television cameras, quickly dispatching tow trucks and other assistance. Message signs and broadcasts can alert drivers and transit riders to conditions ahead, while ramp metering will control traffic flows. All these devices together comprise the TOS.

U.S. DOT *United States Department of Transportation:* The federal cabinet-level agency with responsibility for highways, mass transit, aviation and ports; headed by the secretary of transportation. The DOT includes the Federal Highway Administration and the Federal Transit Administration, among others. There are also state DOTs (known as Caltrans in California).

VMT *Vehicle Miles Traveled:* The more cars there are on the road at the same time in the same area, the worse congestion will be. This term helps pin down the numbers. Reducing the growth of VMT can help ease traffic congestion and improve air quality.

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- ³⁰ 49 C.F.R. § 21.5(b)(2)-(3) (1997) (Department of Transportation Regulations).
- ³¹ U.S. Department of Transportation, *U.S. Department of Transportation Order on Environmental Justice*, available at <http://www.fhwa.dot.gov/environment/ejustice/dot_ord.htm> .
- ³² U.S. Department of Transportation, *Memorandum: Implementing Title VI Requirements in Metropolitan and Statewide Planning*, available at <<http://www.fhwa.dot.gov/environment/ejustice/ej-10-7.htm>> .
- ³³ U.S. DOT, Federal Highway Administration Order 6640.23, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, available at <http://www.fhwa.dot.gov/legsregs/directives/orders/6640_23.htm> .
- ³⁴ The publication is available on the Internet site: <www.fhwa.dot.gov/environment/ej2.htm>

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- ³⁵ See Federal Register Vol. 65, No. 102, May 25, 2000.
- ³⁶ Council on Environmental Quality, “Environmental Justice under the National Environmental Policy Act,” December 10, 1997. <
<http://ceq.eh.doe.gov/nepa/regs/ej/ej.pdf> >
- ³⁷ King, Greg, “Addressing Environmental Justice in California,” *Environmental Monitor*, Published by the Association of Environmental Professionals, Summer 2001.
- ³⁸ “Addressing Environmental Justice in Environmental Assessments/Environmental Impact Statements,” Interim Guidance, FWHA Western Resource Center, December 2001. (portions of this section are taken directly from this Interim Guidance document)
- ³⁹ See <<http://aspe.hhs.gov/poverty/>>.
- ⁴⁰ 23 United States Code Section 109(h).
- ⁴¹ *Community Impact Assessment*, Caltrans Environmental Handbook, Volume 4, June 1997.
- ⁴² Executive Order 13166, *Improving Access to Services for Persons with Limited English Proficiency*, August 11, 2000. Available on the Internet at
<<http://www.usdoj.gov/crt/cor/Pubs/eolep.htm>>
- ⁴³ Pub. Resources Code § 21000 et seq.
- ⁴⁴ Remy, Michael H., *Guide to the California Environmental Quality Act*, 1999. It is interesting to note that only one in 20 actions leads to an EIR and only one out of every 350 CEQA actions leads to a lawsuit, as noted in William Fulton, *Guide to California Planning*, Solano Press Books, 1999.
- ⁴⁵ The CA Supreme Court interpreted CEQA for the first time in 1972, stating that CEQA must be interpreted so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language, also stating that environmental analysis is required for agency actions in addition to projects initiated by the government. Friends of Mammoth v. Board of Supervisors, 8 Cal. 3d 247, 259, 262 (1972).
- ⁴⁶ Diagram adapted from William Fulton, *Guide To California Planning*, Solano Press Books, 1999.
- ⁴⁷ Smith, Robert W. and Elizabeth Deakin, *Public Involvement Requiements Under TEA-21, NEPA, and Related Federal and States Legislation and Regulations*, Draft Report, University of California Transportation Center, University of California, Berkeley, April 2001.
- ⁴⁸ Remy, Michael H., *Guide to the California Environmental Quality Act*, 1999.
- ⁴⁹ CEQA Guidelines § 15275 (CEQA guidelines can be found in the California Code of Regulations, beginning with section 15000); See Napa Valley Wine Train, Inc. v. Public Utilities Commission, 50 Cal 3d. 370 (1990), where the CA Supreme Court held that

rail passenger service is to be construed with reference to the existence of a rail right of way and not the physical rail line, its condition or type of rail traffic.

⁵⁰ CEQA Guidelines § 15276.

⁵¹ A “fiscal emergency” is defined as a situation in which a transit agency is projected to have negative working capital within one year from the date that the agency finds that a fiscal emergency exists. “Working capital” is defined as the sum of all unrestricted cash, unrestricted short-term investments, and unrestricted short-term accounts receivable, minus unrestricted accounts payable. CEQA Guidelines § 15285

⁵² See Anthony N. R. Zamora, “The Century Freeway Consent Decree,” *Southern California Law Review*, Vol. 62, September 1989.

⁵³ Keith v. Volpe, 643 F. Supp. 37, 39 (C. D. Cal. 1985).

⁵⁴ Kennedy, Lori, “Environmental Justice and Where It Should Be Addressed in the 21st Century Concerning the Transportation Industry: Historical Perspective and Summary,” Conference I Resource Paper, Refocusing Transportation Planning for the 21st Century.

⁵⁵ See NAACP Legal Defense & Educational Fund Internet site at <www.ldfla.org>

⁵⁶ City of South Pasadena v. Slater, 56 F. Supp. 2d 1106 (C. D. Cal. 1990.)

⁵⁷ For a criticism of the environmental justice aspects of this case see <<http://www.economics.harvard.edu/~volokh/genplan2.html>>.

⁵⁸ SB 115 was authored by Senator Solis and signed into law by Governor Davis on October 6, 1999.

⁵⁹ Cal. Gov’t. Code § 65040. 12(c).

⁶⁰ SB 89 was sponsored by Escutia and signed into law by Governor Davis on September 25, 2000.

⁶¹ Ellen M. Peter, “Implementing Environmental Justice: The New Agenda for California State Agencies,” *Golden Gate University Law Review*, Vol. 31, Spring 2001.

⁶² “Environmentalism Sponsored Bills Move Forward,” *California Environmental Insider*, Vol. 12, No. 23, May 17, 1999.

⁶³ AB 1553 was sponsored by Assemblyman Keeley and signed by Governor Davis on October 11, 2001.

⁶⁴ “The Legislature’s Home Stretch,” *California Environmental Insider*, Vol. 15, No. 5, August 15, 2001.

⁶⁵ AB 1390 was sponsored by Assemblyman Firebaugh.

⁶⁶ SB 828 was sponsored by Senator Alarcon and signed by Governor Davis on October 11, 2001.

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- ⁶⁷ See < <http://www.arb.ca.gov/planning/caplan/caplan.htm>>.
- ⁶⁸ See ARB's report *Policies and Actions for Environmental Justice*, available on the Internet at <<http://arbis.arb.ca.gov/ch/ej.htm>>.
- ⁶⁹ See <<http://www.energy.ca.gov/env-justice>> .
- ⁷⁰ These factors are adapted from *Citizen Advisory Committees: A guide for members and potential members* by Alan J. Hahn [undated], An extension publication of The New York State College of Human Ecology and The New York State College of Agriculture and Life Sciences at Cornell University.
- ⁷¹ Adapted from *Public Involvement Techniques for Transportation Decision-Making*, prepared by Howard/Stein-Hudson Associates, Inc. and Parsons Brinckerhoff Quade and Douglas for Federal Highway Administration and Federal Transit Administration, September 1996.
- ⁷² U.S. Census, 2000. (MSA and CMSA are census terms for Metropolitan Statistical Area and Consolidated Metropolitan Statistical Area.)
- ⁷³ U.S. Census, 2000.
- ⁷⁴ For more information on these and other public meeting techniques, see *Public Involvement Techniques for Transportation Decision-Making*, Chapter 2.
- ⁷⁵ *Public Involvement Techniques for Transportation Decision-Making*, prepared by Howard/Stein-Hudson Associates, Inc. and Parsons Brinckerhoff Quade and Douglas for Federal Highway Administration and Federal Transit Administration, September 1996.
- ⁷⁶ DHS poverty guidelines can be found on the Internet at <<http://aspe.hhs.gov/poverty>>. Poverty levels vary by household size.
- ⁷⁷ *Technical Methods to Support Analysis of Environmental Justice Issues*, Prepared by Cambridge Systematics, Inc. with Akin Gumpe Strauss, Hauer, and Field, L.L.P, Prepared for National Cooperative Highway Research Program, Project 8-36 (11), April 2002.
- ⁷⁸ See information on the Internet at <www.census.gov/acs/www>.
- ⁷⁹ See information on the Internet at <www.census.gov/hhes/www/ahs.html>.
- ⁸⁰ See information on the Internet at <<http://www-cta.ornl.gov/npts/1995/Doc/index.shtml>>.
- ⁸¹ This private company and others in this section are identified for illustrative purposes only and no endorsement is intended. For more information, see their Internet site at <<http://www.claritas.com/index.html>>.
- ⁸² For more information, see their Internet site at <<http://www.appliedgeographic.com>>.

⁸³ Michigan Department of Transportation, 2002-2004 State Transportation Improvement Program <http://www.michigan.gov/mdot/0,1607,7-151-9621_14807_14808---00.html>.

⁸⁴ Ohio Department of Transportation Draft Environmental Justice Guidance, May 30, 2000. <<http://www.dot.state.oh.us/planning/Environ-Just/EJ-Main.htm>>

⁸⁵ *Technical Methods to Support Analysis of Environmental Justice Issues*, 2002.

⁸⁶ *Technical Methods to Support Analysis of Environmental Justice Issues*, 2002.

⁸⁷ This example taken from Forkenbrock, David and Lisa Schweitzer, *Environmental Justice and Transportation Investment Policy*, Public Policy Center, University of Iowa, 1997. The equation was estimated using 130 block groups. The adjusted r-square of the equation is 0.650, and all variables are significant at the 99th percentile.

⁸⁸ *Technical Methods to Support Analysis of Environmental Justice Issues*, 2002.

⁸⁹ See Bass, Ronald E., Albert I. Herson, and Kenneth M. Bogdan, *CEQA Deskbook*, Second Edition, Solano Press Books, 1999, and Bass, Ronald E., Albert I. Herson, and Kenneth M. Bogdan, *The NEPA Book*, Second Edition, Solano Press Books, 2001.

⁹⁰ *California CEQA Guidelines*, Section 15091.

⁹¹ *California CEQA Guidelines*, Sections 15091(d), 15097.

⁹² See 40 CFR 1505.2.

⁹³ *FHWA Interim Guidance – Transportation Enhancement Activities*, 1999.

⁹⁴ This example was taken from *Transportation and Environmental Justice: Case Studies*, FHWA and FTA, December 2000. Available on the Internet at <<http://www.fhwa.dot.gov/environment/ejustice/case/ejbooklt.pdf>>.

⁹⁵ This example was taken from *Transportation and Environmental Justice: Case Studies*, FHWA and FTA, December 2000. Available on the Internet at <<http://www.fhwa.dot.gov/environment/ejustice/case/case10.htm>>.

⁹⁶ This example was taken from *Transportation and Environmental Justice: Case Studies*, FHWA and FTA, December 2000. Available on the Internet at <<http://www.fhwa.dot.gov/environment/ejustice/case/ejbooklt.pdf>>.

⁹⁷ MTC used this 200 percent poverty-level rather than the more typical 100 percent or 150 percent of poverty-level because of the high cost of living in the Bay Area. This decision reflects a belief that households making up to 200 percent poverty level-income are subject to substantial economic hardships in the Bay Area, and therefore require special consideration in the planning process. This is a good example of adapting the analysis to the particularities of the local setting.

⁹⁸ Note that this measure does not use the communities of concern defined in the previous measures.

⁹⁹ This example was taken from *Transportation and Environmental Justice: Case Studies*, FHWA and FTA, December 2000. Available on the Internet at <<http://www.fhwa.dot.gov/environment/ejustice/case/case7.htm>>.

¹⁰⁰ Many of these definitions were taken from MTC's *Citizens' Guide to 'Transportationese'*, available at on the Internet at <http://www.mtc.ca.gov/publications/citizens_guide/transpor.htm>.