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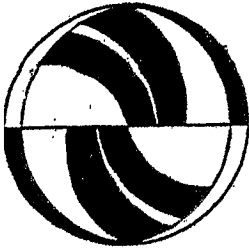
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**Environmental Justice & Transportation: A
Citizen's Handbook**

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UCTC
No. 620

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**The University of California
Transportation Center**

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Environmental Justice & Transportation

A CITIZEN'S HANDBOOK



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BY

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AND

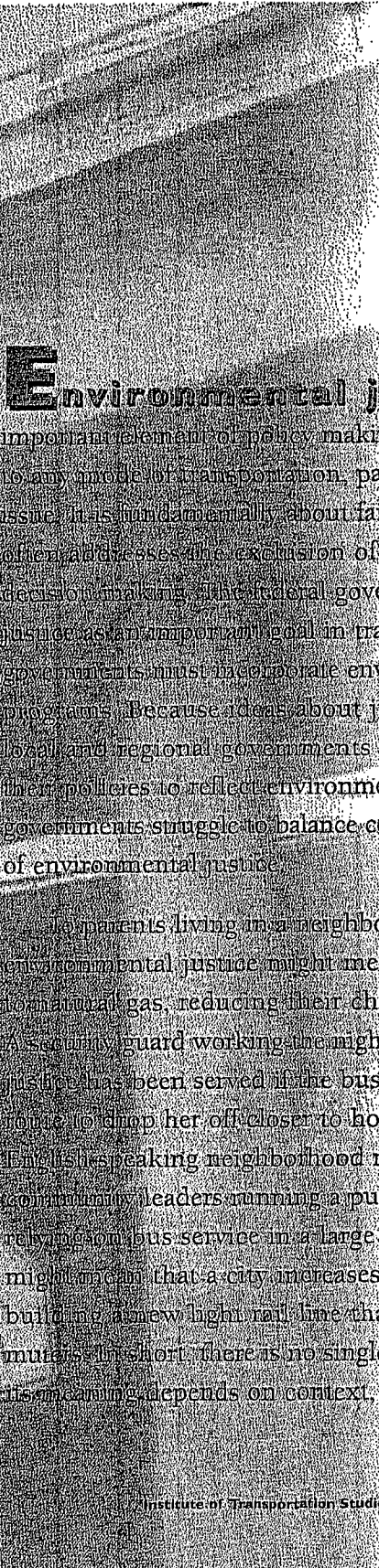
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Environmental justice is an increasingly important element of policy making in transportation. It is not specific to any mode of transportation, particular community, or single policy issue. It is fundamentally about fairness toward the disadvantaged and often addresses the exclusion of racial and ethnic minorities from decisionmaking. The federal government has identified environmental justice as an important goal in transportation, and local and regional governments must incorporate environmental justice into transportation programs. Because ideas about justice differ between communities, local and regional governments have flexibility in how they change their policies to reflect environmental justice. Communities and local governments struggle to balance competing interests and interpretations of environmental justice.

For parents living in a neighborhood with a lot of bus service, environmental justice might mean converting buses from diesel to natural gas, reducing their children's exposure to air pollution. A security guard working the night shift might feel that environmental justice has been served if the bus she takes deviates from its regular route to drop her off closer to home. Environmental justice to a non-English speaking neighborhood might mean having bilingual staff and community leaders running a public meeting. To low-income workers relying on bus service in a large downtown, environmental justice might mean that a city increases the frequency of buses instead of building a new light rail line that would serve upper-income commuters. In short, there is no single definition of environmental justice: its meaning depends on context, perspective and timeframe.

Environmental justice issues arise most frequently when:

- *Some communities get the benefits of improved accessibility, faster trips, and congestion relief, while others experience fewer benefits;*
- *Some communities suffer disproportionately from transportation programs' negative impacts, like air pollution;*
- *Some communities have to pay higher transportation taxes or higher fares than others in relation to the services that they receive; or*
- *Some communities are less represented than others when policy-making bodies debate and decide what should be done with transportation resources.*

Racial and ethnic minority groups, low-income people, the elderly, and people with disabilities have all been the victims of environmental injustices in transportation. Sometimes an affected community is primarily geographic, consisting of those living in a particular location, often a neighborhood near a major transportation facility. Or those affected might share similar racial, ethnic, or economic characteristics. These groups are often referred to as "environmentally justice communities." But because power and needs change over time and place, the term "environmentally justice communities" is problematic. Environmental justice is used to protect the needs of the powerless, whenever they may be, and as they change.

Many community members are becoming involved with transportation decisions that impact their mobility needs, health, and overall quality of life. A member of the public concerned with environmental justice might be involved with making transportation decisions as:

- *A citizen appointed to an environmental justice task force or committee;*
- *A member of a disempowered group, representing the group's interests to an advisory committee for the purpose of discussing and influencing transportation policy choices;*
- *A member of an advocacy group active in transportation issues;*
- *An employee of a non-profit agency that wants to be involved because of the effect that transportation policies have on its constituents; or*
- *A resident or business owner affected by a transportation decision.*

Although there is no substitute for the knowledge that can be gained over time through experience, this handbook will help those who are new to transportation decision processes influence how environmental justice is incorporated into decisions about transportation policy and projects. Various approaches to environmental justice are discussed, along with steps in the planning process when citizen involvement is particularly effective, suggestions for how environmental justice can be incorporated into a project, and legal requirements for environmental justice.

THE GOAL OF ENVIRONMENTAL JUSTICE

State and local transportation agencies have a legal obligation to prevent discrimination and to protect the environment through their plans and programs. The details of these obligations are discussed in the box titled "Legal History" on page 4. Although this requirement is non-negotiable, agencies can decide how they want to promote environmental justice. Irrespective of how agencies promote environmental justice, the fundamental goal is to foster a more just and equitable society. This goal is based on our civil rights laws. Still, exactly what justice and equity mean and how they are achieved is the subject of much debate.

The following approaches to managing benefits and burdens offer examples of how some people and agencies work toward environmental justice. These examples focus on how the benefits are spread among people, but an equally important concern is how burdens are distributed. Frequently encountered burdens from transportation are air pollution, noise, vibrations, crash-related injuries and fatalities, dislocation of residents, and division of communities.

Equity Within Transportation Programs

Individuals and agencies often don't have a single policy for reaching a just and equitable society. Instead, how this goal is reached depends on the situation

at hand. In the case of transportation, one approach to environmental justice might be to promote equity within specific transportation programs. Providing the same amount of the same service to each person could accomplish this. An example is supplying transit service to everyone regardless of where they live, where they need to travel, whether they own a car, or whether they use transit. This happens when people advocate extending commuter rail service to an outlying suburb in the transit district based solely on the belief that everyone in the district should have equal access to the commuter rail service. Such a policy treats everyone equally, but is likely to produce an inefficient and excessively expensive transportation system.

Another way to promote equity in transportation is to spend the same amount of money per person on different types of service according to needs and preferences. A portion of funds would be given to roads, a portion to buses, and a portion to train service, depending on how many people used each. A transportation system of this type responds to people's differing needs and circumstances, but reinforces current travel patterns, which limits travel choice.

An attempt at equity within transportation also happens when governments—states, counties or municipalities—receive back in transportation funds what their citizens contributed in the form of taxes. This is called "return to source." One limitation of this approach is that when applied to transportation alone, the

LEGAL HISTORY

Even though the words "environmental justice" haven't made it into legislation, the concept has made it into court decisions. These decisions form the foundation of future legal interpretations and are part of the common law of the United States.

The principles of environmental justice have their basis in both the Constitution of the United States—notably the Equal Protection Clause of the Fourteenth Amendment—and United States civil rights laws. (On the state level, many states have similar provisions in their constitutions.) Titles Six (VI) and Nine (IX) of the Civil Rights Act of 1964 provide protection from discriminatory actions or results from federal or federally assisted or approved actions.

Intentional discrimination can be very hard to prove. The U.S. Department of Justice's Civil Rights Division's "Title VI Legal Manual" (September 1998) states that

"[t]his requires a showing that the decisionmaker was not only aware of the complainant's race, color, or national origin, but that the recipient acted, at least in part, because of the complainant's race, color, or national origin."

Because proving intentional discrimination is so difficult, people have sought other ways to enforce nondiscrimination. An alternative approach has been to charge that Title VI was violated by unintentional discrimination that caused disparate impacts. When an otherwise nondiscriminatory policy or program causes unequal effects (on protected individuals—for example, minorities, women, and disabled persons) without a legitimate reason, the policy or program is having a disparate impact. Whether this approach is valid has been argued in recent court cases.

Environmental justice claims are being made on the basis of rights established years ago, but how those rights will be enforced is still being decided through the courts.

During the sixties it became increasingly obvious that people's rights and freedoms are closely tied to the well being of their environment. Also during this time, legislators acknowledged that economic and social environments, in addition to the physical environment, determine a person's quality of life and ability to thrive in society. These realizations shaped the National Environmental Policy Act of 1969 (NEPA), which established the national policy for the environment. NEPA requires federal agencies to take a "systematic, inter-disciplinary approach" to planning and decision making when the results may have an impact on the environment.

The Federal Aid Highway Act of 1970 requires that states and metropolitan planning organizations (MPOs), which develop long-range plans, consider the "overall social, economic, energy, and environmental effects of transportation decisions." (23 CFR, 450.208) Federal money may not fund programs or activities that result in the intentional or unintentional unequal treatment of persons solely based on their race, color, religion, sex, or national origin.

In spite of all these laws, several presidents have felt that discrimination and environmentally destructive practices still persist. In response, they issued Executive Orders (EOs) that require federal agencies to take specific measures to better achieve these goals. Executive orders 11063, 12259, and 10479 all seek to provide equal opportunity in housing while EO 10482 provides for equal employment opportunities in the government. Most recently, former President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," which extends federal environmental and nondiscriminatory protections to low-income people. This order directs each federal agency to develop a strategy for preventing its actions from having "disproportionately high and adverse human health or environmental effects" on low-income and minority populations. However, it is important to realize that an executive order does not create any new rights or benefits that are enforceable by law. Federal agencies compliance can't be enforced in court.

Executive orders and federal agency regulations have detailed how avoiding discrimination and environmental concerns should be built into federal decision making in order to implement these laws more rigorously. The Department of Transportation's final Environmental Justice Order in 1997 directed agencies about ways to incorporate environmental justice into their activities. Operating agencies within the department often give more detailed information. For example, the Federal Highway Administration and the Federal Transit Administration issued a joint memorandum in 1999 titled "Implementing Title VI Requirements in Metropolitan and Statewide Planning." In it, the administrators announced that compliance with Title VI is required, and non-compliance would mean that all federal funding for the region could be withheld.

Over time, the federal government has created increasingly specific requirements for non-discrimination and environmental protection, but states can decide how to implement them. If they do not follow these directives they risk losing their federal money, which is usually a sizable share of their transportation funding.

The following DEFINITIONS are excerpts from the appendix of the Department of Transportation's final Environmental Justice order:

LOW-INCOME means that a person's household income is at or below the poverty level;

THE PROTECTED LOW-INCOME AND MINORITY POPULATION can be defined as a group of persons within geographic proximity of each other or a group that is dispersed but would be similarly affected by a proposal;

ADVERSE EFFECTS include those on human health, the environment, and a group's social and economic well-being; and

DISPROPORTIONATELY HIGH AND ADVERSE EFFECTS ON MINORITY OR LOW-INCOME POPULATIONS are effects that are predominantly borne by a minority or low-income population, or effects borne by minority and low-income populations that are more severe than those borne by others.

HOW ARE TRANSPORTATION PROJECTS AND PLANS EVALUATED?

Although the focus of this handbook is environmental justice and its role in transportation decision-making, it is not the only factor considered. In addition, both environmental justice programs and projects are evaluated for their effectiveness and efficiency. How a program performs with respect to all three measures ultimately decides whether it is implemented.

- **Effectiveness** refers to how well a proposal meets its objectives. For example, in a congestion relief plan, an alternative that reduces congestion by 25% is more effective than one that reduces it by 10%, all else being equal.
- **Efficiency** refers to the cost of a project relative to its benefits. The most efficient project is the one with the highest benefit per dollar spent.

When choosing what projects or alternatives to invest in, the preferred option is effective, efficient, and of course, just. In the example above, the alternative that reduces congestion by 10% might cost 10 times what the other alternative costs, meaning that it is neither the most effective nor the most efficient. However, if the alternative reducing congestion by 25% costs 10 times more than the other alternative, the choice is not as clear. When alternatives are judged on how just they are, the decisions become even more complicated.

results of this policy do not respond to any history of inequality or any inequality in another part of society. For example, inadequate transportation service in a community may limit its citizens' ability to reach well-paying jobs, resulting in lower average incomes, smaller tax contributions, and a smaller return of transportation funds. A policy that directs transportation investment to populations according to how much tax they pay may perpetuate a vicious cycle of high funding to rich communities and low funding to poor ones.

Using Transportation as a Tool

A different approach to environmental justice might use transportation services to compensate for inequalities in other areas of society. Instead of equally distributing transportation resources (be it funding, miles of road or track, number of buses, or the like) to promote environmental justice, this approach is to use the transportation system as a tool for improving justice in society as a whole. This could mean

spending user fees and taxes from some citizens on services that benefit other citizens. But this should always be done with caution. In keeping with the spirit of environmental justice, this should only be used to protect the needs of the disadvantaged, whomever they might be and as they change. In order to ensure that the needs of the disadvantaged are protected, specific requirements should be met.

First, everyone must be able to benefit from the policy. In the case of a bridge used by cars and trains, fares from train riders shouldn't be used to resurface the bridge deck because some of the riders can't use cars and therefore couldn't benefit from the resurfaced deck. On the other hand, tolls collected from the cars could be used to improve the train service because everyone crossing the bridge could benefit from the improved train service (either by riding the train, or because people riding the train reduce congestion for car users). The important distinction between the two cases is that all car drivers could benefit from rail improvements but not all rail users could benefit from the deck resurfacing.

Second, this approach should only be used when the least advantaged group of community members benefits the most. Take transit: quite often the debate is not whether to fund transit, but which transit to fund. In theory, everyone could benefit from an inequality favoring transit (such as the train example above). However, funding rail service used by upper-income commuters at the expense of buses serving transit-dependent low-income commuters does

not constitute environmental justice. The least advantaged are the transit-dependent, not those who have alternatives to transit.

Working toward environmental justice doesn't mean that advantaged members of society should never be provided projects that serve their needs and interests, nor should the wealthy and powerful be required to bear all of the costs of the transportation system. However, any unequal distribution of benefits and burdens should help the least advantaged.

Clarify the Approach

In actual policy-making situations, some combination of the approaches outlined above will probably be implemented, working together to promote a just society. Other approaches might also surface in community discussions. For example, a group might want money generated from transportation sources (like gas taxes or bridge tolls) or money earmarked for transportation to be spent on non-transportation-related social services, such as healthcare or education. This may be seen as controversial, but it happens regularly with other revenue sources. For example, property taxes fund primary and secondary schools even though some property owners do not have children. Regardless of the approach, it is important that participants are clear about which one they are taking when they advocate a position.

IMPLEMENTING AN ENVIRONMENTAL JUSTICE POLICY

How can a given approach to environmental justice be implemented? To start, identify specific impacts of the project, program, or plan. What are the benefits, and who will reap them? Are there burdens such as noise, diverted traffic, or additional congestion during construction? How much will it cost? Who will pay for it? It is only after these benefits and burdens are identified that their effect on communities can be understood and, if appropriate, changed. With the answers to these questions, projects can be designed to promote environmental justice in basically three ways, by:

- *Influencing who benefits from them;*
- *Influencing who bears the burdens from them; and*
- *Influencing who pays for them.*

Who benefits and who bears the burdens of these projects are discussed below. The importance of who pays for projects is discussed in the box on the facing page titled, "Who Pays for Transportation and Why Does It Matter?"

Performance Measures

Many large organizations, like states and metropolitan planning organizations (MPOs), examine benefits and burdens with performance measures. They establish specific objectives (which could apply to plans or to single projects), choose indicators (called performance

measures) to track their performance, and sometimes identify target values for those performance measures. A common objective of transportation projects is improved mobility, which is the ability to move throughout a region. But it can be measured in different ways that can produce different results. If it is evaluated using rush-hour speeds on the freeway, it will result in dramatically different plans and projects than if it is measured as the average time to get to work.

Performance measures generally come in three varieties: input-oriented, output-oriented, and outcome-oriented. Input-oriented performance measures focus on investments in the transportation system, such as the number of lanes and miles of highway. This could estimate mobility because increasing lane-miles increases how many people can travel on the highway. Output-oriented performance measures focus on what the transportation system produces, such as the volume of traffic on the expanded highway. This could estimate mobility because increasing the volume of traffic increases how many people are traveling on the highway. Finally, an outcome-oriented performance measure considers whether a transportation investment meets its desired goals. For example, the percentage of people who get to work on time as a result of the expanded highway is an indicator not only of mobility, but also the quality of the users' mobility.

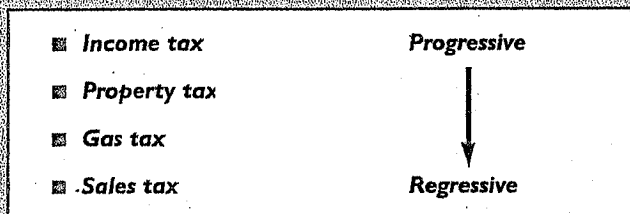
Many objectives relevant to environmental justice don't have obvious performance measures because meaningful data don't exist yet. This is especially true for outcome-oriented

WHO PAYS FOR TRANSPORTATION AND WHY DOES IT MATTER?

One way to implement environmental justice policies is by manipulating the balance between who pays and who benefits from a program. This balance has a profound impact on what can be achieved by the transportation system for two reasons:

- 1) **Different funding sources, like income taxes, property taxes, sales taxes, fuel taxes, taxes on tires, and transit fares or bridge tolls impose burdens differently by income group.**

The list below gives common sources of transportation funds, with the most progressive first and the most regressive last. Progressive taxes charge a lower proportion of income among the poor than among the rich, while regressive taxes charge a higher proportion of income among the poor than among the rich. Generally speaking, progressive taxes are more just than regressive ones.



- 2) **Projects can impose changes, intentionally or unintentionally, on people's incomes.**

An unintentional change in income distribution might occur when a road is widened. With a wider road, capacity increases, attracting drivers from slower or more congested routes. This could decrease benefits accruing to businesses along the route that drivers previously passed and increase them for businesses along the improved road.

Providing subsidies to transit services for the poor is an intentional redistribution of income.

SAMPLE OBJECTIVES AND PERFORMANCE MEASURES

OBJECTIVE	PERFORMANCE MEASURES		
	Input-Oriented	Output-Oriented	Outcome-Oriented
Mobility	Number of new lane-miles built	Average peak period speed	Work opportunities within 45 minutes by car door-to-door
Accessibility	Number of fixed transit routes in a city	Percent of the population who live within 1/4 mile of a fixed transit route	Percent of transit-dependent riders who can access jobs within 45 minutes by fixed route transit
Environment	Percent of vehicles passing SMOG tests	Conformity with the Clean Air Act according to measures of certain pollutants	Asthma rates in communities adjacent to large transportation facilities
Safety	Number of guard rails installed	Number of high crash locations improved	Number of fatalities per million passenger miles

performance measures. However, a good analysis must be based on relevant objectives and performance measures (see chart above). Although it might seem futile to develop performance measures that can't be evaluated now, it's better to understand what the actual data needs are and to request better data from an agency in the future, than to restrict an analysis to data that was collected for other purposes. Useful performance measures demonstrate that a given transportation service is available and whether it is successful at meeting a real need like getting people to work or enabling them to pick up their children from school.

Sometimes, promoting environmental justice may require introducing new projects into a transportation plan rather than evaluating existing plans with an eye for environmental justice. A disadvantaged community that lacks transit, auto, bike or pedestrian infrastructure may want to propose a project to increase its mobility. Metropolitan Planning Organizations and transit agencies have boards designed to represent citizen interests. The text box, "Being Heard," on page 12, describes the various agencies involved in transportation planning and how to get involved in their activities.

Addressing Diverse Needs

Keep in mind that circumstances change, and a person cannot know whether he or she will always be a car driver, a paratransit rider or a pedestrian, whether he or she will live in the city or the suburbs, be rich or poor, seeing or blind. Performance measures should not be chosen to reflect the specific condition of any particular group or community member because transportation projects serve a variety of people, and their needs may change over time.

The most useful performance measures will guide the transportation system toward meeting the needs of a forever changing population rather than toward the requirements of specific groups or areas. For example, if the goal of the transportation policy is to increase mobility of transit-dependent people and their access to jobs, one performance measure might be the number of buses serving the inner city, where poor people, who are disproportionately transit-dependent, have traditionally lived. However, changes in land-use and in the economy have led to entry-level jobs being scattered throughout the region, and housing patterns have changed so that an increasing number of transit-dependent people live in the suburbs. Because of this, the number of buses serving the inner city will not be a measure of transit-dependent people's mobility and their access to jobs. A better performance measure is the percent of transit-dependent riders who can reach their jobs within 45 minutes. This applies equally to people who live in the inner

city and commute to jobs in the suburbs and to those transit-dependent people who live in the suburbs and commute to jobs in the suburbs. Note that this performance measure has nothing to do with the race, income or location of the transit-dependent riders; rather it responds to the needs of a population whose individual members might change over time.

At times, people will be unhappy when their project isn't funded, or a project with undesirable consequences is built. However, with carefully chosen performance measures, the same people or groups should not be continually unhappy with the outcome. If there are repeated problems with individual decisions, the performance measures need to be re-evaluated.

Analyzing Data

After agreeing on the project's purpose, identifying objectives and performance measures, and collecting appropriate data, the data can be analyzed, but how? Checking for environmental justice requires an examination of the distribution of benefits and burdens over time, space, and across various population groups. At a regional level, some agencies have looked for environmental justice problems by comparing the benefits (such as travel time saved or accessibility to jobs) from a regional transportation plan to the costs (amount of taxes paid by each income group) and by looking at how the burdens (such as deteriorated air quality and noise) are distributed across income, ethnic, and age groups.

BEING HEARD

KNOW THE PLAYERS

In order to make sure community input is heard and is effective, members need to know whom to talk with and when. Transportation planning is done by local, regional, state and federal organizations, and there are several agencies at each of these levels. Some agencies are responsible for transit projects, some for roadway projects, and some oversee comprehensive plans involving all types of projects, including bicycle and pedestrian facilities. The best time to get involved in the transportation planning process is early, and the best place to start is at the local level. Once a project is listed in a regional or state plan, its course is set, and input is harder to incorporate. The same is true for introducing a project into a plan: start with the local service provider. In order to find the responsible agency for your concern, contact your state's department of transportation or metropolitan planning organization.

LOCAL AGENCIES

Cities and counties have planning and public works departments where many decisions are made about road repair and maintenance, streetscape, and bicycle and pedestrian facilities. Quite often local politicians are on the boards of these agencies, and a community's voice can be amplified through them.

TRANSIT PROVIDERS

The transit agencies that provide bus or rail service in local communities for the most part control their own budgets and service decisions. On transit matters, the first contact should be with the transit provider. Transit providers have governing boards usually made up of local elected officials who are either appointed by each mayor within a transit district, or elected to their positions on the board. Contacting an elected official not on the board is a way to have an impact on the board's decisions—as well as direct contact with the board members themselves.

REGIONAL AGENCIES OR METROPOLITAN PLANNING ORGANIZATIONS (MPOs)

These agencies have less to do with the planning or designing of specific transportation projects than the organizations listed above or than state transportation departments. MPOs act as coordinators of the many agencies involved in transportation planning. They create regional plans that follow federal guidelines for air quality and serve as a check on agency budgets. Regional plans are a compilation of projects from the local departments and transit providers. Planning at this level looks 25 years into the future. These agencies, like all of the others, have a formal public participation process, and community input is strongly encouraged and very important. Regional agencies have more to do with the overall process that guides transportation planning and the distribution of funds among agencies, modes and geography than they do with the planning of specific projects. However, they do have a legal responsibility for selecting the projects that go into the plans. To influence the overall process and system of transportation planning, funding, and decision making, it's best to become involved in the public participation process here.

STATE DEPARTMENTS OF TRANSPORTATION

Each state has a Department of Transportation that is responsible for certain highways and roads. Problems with projects on those highways and roads should be brought to the attention of state officials.

THE FEDERAL DEPARTMENT OF TRANSPORTATION

The federal government owns and maintains very few roads, only those on federal lands such as national parks and military bases. In addition to these responsibilities, the federal government funds many other transportation projects. Therefore, federal representatives such as senators and members of congress can help address concerns about these projects. However, the state or local agency that owns the project should be contacted first.

Whether the resulting distribution constitutes environmental justice also depends on what is considered fair or appropriate. More discussion of common concepts of distribution is included in the box titled "Who Gets How Much?" on page 16.

One concern with this regional approach is that it combines detailed information about individuals into a general profile of a group or neighborhood and results in decisions based on this "aggregated data." Adding up the benefits and burdens for all the individuals in a group provides a proximate idea of how an average person in that group is faring. But individuals aren't averages. If one person making \$15,000 a year lives next to a commuter rail line, and 20 others with the same income live in quiet residential neighborhoods,

an analysis using aggregated data will suggest that the average person making \$15,000 is being subjected to a little bit of noise. This analysis overlooks the larger burden placed on the \$15,000-a-year earner living near the train tracks. Aggregate analyses show how well the plan is performing as a whole, but they don't show whether specific individuals or groups within these larger groups experience disproportionate burdens or benefits. Protecting against this requires a corridor-level analysis for areas where burdens are concentrated, such as along rail lines or around airports. Such an analysis led to the expansion of the Los Angeles International Airport being limited. Read about this case in the box titled "Responding to Community Needs (I)," on the facing page.

RESPONDING TO COMMUNITY NEEDS (I)

NOISE ANALYSIS CHANGES AIRPORT PLAN

The Southern California Association of Governments (SCAG) evaluated the distribution of noise impacts from aircraft on the basis of a geographical unit called a traffic analysis zone (TAZ). SCAG identified the portion of each zone that would have residences within the areas significantly impacted by airport noise. SCAG assumed that forecast growth in these areas would have the same demographic composition as the growth forecast for the entire TAZ. The findings of this analysis are summarized in the table below, with the right-most column indicating the distribution of residents that would be impacted by airport noise.

Low-Income and Minority Residents in Airport Noise Areas

Demographic Group	SCAG Region in 2025	Within Airport Noise Impact Areas
Non-minority	29%	11%
Minority	71%	89%
Below Poverty	13%	10%

These findings indicate that minority populations would be disproportionately affected by the proposed airport expansion plan: 89 percent of the forecast population in the airport noise impact areas is minority, compared to 71 percent in the whole region. This analysis contributed to the decision to limit the expansion of the Los Angeles International Airport in favor of a more regionally balanced airport expansion plan.

Source: *Des. Guide for Women & Children Transportation Planning and Investments*, California Department of Transportation, 10/10/09.

WHO GETS HOW MUCH?

Evaluating a project or plan requires an examination of where and on whom its benefits and burdens fall. Below are several concepts of distribution that have evolved over time; they can be applied to different approaches to environmental justice. These distributions can apply to benefits such as reduced travel times, costs such as tax payments, burdens such as air pollution, or the balance among all three. The distributions discussed here are based on *Public Finance in Theory and Practice*, 5th Edition, by Richard and Peggy Musgrave, and "Operationalizing Concepts of Equity for Public Project Investments," in *Transportation Research Record* 1559 by C.J. Khisty.

EQUALITY exists when everyone receives an equal share of a particular good.

This exists in the transportation system when all bus users pay the same fare for the same bus service regardless of their ability to pay the fare or whether they have transportation alternatives.

ABILITY TO PAY distributions recognize that individuals have different abilities and earning potentials and that they are entitled to receive all the benefits for which they can pay assuming that they compensate for any burdens produced.

This logic is used when a wealthy community is experiencing heavy congestion and decides to increase its own property taxes to pay for a new road. The cost of the project includes relocation expenses for families who are displaced, the cost of soundproofing houses that will experience higher noise levels, and pollution control measures for air pollution resulting from the road. In this case, upper-income households reap the majority of the benefits from the project, and they also bear the costs associated with it. Using this distribution method, the wealthy community benefits from the project, and the individuals who carry the burdens of the project are compensated. This concept will direct more benefits to the people and communities who can pay for them, but it is unlikely to serve the most needy.

Under the **MAXIMUM BENEFIT** distribution, the greatest benefit is created for the most people.

An airport expansion that produces large benefits for a region may be justified using this distribution concept. Simply comparing costs and benefits, airport investments might appear very successful. However, it is important

to see where the benefits and burdens fall. Most of the benefits go to the business community and to wealthier individuals who fly regularly. Although they won't benefit to the same degree, poorer residents help pay for the expansion through taxes and might experience more of the negative impacts because poorer neighborhoods tend to be closer to airports. The overall benefit of this project might be high, but those who need the most help are helped the least.

SERVE THE LEAST-ADVANTAGED FIRST is a distribution that works to remedy existing inequalities.

For example, a region has the option of funding increased commuter rail service (benefiting wealthier individuals who tend to live in the suburbs and own cars), or it can fund a series of Welfare-to-Work programs, which improve work-related transportation for welfare recipients. A decision based on serving the least-advantaged first would direct funds to the Welfare-to-Work programs. This distribution works toward the goal of justice in society rather than focusing solely on the transportation system.

MIXED CRITERIA are often used because it is difficult to choose a single concept of distribution. Many groups combine concepts to better match their communal values of fairness.

A mixed criteria distribution works best when applied to alternatives that have been studied in a cost-benefit analysis and have monetary estimates of the benefits and burdens of the alternatives. One way to mix criteria is to maximize the minimum benefit received by any group, also called "maxi-min." Another is to maximize the average net benefit while ensuring that everyone receives a specified minimum benefit.

The theories described above can be hard to implement in practice because funding decisions depend heavily on federal legislation. The most current transportation legislation is the Transportation Equity Act for the 21st Century (TEA-21). The trend in federal legislation has been to have series of funding categories, which explicitly state how much money is available for distribution, what the money in each category can be spent on, and who can claim the money (whether it be local governments, congestion management agencies, or transit operators). Because of this structure, governments and planning organizations are often unable to fund a project that they want.

INVOLVING EVERYONE

Elected officials, staff at transportation agencies, and community members are all involved in the planning process. Although agency staff members are an important part of the decision-making process, they alone should not make moral decisions that affect the community. The community and its representatives must make these decisions. But who is the community?

Frequently the simplest way to identify the community affected by a plan or project is to identify the agency responsible for funding it. The population within that agency's jurisdiction is a good approximation of the community. In the case of a metropolitan planning organization, the community is all of the residents who live or work within the agency's jurisdiction (most of whom contribute, in the form of taxes, to the agency). This large group is a community because it is affected by the agency's policy, not because everyone in the group is in agreement or has the same characteristics. Smaller neighborhoods and groups exist within this larger community and may have distinct needs. If these groups have different desires for a project, it is particularly important that they participate and make their wishes known.

After identifying the community, agencies engage its members in public involvement. These individuals can also be thought of as stakeholders because they have something to gain or lose from the actions of the agency. The aim is to include as many people, with as many backgrounds and transportation

needs, as possible. However, agencies cannot know all of a community's needs. In this case, members of the community can present their ideas at public meetings and to elected officials. The citizens of North Richmond, California, alerted the local transit provider of their unmet needs, which led to the creation of a new bus line. Read more about this case in the text box titled "Responding to Community Needs (II)" on the facing page.

Public involvement can take many forms; some are right for one situation, but not others. Transportation planning is the responsibility of many agencies at many different levels of government and draws funding from many different sources. The box titled "Being Heard" on page 12 gives an overview of the primary agencies involved in transportation decisions. Using this information, you can direct comments to the appropriate agencies and individuals.

All transportation plans require a public comment period when anyone may write, call, e-mail, fax or present his or her opinion in person. When getting involved at this point, it is more effective to address comments to elected officials rather than agency staff because elected officials sit on agency boards and have significant input into what is approved. A signed letter sent to everyone involved is the best way to get on record. It is also possible to be involved by attending and speaking at committee and board meetings. Another form of involvement is to be on a citizen advisory board or committee.

RESPONDING TO COMMUNITY NEEDS (II)

COLLABORATING ON A NEW BUS ROUTE

In the summer of 1997, many residents of North Richmond, California, feared an impending disaster from the looming requirements for welfare reform. Given their severely limited access to jobs and services, transit service was an important component of the success or failure of welfare reform. These residents and their representatives described to AC Transit, the local transit agency, some important problems with the community's bus service. In one instance, the nearest bus route was located at the edge of the community, operated infrequently and stopped for the night at 7 p.m.

In response, AC Transit representatives met with community members to design transportation services for Welfare-to-Work needs. Out of these meetings came a new route, Number 376, which operates from 8 p.m. to 1:30 a.m., seven days a week. The route connects North Richmond and the nearby community of Pacheco 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 also 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.

From *World-Class Transit for the Bay Area*, Transportation and Land Use Coalition, January 2000.

In these activities, citizens encounter a wide range of agency attitudes and approaches to their involvement. Agencies frequently provide details on plans, projects and the agency itself. Distributing information is critical for educating the public but it only allows a very basic level of involvement. With information, community members can have a greater impact when attending meetings and voicing their opinions. The agency's timing, tone, and method of running public meetings are crucial to making the distribution of information a positive step in public involvement. For example, inviting the public to comment on a plan or decision once all or most decisions have been made is a misuse of the process. In such a case, the agency is fulfilling the legal requirement of participation but is not genuinely seeking input; nor is it open to change.

Perhaps the greatest impact a person can have is to be an active member of a board or committee. In this way, citizens share power with staff and elected officials. Real power sharing happens when citizens or groups of citizens can vote on decisions, control some amount of budget or funding, and ensure that their decisions are carried out. Whether this is the case can depend on the agency and the particular committee.

The key to successful involvement is making participation meaningful. Participation is meaningful when public input could change a feature of the project or plan, how the project is evaluated, or how decisions are being made. Most meaningful involvement happens

at the beginning of the planning process—when the objectives and performance measures are chosen.

A community member's ability to influence decisions is more limited once a project has become part of a plan. However, there are still other chances to influence a project in the later stages of the planning process. Some of the mandatory plans that play a big role in the planning process are detailed in the box titled "Required Transportation Plans" on the facing page.

Choosing Alternatives and the Environmental Impact Statement

When a community identifies a transportation need, the responsible agency (e.g. a city, county, or MPO) will explore alternative ways of meeting that need. This is frequently called a major investment study (MIS) or an alternatives analysis. Major investment studies are required by federal law to

"consider the direct and indirect costs of reasonable alternatives and such factors as mobility improvements; social, economic, and environmental effects; safety; operating efficiencies; land use and economic development; financing; and energy consumption." (23 CFR 450.318)

REQUIRED TRANSPORTATION PLANS

The following definitions are adapted from the Metropolitan Transportation Commission, which is the metropolitan planning organization for the San Francisco Bay Area.

The **REGIONAL TRANSPORTATION PLAN (RTP)** is required by state and federal law and is a roadmap to guide the region's transportation development for a 25-year period. Updated every three years to reflect changing conditions and new planning priorities, it is based on projections of growth and travel demand coupled with financial assumptions.

The federally required **TRANSPORTATION IMPROVEMENT PROGRAM (TIP)** is a comprehensive listing of all regional transportation projects that receive federal funds or that are subject to a federally required action, such as a review for impacts on air quality. The metropolitan planning organization prepares and adopts the TIP every two years. By law, the TIP must cover at least a three-year period and contain a priority list of projects grouped by year.

Transit, highway, local roadway, bicycle, and pedestrian investments are included in the TIP. Apart from some improvements to the region's airports, seaports, and privately owned bus and rail facilities, all significant transportation projects in the region are part of the TIP.

Federal legislation requires that both plans include only those projects that the region can afford. Further, if a region is not in compliance with air quality standards the plan must improve air quality.

MIS AND COST-BENEFIT ANALYSIS

Brainstorming in public and committee meetings by members of the public, staff, and consultants identifies the possible alternatives to address a transportation problem or need. After options are identified, there is a systematic method for comparing them, called the cost-benefit analysis, which identifies all of the costs and benefits due to a project and assigns monetary values to them. It allows analysis and decision makers to gauge whether the benefits from a project exceed its costs, and if the benefits make the project worth undertaking. Although this may seem straightforward, it is not. There are many opportunities for value judgments that can distort the process, and there is much debate about how to quantify some types of benefits and costs. Common criticisms of cost-benefit analyses are that:

- *Costs (construction, operation, maintenance, and the like) although generally easier to quantify than benefits (shorter travel times, improved safety, better air quality, and so on), are typically underestimated, especially in the long term.*
- *Many costs and benefits are hard to quantify—for example, the costs of noise that make sitting in the backyard unpleasant, or the costs of speeding traffic that make it dangerous for children and pets to be outside unsupervised, or the benefits of an improvement in neighborhood appearance—and are often left out of typical cost-benefit analyses.*
- *In order to complete the analysis, decision makers have to agree on how to quantify benefits (such as travel time savings) and costs (such as loss of life in traffic accidents).*
- *Even if overall benefits exceed overall costs, there are individuals or groups impacted by the project for whom the costs will exceed the benefits and*
- *Cost-benefit analyses generally do not look at the distribution of benefits and costs, which is a key issue in environmental justice.*

Even though the cost-benefit analysis takes place within a technical framework, it is inherently political and can be influenced by people involved in the evaluation of a project (politicians, agency staff, or members of the general public).

Irrespective of the name given to this step, it is a key opportunity for public involvement because the impacts of alternatives vary widely. More details on how these decisions are made are given in the text box, "MIS and the Cost-Benefit Analysis" on the facing page.

Here is an example of a transportation need and alternative solutions. A freeway connecting two cities has become congested, and the metropolitan planning organization has identified reducing congestion as a need that its transportation plan should address. Alternatives to reduce congestion might include turning one of the existing lanes on the freeway into a carpool lane, adding a general-use lane to the freeway, adding a carpool lane, increasing express bus service on the freeway, or building a rail line parallel to the freeway. Each of these alternatives will distribute benefits and burdens differently, for a given cost.

After choosing the locally preferred alternative, how that alternative could be built is explored in more detail. This step examines things like where exactly the project might be built, what technology is used (e.g. bus, commuter rail, or light rail), and what different designs might look like. This is also the point at which the environmental impacts of these more specific alternatives are examined. If an agency doesn't believe that the project will have significant negative environmental impacts, it may choose to produce an Environmental Assessment. After the analysis, if the effects are found to be significant, an agency must prepare the more detailed Environmental Impact Statement (EIS).

Alternatively, if the impacts are not significant, the agency can file a Finding of No Significant Impact to satisfy federal environmental requirements. The federal requirements of an EIS are discussed in the text box titled, "The Environmental Impact Statement" on page 24. However, some states' requirements are more stringent, such as California's under the state Environmental Quality Act (CEQA).

Questioning the accuracy and validity of an MIS (or equivalent) or an EIS is one of the most powerful ways for individuals and communities to prevent projects from being built, to achieve major changes in project design, or to receive compensation to offset burdens from a project. When the explicit requirements of these studies aren't followed, federal funding can be revoked—delaying or completely stopping a project.

Compensation for project burdens in each alternative of an EIS is called mitigation. Mitigation may address specific problems caused by a project, such as paying to soundproof houses near an airport, or it may compensate a community in a different way, such as funding a health care clinic. Even though these steps are taken to offset certain impacts, they don't negate the fact that a community is being subjected to them. Environmental justice requires that specific neighborhoods, ethnic groups, and demographic groups don't bear these burdens repeatedly, even if mitigation measures are incorporated in plans for a project.

THE ENVIRONMENTAL IMPACT STATEMENT

The following are the basic steps in preparing an EIS based on "Final Guidance For Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses, April 1998," which is a comprehensive discussion of NEPA and environmental justice requirements that was produced by the U.S. Environmental Protection Agency:

SCOPING is the first step when an agency must file an EIS and is the first opportunity for public input into the EIS. At this stage, the lead agency invites representatives from all government agencies that might be involved, the project's supporters, and interested members of the public to a meeting to identify all of the issues involved with the project that could have a significant impact. Alternatives for a project can be developed at this stage. These meetings are advertised in local newspapers and on the lead agency's Web site, and announcements are sent to people who have been involved with the agency's activities in the past or are on their mailing list. Getting on this mailing list is a good way to hear about scoping sessions and other public meetings.

DRAFT EIS is the first document produced; it discusses the impact of each alternative on the human and natural environment and how serious the impacts are. In cases where the effects of a project are significant but they can be reduced, a mitigation strategy is presented. The draft is circulated to all involved parties, interested individuals and organizations, and is available to the public at libraries and other public offices.

PUBLIC COMMENT is the second major opportunity for public involvement in the EIS process. Here, stakeholders or members of the general public can voice concerns with the technical analyses, the elimination or inclusion of specific alternatives, mitigation strategies, or anything else addressed in the Draft EIS. Comments can be made in writing to the lead agency or orally at a public hearing. This comment period lasts for 180 days from the time the draft is issued.

RESPONSE TO COMMENTS All comments on a draft EIS must be addressed either by modifying an alternative, developing and evaluating additional alternatives, improving the analysis, making corrections, or documenting why no action was taken.

FINAL EIS is the resulting document after all comments on the draft EIS have been addressed.

An important aspect for citizens to know about the EIS is that in order to bring a court suit challenging a particular project or plan, a person must have submitted comments during the period of public comment.

In order to change or stop a project, community members have to get involved by attending public hearings, making comments, or ultimately taking an agency to court. It is hoped that legal battles can be avoided through the involvement of multiple stakeholders working together and shaping a project to benefit their diverse interests.

CONCLUSIONS

Definitions of environmental justice abound, but the goal of environmental justice is unchanging: to foster a more just and equitable society. It is this spirit that should guide the discussion and implementation of environmental justice in transportation policies.

This handbook identified points in the planning process at which citizen involvement is particularly effective and discussed various approaches to environmental justice. Incorporating these approaches into policies and projects will ensure that the spirit of the law is met. Knowing how decisions are made will help citizens participate effectively; being involved is the first step to fostering a more just and equitable society.

FURTHER READINGS

Robert D. Bullard and Glenn S. Johnson. *Just Transportation*. Gabriola Island, British Columbia: New Society Publishers, 1997.

David J. Forkenbrock and Lisa A. Schweitzer. "Environmental Justice and Transportation Planning" *Journal of the American Planning Association*, Vol. 65, No. 1 (Winter 1999), pp. 96-111.

David J. Forkenbrock and Glen E. Weisbrod. *Guidebook for Estimating the Social and Economic Effects of Transportation Projects*. National Cooperative Highway Research Program Report 456. Washington, DC: National Academy Press, 2001.

Susan Hanson, ed. *The Geography of Urban Transportation*, 2nd Edition. New York: Guilford, 1995.

Michael D. Meyer and Eric J. Miller. *Urban Transportation Planning: A Decision-Oriented Approach*, 2nd Edition. New York: McGraw Hill, 2001.

Transportation Research Board. *Refocusing Transportation Planning for the 21st Century: Proceeding of Two Conferences*. Washington, DC: National Research Council, National Academy Press, 2000.

USEFUL INTERNET LINKS

Environmental Justice: A Citizen's Handbook can be viewed and downloaded for free on the Web site of the Institute of Transportation Studies at the University of California, Berkeley, at the URL listed here. It also can be ordered in hard copy for a nominal charge or for free, based on ability to pay (see ordering information on the back cover).

<http://www.its.berkeley.edu/publications/ejhandbook/ejhandbook.html>

Title Six (VI) Legal Manual from the Civil Rights Division of the U.S. Department of Justice is available online.

http://www.usdoj.gov/crt/grants_statutes/legalman.html

Considering Cumulative Effects Under the National Environmental Policy Act (NEPA), Council on Environmental Quality, January 1997. A handbook for any interested parties that outlines general principles, and describes ways to analyze cumulative effects.

<http://ceq.eh.doe.gov/nepa/ccenepa/ccenepa.htm>

Environmental Justice: Guidance Under the National Environmental Policy Act (NEPA), Council on Environmental Quality, December 1997. A handbook created to guide federal agencies in their compliance with Executive Order 12898 with information helpful to lay readers.

<http://ceq.eh.doe.gov/nepa/regs/ej/justice.pdf>